

**University of Bahrain
College of Business Administration
Department of Economics & Finance**



Sustainability and Performance: The Case of MENA Region

**A Thesis Submitted in Partial Fulfillment of the Requirements
for the Master's Degree in Finance**

**Submitted by
Ahmed Jawad Ahmed
ID: 20162500**

**Supervised by
Dr. Yomna Abdulla
University of Bahrain**

**Kingdom of Bahrain
June 2023**

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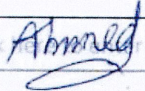
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Abstract

Purpose- ESG has been widely adapted by firms and countries due to the demand of shareholders for more transparency on environmental, social, and governance (ESG) issues. This study aims to investigate the relationship between ESG and the performance of firms in the MENA region. The study also examined the effect of the financial crisis and that of COVID-19 on the relationship between ESG and firm performance. Moreover, the study checked the effect of the models on ESG in the long-term.

Methodology- This study examines 200 firms listed on the stock exchanges of MENA countries over a period of 15 years (2006-2021). The study specifies the years (2007-2008) as financial crisis years and the years (2020-2021) as the COVID-19 era. The independent variables are ROA, ROE, and Tobin's Q. This study uses firm-specific control variables in the models.

Findings- The focus of the study is to find the relationship between sustainability and performance in non-financial firms. In the main regression, the study found a negative significant effect of ESG on firm performance in the ROA model. However, it found a positive significant effect on firm performance in Tobin's Q model. Size has a negative significant effect on firm performance in Tobin's Q model. Economic growth had a positive significant effect on the ROA model. Leverage had a negative significant effect on firm performance in the ROA model and a positive significant effect on Tobin's Q model. Market-to-book ratio had a negative significant effect on the ROE model.

In the crisis period, ESG had a negative significant effect on firm performance in Tobin's Q model. Leverage had a negative significant effect on firm performance in the ROA model and a positive effect on Tobin's Q model. ESG had a negative significant effect on firm performance in ROA model and positive effect on Tobin's

Q model. Economic growth had a positive effect on firm performance in the ROA model. The crisis had a positive effect on firm performance in the ROA model. The interaction variable which is the ESG in the crisis period found a negative effect on firm performance.

In the COVID-19 period, ESG had a negative significant effect on firm performance in the ROA model and positive significant effect in Tobin's Q model. Size had a negative significant effect on firm performance in Tobin's Q model. Leverage had a negative significant effect on firm performance in the ROA model and a positive significant effect in Tobin's Q model. Economic growth had a positive significant effect on firm performance in the ROA model. The market-to-book ratio had a negative significant effect on firm performance in the ROE model. COVID had a negative significant effect on firm performance in the ROA model. The interaction variable which is the ESG in the COVID period found a positive significant effect on firm performance in Tobin's Q model.

Value- The study fills a gap in the literature by studying the effect of sustainability in non-financial MENA firms. It also contributes to the trendy topic of ESG which is of interest to various stakeholders.

Keywords- ESG, Corporate social responsibility, performance, MENA countries

Dedication

This thesis is dedicated to my father and mother for their inspiration and help in completing this work. May Allah gives them all strength and health.

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I would like to take this opportunity to thank Allah for being my first and only strength and support all the time. This work could not have been achieved without Allah's grace.

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List of Abbreviations

CSR: Corporate Social Responsibility

CFP: Corporate Financial Performance

ESG: Environmental, Social, Governance

MENA: Middle East and North Africa

PLC: Public-Limited Companies

LEV: Leverage

MB: Market-to-Book value

R&D: Research and Development

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1. Introduction

1.1. Introduction

This chapter focuses on the introduction to the research, the statement of the problem, the research objectives, the research questions, the research hypotheses, the significance of the study, and the scope and limitations of the study.

The intensity of the global financial crisis and the European sovereign debt crisis brought to light Corporate Social Responsibility (CSR) practices that require greater awareness and transparency from all market participants and stakeholders. Crises and events of market failure have disturbed corporate norms and standards and implemented new ones to ensure the survival and elasticity of organizations (Elali, 2021). The need to recognize and address environmental, social, and corporate governance (ESG) issues has increased as some major companies have experienced bad scandals as a result of careless social and environmental policies (WBCSD & UNEPFI, 2010; Eliwa, Aboud, & Saleh, 2021).

Extra-financial analysis, mainly rating and comparing ESG practices among companies, has been important in the current context in modern finance and world economy. Extra-financial rating agencies assess that some extra financial scores have affected environmental, social, and governance performance (ESG score). These scores are integrated with financial scores to increase transparency and for risk assessment. Financial reports are not sufficient to meet the needs of shareholders. Intellectual capital statements, value reporting, and sustainability reports are required (Wulf & Adams, 2014). Non-financial information is considered as crucial as financial data nowadays due to its affecting investment decisions (Hoffmann & Fieseler, 2012). Focusing on a number of ESG issues serves to create sustainable businesses which integrate managers and directors, things that cannot be ignored.

Investors, managers, and sovereign funds are increasing their investment in socially responsible companies (Social Investment Forum (SIF), 2018). The increased attention of corporate exposure to environmental factors, social practices, and governance issues affects long-term sustainability and performance of public and private listed companies. To enhance performance, companies integrate strategies and governance activities to attract investors. ESG disclosure helps investors to perform a more accurate valuation and make better investment decisions. Moreover, to assist the fundamentals of pricing and business models, business leaders need to think of ways to avoid systematic shocks and improve economic growth and stability (WBCSD & UNEPFI, 2010).

During the last 20 years, there has been a growth in social and environmental issues in business models. ESG reporting is the disclosure of social, environmental, and corporate governance data. The purpose of such reports is to shed the light on a company's ESG activities and improve investor transparency and inspire other firms to do the same. The report summarizes the qualitative and quantitative benefits of a company's ESG activities. Investors align investments to their values, and avoid the risk of environmental damage, social misstep, or corruption.

Disclosure and transparency are the main requirements to ensure the soundness and effectiveness of corporate governance. Businesses go beyond financial statements for several reasons (Kribat et al., 2013). First, financial reports are trustworthy sources of information. Second, earnings and profitability alone are not enough information to value a business. Transparency of ESG information and disclosure strengthen the corporate sustainability performance (Alsayegh et al., 2020) and ESG information has an impact on the market value of the company (Fatemi et al. 2018). The availability of laws and regulations are required to organize and identify the disclosed material for ESG. Most countries around the world do not have regulations

that regulate ESG practices. ESG rating agencies (FTSE, Refinitiv, Bloomberg, S&P, etc.) measure ESG risks for the benefit of both investors and shareholders. Third-party providers assess firms' ESG performance (Berg et al., 2022), which ESG metrics is the proxy for sustainable performance (Widyawati, 2020), and have key reference in the financial markets (Escrig-Olmedo et al., 2019). The strengths and shortcomings are increasingly becoming an interest of academics and practitioners. Authors have explained that performance and risk are different constructors (Semenova & Hassel, 2015) and questioned the rigorousness of ESG rating agencies' evaluating the corporate sustainability risks (Boiral & Heras-Saizarbitoria, 2020). An ESG rating agency identifies the financial ESG risks that may affect sustainable investment (SI) that could improve the transition economy.

Governments should be faster in disclosing ESG information for more transparency to increase investors' confidence and attract capital inflows to the country (Alareeni & Hamdan, 2020). Five MENA economies are listed on JP Morgan's Emerging Market Bond Index. These include Saudi Arabia, UAE, Qatar, Bahrain, and Kuwait (CFA Institute, 2019).

Firms often involved the integration of ESG objectives in various functional areas. Firms advertise their Corporate Social Responsibility (CSR) activities in formal reports as many studies emphasize the role that ESG has played toward firms' and banks' reputations, public perception and financial performance. Wu and Shen (2013), concluded that the relationship which results is a positive one.

1.2. Statement of the problem

A financial report by itself is insufficient to satisfy shareholders' needs. There is a need for further intellectual capital statements, value reporting, and sustainability reports (Wulf & Adams, 2014). According to the resource-based perspective, companies perform better when they share both their financial and non-financial resources. These tools aid businesses in acquiring the skills and knowledge necessary for long-term competitive advantage (Gaur, Vasudevan, & Gaur, 2011). ESG might affect firm performance. Therefore, studying ESG is highly important for investors and managers.

1.3. Research objectives

The main objective of the study is to investigate the relationship between ESG on the performance of non-financial listed firms in MENA countries for the period 2006-2021. Additionally, the study investigates the effect of the financial crisis in 2007-2008 on this relationship. The financial crisis of 2007-2008 witnessed the largest single-week stock market decline which resulted in economic slowdown and reduced the environmental degradation. The study also investigates the effect of COVID-19 on the relationship between ESG and performance. The COVID-19 era is considered the second largest global recession in recent history.

1.4. Research questions

- 1- How does ESG influence firm performance?
- 2- What is the effect of the financial crisis and COVID-19 crisis on the relationship between ESG and firm performance?

1.5. Significance of the study

Studying sustainability offers longitudinal qualitative and quantitative information. Firms can use this study to meet the demand of shareholders with ESG interest. The study focuses on the effect of ESG reporting and sustainability on performance. It is believed that encouraging sustainability reporting and ESG disclosure will benefit firms and shareholders. The importance of ESG is in increasing transparency, leading to external and internal decision-making, and enforcing financial stability (Eccles et al., 2015). Adams (2017) suggests that more transparency affects financial performance by showing links between financial performance and ESG. Steyn (2014) argues that that sustainability reporting implements better financial performance.

In unique frameworks to fill the gaps, this study examines the sustainability of non-financial firms in the MENA region which is ignored by the literature, most of which is focused on the effect of ESG on the performance of banks.

1.6. Conclusion

This chapter provided the aim of the study and overview of the plan of the study and why it should be conducted. The study is divided into the following sections. Section 2 reviews the literature and develops the hypotheses. Section 3 details the design and research methodology. Section 4 lists the results and offers an empirical analysis. Section 5 presents the conclusion, implications, and limitations.

2. Literature review

2.1. Introduction

This chapter reviews the relevant literature dealing with the theories and empirical studies central to the research. This chapter is the base for choosing the dependent, control, and independent variables, and formulating hypotheses.

2.2. Theoretical background

ESG has become a topic for debate not only for researchers but also for practitioners and standard setters (Usman & Amran, 2015). A growing body of literature has studied the impact of ESG on firm performance (Barnett & Salomon, 2012; Han, Kim, & Yu, 2016). Recent literature delivers mixed results on the effectiveness of CSR in enhancing firms' performance (e.g. (Oikonomou et al., 2012; Albertini, 2013; Dixon-Fowler et al., 2013; Friede et al., 2015).

2.2.1. Sustainability

The concept of sustainability for businesses is the ability to survive for a long period of time (Giovannoni & Fabietti, 2013). The terms and concepts of sustainability and ESG differ from each other. In the literature, the two terms are often used simultaneously. But they are not quite the same thing. Sustainability means any efforts by a firm to do well by doing good. Therefore, it is a wider term. On the other hand, ESG is defined as environmental, social, and governance metrics. It is the preferred term for capital markets.

The current world economy is developing new types of analysis and accessing extra financial scores based on environmental, social, and governance (ESG scores) of the company to increase the reliability and accuracy in performance and risk assessment. Sustainability reporting refers to the disclosure of non-financial performance information to the public. Sustainability reports contain information on a firm's

commitment to environmental issues, human rights, ethics, etc. showing the firm's responsibility towards society and how these activities affect society. Sustainability reporting leads to better internal and external decision-making, greater transparency, and promotes financial stability due to ESG disclosure for the benefit of the firm and the stakeholders (Eccles et al., 2015). Eccles et al. (2015) stated that ESG sustainability reporting is an integrated report which truly summarizes features of an integral part of corporate strategy and performance because of connectivity of information and covering the six International Integrated Reporting Concepts (IIRC), which are financial, manufactured, intellectual, human, social and relationship, and natural capital. However, organizations are not required to adopt this structure in their report along the lines of their capital. The primary purpose of the integrated report is to explain to capital providers how the organization creates value. This clarifies ESG risks and opportunities facing the company.

2.2.2. Sustainable Investment (SI)

ESG is an important concept for investors who engage in sustainable investment. Nowadays, the concept of sustainable investment is related to similar terms such as Socially Responsible Investment (SRI), Responsible Investment (RI), Ethical Investment (EI) or Impact Investment (II) (Talan & Sharma, 2019). SRI investing is based on ethical guidelines, where risk and returns are identified through analysis of ESG issues. An example of SRI is avoiding investing in “sinful” industries such as gambling, tobacco, and alcohol. SI investment can be distinguished from traditional investment in two ways. First, SI requires a long-term perspective. Second, SI requires that investors take into account factors other than mere financial performance (The PRI is World's Leading Proponent of Investment , 2018).

2.2.3. The relationship between ESG and Firm performance

The requirement of socially responsible activities among stakeholders are in a rising level. Taking into consideration that CSR activities affect firms' performance, and ESG practices are part of these activities. Researchers demonstrate that not only ESG disclosure as whole but also its single three pillars have different or relevant impact on the firm performance. Most of researchers such as Carnini Pulino et al. (2022) conclude a positive relationship between ESG and firm performance. Cek & Eyupoglu (2020) show that the reason behind the positive relationship between ESG and firm performance because of the value generated for shareholders in the long run.

2.3. Theoretical studies

The topic of how ESG variables impact a company's financial performance is still up for debate. Many studies find conflicting results.

2.3.1. Neoclassical theory

According to the neoclassical theory, businesses exist to increase owners' wealth. Friedman's (1970) neoclassical theory suggests that a company's highest social obligation is to maximize financial returns for shareholders. Starting with the neoclassical economics theory, the understanding of the relationship between ESG and financial performance was initially negative (Wright & Ferris, 1997). The underlying theory reached the conclusion that behavioral activities influence management and economics, from which the supply and demand model's assumptions about production, consumption, and valuation are created. Therefore, human behavior has an impact on performance. The assumption argues that maximizing owner profits is the company's main social responsibility and that the payoffs of ESG initiatives must not exceed their costs (Friedman, 1970). Therefore, the only factors that matter most for an economy to thrive are the financial and economic results. Recently, a lot of articles have argued that acting with social responsibility improves performance and business value (Fatemi, Fooladi, & Tehranian, 2015; Malik, 2015).

2.3.2. Stakeholder theory

Stakeholders are the key element of a business external environment (Freeman R. , 1984). The theory assumes that stakeholders are diverse, and they have their own expectations regarding a business's activities. Firms strive to meet stakeholders' expectations and accountability. Jones (1995) extended stakeholder theory to "instrumental stakeholder theory", stating that satisfying a group of shareholders is instrumental to a company's performance. Friedman (1970) argue that the main responsibility of managers and corporations is to increase social welfare regardless of the issue at hand, whether it be discrimination, pollution, or something else. Managers are always responsible for acting for the long-term interests of the shareholders and, when the CSR comes at the expense of the shareholders, that may force management to reduce attention to CSR. He emphasizes the concept of agency in arguing that a manager's most direct obligation is to conduct business in accordance with the desires of shareholders.

Stakeholder theory originates from the legitimacy theory and focuses on ~~the~~ opportunistic managerial behavior. The theory states that ~~the~~ managers may improve sustainability scores for the sake of their own reputation as a responsible social citizen (Barnea & Rubin, 2010). This view represents a positive prediction in overinvestment due to managerial entrenchment. Drucker, 1984; Kramer & Porter, 2011 stated that CSR bring economic benefits, as well as gaining competitive advantage (Fifka & Drabble, 2012) and maximizing shareholders' wealth (Bae, Masud, & Kim, 2018). Buallay, Fadel, Al-Ajmi, & Saudagaran (2020) stated that legitimacy theory focuses on the interest of society while theory assumes that ~~the~~ firms are accountable to parties other than owners to reduce information asymmetry and information cost to investors to enhance CSR information.

The framework of stakeholder theory is built on the idea that the firm is socially responsible for satisfying the interests of the non-owner stakeholders (e.g. employees, debtors, customers, and regulators). The “Stakeholder Value Creation Chain” is a model developed to illustrate the intersection of ESG strategy, the stakeholder model, and the creation of firm value. This theory's framework and model accurately depict how stakeholders influence a company's success. The fact that the employees work for environmentally friendly businesses is an illustration of a positive externality.

Many scholars argue that companies can do well by doing good (Kramer & Porter, 2011). This is based on the assumption that meeting the needs of shareholders, for example, training employees, creates value for shareholders (Freeman, et al., 2010; Kramer & Porter, 2011). This indicates a positive relationship between ESG and performance in relation to shareholder theory. Not meeting customer needs may destroy the shareholders' value because of customers boycotting (San et. al, 2001) and also the firms' inability to hire talented people (Greening & Turban, 2000). However, many scholars have said that implementing Environmental and Social policies can destroy shareholders' wealth (Friedman, 1970). This indicates a negative relationship between ESG and performance in relation to shareholder theory. For instance, the concept of “greenwashing” or “cheap talk” shows that many firms represent themselves as sustainable by providing false or misleading information about their policies.

2.3.3. Agency theory

Agency theory refers to the issue of conflict in the relationship between business principals and their agents. The theory is consistent with the neoclassical economic theory in that firms exist to generate wealth for their owners. Therefore, taking resources away from businesses and shareholders lowers their worth. By reducing agency and transaction costs, firms can improve relationships between principals and agents. The theory suggests a positive correlation between ESG and performance and a firm's value (Von Wallis & Klein, 2015). Agency theory also explains the expectation of firm size and ESG disclosures. Larger firms tend to disclose more information to reduce the information asymmetry. Large firms tend to have higher agency costs because of higher information asymmetry between managers and shareholders. The agency costs increase the amount of outside capital.

2.3.4. Institutional theory

The political, social, and business environmental background in a country influence how an organization is formed and operated (Amenta & Ramsey, 2010). Institutional theory helps corporate social responsibility studies to predict the motivation for companies to adopt responsible practices. CSR practices are similar between companies and organizations in the same country because of the country's norms and regulations (Fernando & Lawrence, 2014). Companies adopt CSR practices to meet the common value and belief of the society. The strong regulatory system plays a role in influencing the way that companies report social and ethical activities. The significance of laws, regulations by the state, industrial self-regulation, Non-governmental Organizations (NGOs), and other independent bodies is that they help in enforcing social responsibilities within an organization (Campbell, 2006). In support of this, Campbell (2006) argues that the social structure and culture influence the social responsibilities among organizations. Institutional diversity exists across countries because of diverse national settings and backgrounds. Brower & Dacin (2020) draw a sample of all S&P 500 firms to examine the effect of corporate social performance on corporate financial performance from an institutional perspective. The findings suggest that the efforts to discover the relationship are missing a contextual effect. Other studies like Flammer (2013) found abnormal returns, significant and positive over the three decades in companies that invest in environmental CSR.

2.3.5. Legitimacy theory

Social scientists have identified legitimacy by several definitions with varying degrees of specificity. Dowling & Pfeffer (1975) defines legitimacy as the process where an organization justifies its right to exist within the superordinate system. Their view of legitimacy is accordance between the social values associated with or implied by organizational activities and norms of acceptable behavior in the larger social system. Meyer & Scott (1983) explains legitimacy as stemming from congruence between the organization and its cultural environment.

The disclosure of CSR information comes in response to societal pressure (Honger, 1982). The theory assumes that reporting CSR is the way to justify stakeholders' activities and inform them about sustainability. Reporting CSR ensures commitment to a community's interests. Dowling & Pfeffer (1975) argue that ~~the~~ legitimacy theory dictates that for a corporation to continue to exist it must act in accordance with a society's values and norms. Organizations seek legitimacy to differentiate between continuing stability and pursuing creditability. Also, there is a distinction between passive support and active support. Usually, organizations wish to avoid audience intervention. However, organizations sometimes seek ~~for~~ audience intervention against other entities with competing cadres. Generally, the effectiveness of legitimation depends on the objectives measured against efforts. Legitimacy reflects institutional beliefs.

Two theoretical concepts establish the relationship between sustainability performance and sustainability disclosure. First, voluntary disclosure theory suggests that sustainability acts as an incentive to disclose information regarding performance and this suggest a positive relationship between sustainability performance and the quantity of sustainability disclosure. Second, the legitimacy theory suggests that companies' sustainability disclosure improves public perception

of their sustainability performance (Deegan, 2002). Therefore, the theory interprets a negative relationship (Cho, Freedman, & Patten, 2012). However, Clarkson, Li, Richardson, & Vasvari (2008) concluded that there is a positive relationship between environmental performance and environmental disclosure by application of legitimacy theory.

Legitimacy theory states that firms' activities reflect the society's values and norms. The underlying theory is the social contract between the company and community where the firm operates and uses economic resources (Davis, 1973). The theory suggests a positive relationship between ESG and Corporate Financial Performance (CFP) (Bénabou & Tirole, 2010). There is unlikely to be a positive relationship between ESG and CFP in the case of ESG being motivated by the interest of top management due to corporate governance and agency concerns (Bénabou & Tirole, 2010). Agency theory used to design incentives of agent considering his interests to motivate agent to act. Incentives encourage wrong behavior.

2.3.6. Signaling theory

The concept of signaling theory focuses on the role of information in business transaction. Managers pay attention to this theory to reduce information asymmetry by sharing voluntary information with external shareholders (Yekini & Jallow, 2012; Hahn & Kühnen, 2013). Moreover, companies invest their financial resources to disclose favorable information about their sustainability commitments to shareholders with information that cannot be traced anywhere else (Taj, 2016 ; Wang & Sarkis, 2017; Wang, Hsieh, & Sarkis, 2018)

Signaling theory is useful to describe the behavior when two parties (individuals and organizations) have access to different information. The theory holds a prominent position in a variety of management literature. One party (sender) sends a signal of information to other party (receiver) who interpret the signal. Four primary aspects describe signaling theory, which are, signal, signaler, receiver, and feedback. The signaler (which represents the offending firm) sends a signal to receivers (affected customers), who provide feedback from their perspective and behavior. The signaler has inside information regarding the relationship violation and the firm's plans for resolving the issue, and whether/how they will communicate this to their customer. The information affects the decision-making by receivers, who make decisions based on public information, which is freely available, and private information which is available to only a subset of the public.

Signals are intentional messages by the firm to the receiving parties to reduce information asymmetry (Connelly, Certo, Ireland, & Reutzel, 2011). Bergh & Gibbons (2011) reported two conditions to ensure the signal is effective. First, signals must be costly to differentiate signalers from one another. Second, signals should be credible, which means receivers must perceive that there is a positive correlation between the signal and the signaler's actual capabilities.

Many authors (Taj, 2016 ; Ching, Gerab, & Toste, 2017) have stated that managers disclose their long-term ESG and sustainability initiatives and contribution as a signal to society, environment, and stakeholder. Both agency theory and signaling theory suggests that the firms will be punished if they are not behaving responsibly. The effect of the punishment by the market is performance, namely a decrease in sales and earnings. Carnini Pulino, Ciaburri, Magnanelli, & Nasta (2022) studied the effect of ESG disclosure on firm performance among European large companies within agency and signaling theory frameworks for 10 years starting from 2011 to 2020. The results support the positive relationship between ESG disclosure and firm performance, which motivates managers to invest in ESG activities.

2.3.7. Triple bottom line approach

In addition to financial reporting, corporate social and environmental reporting has received attention by researchers regarding practices by focusing on annual reports and disclosures. The triple bottom line aims to measure financial, social, and environmental performance of a firm over time to gain long-term operational efficiencies.

Modern concepts of performance are based on value creation for all shareholders using the triple bottom line approach introduced by (Elkington, 1997). “The approach is based on three pillars:

- 1- Economic: The economic line of TBL framework refers to the impact of the organization’s business practices on the economic system.
- 2- Social: The social line of TBL refers to conducting beneficial and fair business practices to the labor, human capital, and to the community.
- 3- Environmental: The environmental line of TBL refers to engaging in practices that do not compromise the environmental resources for future generations.”

2.3.8. Capital structure theory

Capital structure theory is the mix of debt and equity used to finance assets used by the company. ESG disclosure is a result of the firm’s greenhouse emission policies and environmental sustainability that influence their investments and financing decisions. The researcher in his study used a sample of ASEAN firms and examined how ESG pillars affect leverage. The result was that ESG score increase book leverage and it has a positive impact on value creation to shareholders (Fuadah et al. , 2022).

2.3.9. Summary of the theories

Theory	Predicted relationship	Reference
Neoclassical theory	+	Fatemi et al. (2015), (Malik, 2015)
Shareholder theory	+	(Kramer & Porter, 2011), (Freeman et al., 2010)
	-	(Friedman, 1970)
Agency Theory	+	(Von Wallis & Klein, 2015)
Institutional theory	+	(Flammer, 2013)
Legitimacy theory	+	Clarkson et al. (2008)
	-	Cho et al. (2012)
Signaling theory	+	Carnini Pulino et al. (2022)
Triple bottom line approach	+	(Elkington, 1997)
Capital structure theory	+	(Fuadah et al. , 2022)

Table 2.1. Summary of the theories

2.4. Empirical studies

2.4.1. ESG in worldwide countries

For over five decades, the association between ESG initiatives and corporate financial performance remains a debate among researchers due to the mixed results of either positive, negative, or insignificant effect.

Ehsan & Kaleem (2012) investigated the relationship between CSR disclosure and corporate financial performance in non-financial sectors of Pakistan. They have found a positive relationship between the two for the period 2006 to 2009. Moreover, Iqbal, Ahmad, Sheeraz, & Bashir (2012) found a positive relationship between CSR disclosure and firm performance in chemical, cement, textile, and tobacco sectors of Pakistan.

Eccles et al. (2014) investigate the effect of corporate sustainability on organizational performance in 180 US companies. The aim of the study is to find the effect of corporate sustainability on organizational processes and performance. The study divided the companies into high sustainability and low sustainability companies. The study found that high sustainability companies have higher transparency and accountability. They are also more likely to integrate environmental and social information with their financial reporting. The study found that sustainable firms also perform better when considering accounting rates of return such as ROA and ROE. High sustainable firms are more likely have established processes for stakeholder engagement. The study also found that the market underestimated the future profitability of high sustainable firms compared to the low sustainable ones. However, they are significantly outperforming their counterparts over the long term.

Farooq (2015) studied the relationship between ESG disclosure and firm performance in emerging markets to distinguish between financial centers and non-financial centers. Data was taken in the period 2005 to 2010 for firms in India. To answer these questions the study divided the ESG data obtained from Bloomberg into two categories to test the model. The first category are firms headquartered in Mumbai and the second category is firms elsewhere. The study tested hypotheses to answer three important questions. The first question to find if the non-financial disclosure related to ESG. The answer was no. The second question to find whether the firm performance is important in emerging markets. The answer was that the emerging markets ESG disclosure has a negative impact on firm performance. The third question is the ESG disclosure extent information asymmetry to react to the stock market. The answer was no significant impact of ESG disclosure on firms' performance with higher information asymmetries. Headquartered elsewhere, the results indicate uniformity in ESG disclosure across firms into both groups.

Several studies (Baloch et al., 2015; Iqbal, et al., 2014; Bagh et al., 2017) examined the relationship between CSR and financial sector performance of Pakistan. Baloch et al. (2015) found that the relationship of social responsibility and firm performance are positively correlated, and CSR increases the productivity of Pakistan financial firms.

Bagh et al. (2017) investigated the relationship between CSR disclosure and corporate firm performance. The study used a set of data between 2006 to 2015 on 30 financial firms. The results conclude that there is a positive association between CSR disclosure and all performance measures (ROA, ROE, EPS) in the financial sector of Pakistan.

Ting et al. (2019) investigated the corporate social responsibility and firm performance by way of a comparison study among developed and emerging markets.

The study focuses on the impact of ESG initiatives on financial performance. The sample contains 1317 emerging market firms and 3569 developed market firms. Into three pillar scores, the study divided the components of the ESG score. Three models were adapted to examine the ESG initiatives and controversies using three different dependent variables: Return on Equity (ROE) as a measure of the operating performance in terms of profitability; Price-to-earnings ratio (P/E) as a measure of valuation that represents the earnings potential of the firm; and Tobin's Q as a measure for analyzing the valuation effects of the relationship between a firm and its shareholders. The ESG data was categorized into 10 categories and 23 controversy measures included in the controversy category. The control variables used in the study are the financial characteristics of the firm and governance variables which are dividend yield, leverage measure of debt to equity (D/E), debt to total assets, sales growth, R&D intensity, CAPEX intensity, advertisement intensity, and size. The study finds that emerging markets had higher initiatives in resource use, human rights, workforce, and CSR strategies. However, developed markets had higher initiatives in community scores, contributing to business ethics and public health. In ROE and Tobin's Q models, the study observes that ESG initiatives have a positive impact on the firm. Also, shareholders initiatives have a positive impact on valuation effects. However, firms with higher environmental initiatives improve the shareholders wealth. While in Tobin's Q model, the firm's social initiatives lead to create valuation. Also, in the governance aspect Tobin's Q and ROE models result in higher valuation.

A macro-economic orientation provides the frame of the ESG-Corporate Financial Performance (CFP) relationship. Linnenluecke et al. (2018) introduced methodology to estimate the "legal looting" in the fossil fuel industry in the US to examine the unpaid social cost of carbon. The methodology used combines decisions in the form

of policy makers setting carbon taxes and rational investors investing in carbon emissions markets. The unpaid social cost averaged US\$5.8 trillion in the period 1995-2013 owing to the growing impact of market failure. On the industrial side, carbon dioxide (CO₂) is the main driver of climate change. A stakeholder theory encompasses the scope of firm governance. Firm governance is regarded as an institution to balance the rights and responsibilities of economic actors to society (Mayer, 2021). The issue at the core of losing is that profits are privatized while losses are socialized, acting as a moral hazard by undertaking risky investments without paying the full amount of losses and damages to the society (Kahn & Winton, 2004).

Ahmad et al. (2023) studied the impact of the financial crisis on firm performance in the United Kingdom with ESG in a moderating role. The study used the dummy variable Global Financial Crisis (GFC) takes value = 1 for the crisis period (2007-2010 as the paper specifies), and value = 0 otherwise. Firms used CSR as a long-term marketing tool to minimize the impact of the financial crisis. The study investigated how quantitative factors impact on firm performance. Firm size moderates the relationship between GFC and firm performance. The main important results found were that the ESG of firms reduced in GFC and that firm size is a moderator in the relationship. The results also found a negative and significant relationship between GFC and firm performance. Lins et al. (2017) found that firms with higher CSR responsibility showed higher financial performance by using ROA as an indicator of firm performance.

Hwang et al. (2021) studies the effect of ESG activities on financial performance during the COVID-19 pandemic. According to the paper, the main important difference between the financial crisis and COVID-19 is that the pandemic was caused by factors outside the economy. The data used in the study is the first quarter

of 2020 in South Korea. The results showed that financial performance measured by ROA fell sharply in the first quarter of 2020. The results show that firms with higher ESG activities had lower decline compared to other firms. The higher the ESG, the lower the earnings volatility. The study concluded that larger size firms have better earnings than others. Moreover, ESG firms have better performance than non-ESG firms. The ROA and ESG are insignificant when COVID-19 is zero. COVID-19 was significantly negative. However, ESG and performance were significantly positive with interaction to COVID-19.

2.4.2. ESG in MENA counties

Balatbat et al. (2012) stated that the relationships between financial performance and ESG for one- or two-year lags are not clear. The effect of disclosure is more accurate and relevant in the long-term period. The study also stated that weak legislative countries such as Denmark provide more sufficient disclosure because of the low pressure from shareholders. However, countries such as Malaysia with high legislative and pressure from shareholders are not like Denmark in providing sufficient disclosure.

Atan et al. (2018) studies the impact of ESG on firm performance in Malaysian public-limited companies. Malaysia is an emerging country targeted to be a developed country by 2020 through implementing ESG practices. Evidence from previous studies that ESG practices impact on companies from emerging economies including Malaysia are not sufficiently explored. The country is encouraging companies to exercise good governance and CSR. The study is concerned with firm performance in terms of profitability, firm value and cost of capital. Using Bloomberg's ESG data of 54 selected companies that have complete ESG and financial data, the study conducted panel data regressions (pooled OLS). The interest of investors and shareholders of ESG is to know where the company invests money and how to conduct business. The investors environmental concerns are the natural environment, and the environmental impact arising from business operation. The findings show that the individual and combined factors of ESG does not affect firm profitability (ROE) and firm value as well (Tobin's Q). The results conclude that companies with a higher leverage ratio gain more profitability. The individual ESG score is significant with Weighted Average Cost of Capital (WACC) but the combined score of ESG positively significantly influences WACC. The conclusion states that the firms with a high ESG score have a higher cost of capital. However,

the cost of capital is low for large companies and vice versa. To support the study, the research suggests that the companies to engage in and report ESG initiatives. One of the limitations of the study is the short period to gain significant statistical results compared to prior literature. Eccles et al. (2014) argued that the relationship of sustainability and financial performance is only significant in the long term.

Atan et al. (2016) explores the effect of ESG disclosure and firm performance comparing firms from two countries, Denmark and Malaysia. Malaysia as an emerging economy country, and Denmark as a benchmark of good practice. The research suggests that the level of disclosure is based on a country's regulatory requirements. The aims of the research are: to examine the extent of ESG disclosure between the two countries; to compare the elements that lead to change in ESG disclosure when there are different requirements; and to examine the relationships between ESG disclosure and firms' financial performance measured by Economic Value Added (EVA). EVA was used to find the real value or profit the shareholder gets. The top 100 companies listed in Bursa Malaysia and Denmark were selected to find relationships in the year 2013. The variable of interest in models is ESG scores. Dichotomous scoring is used to calculate index scores. The findings state that there is no association between ESG disclosure level and firm performance.

Buallay et al. (2020) investigate the relationship between ESG and performance ratios (ROA, ROE, Tobin's Q) in MENA banks. The study sample is 59 listed banks in emerging countries in MENA. The study uses bank and country-specific variables to measure the relationship between sustainability reporting and banks' performance. The study uses the independent variables being environmental disclosure, corporate disclosure, ESG disclosure, CSR disclosure, and the control variables: leverage, cost-to-income ratio, size, GDP growth, and country governance. The results show an insignificant positive relationship between ESG

and performance ratios in ROA and ROE models. In Tobin's Q model it was significantly negative. For control variables, leverage (LEV) was significantly negative in ROE and Tobin's Q models, cost-to-income was significantly negative in the three models. The bank's size was significantly positive in the three models. GDP growth was significantly negative in ROA and ROA models. Public governance was positive in the three models but significant only on ROA and ROE models.

Ruan & Liu (2021) studied ESG activities and firm performance in China. The findings indicate that the environmental risk problem has made the regulatory agencies realize the importance of ESG activities. Therefore, the study investigates whether ESG activities promote or reduce firm performance. The sample for data is the listed companies in China from 2015 to 2019. The control variables are firm size, market to book value, whether a big four company, Research and Development (R&D) investment, firm age, and largest shareholding proportion. The study tested three different models. The first model is to find the effect of ESG rating on firm performance. The firm performance is Tobin's Q in the first model. Results of the study finds that the ESG activities had a significantly negative impact on firm performance. Firm size and R&D were significantly positively correlated with firm performance, whereas LEV and Market-to-Book (MB), were significantly negatively correlated with firm performance. The second model used ROE to substitute firm performance. Results show that there is a significant negative relationship between ESG ratings and firm performance. R&D, LEV, and MB significantly negatively correlated with firm performance. Size significantly positively correlated with firm performance. The third model used ROA as a dependent variable. The results of this third model show that size significantly positively correlated with firm performance. However, LEV, MB, and R&D have a

significant negative effect on firm performance. The main conclusion in the article finds the main ESG activities are not active in emerging market countries because the ESG rating and firm performance were negatively correlated but not significant. Therefore, ESG disclosure may involve serious costs for listed companies that lead to insignificant negative impact on firm performance.

2.4.3. ESG and firm characteristics

Jensen & Meckling (1976) stated that firms with higher leverage normally incur higher monitoring cost because debt holders need to assure the ability of firms to pay back their obligations. Therefore, firms' managements disclose frequently. Myers (1977) said as leverage increases, the potential of wealth transfers from debt holders to shareholders. Firms with higher leverage increase the level of corporate disclosure to reduce the agency costs. Therefore, firms with higher leverage are predicted to increase disclosure and ESG contribution.

The ESG scores reflect a firm's fulfillment of environmental, social, and governance aspects. ESG score and ESG controversies evaluate the companies' sustainability impact and conduct. The controversy issues include tax fraud, public health, intellectual properties, shareholder issues and workforce issues (Ting, et al. 2019).

ESG affects many of the financial aspects of the company which reflect the importance of ESG as a main topic. A study in Asia-Pacific developing countries contributes to finding the impact of ESG factors on cost of capital. The study presented the influence of ESG on the cost of debt and weighted average cost of capital (WACC). Results proved that a higher ESG score lowered WACC, which implies that there is a significant relationship between ESG score and the WACC.

The literature identifies several reasons for an association between ESG disclosure and firm size. The disclosure costs are generally lower for large firms. Lang & Lundholm (1993) studied the cost of preparing corporate disclosures, noting that the cost decreases with firm size because of economies of scale. The media news and analysts who attend large firms' meetings to report their stories reduce the costs for larger firms. This argument concludes a positive relationship between firm size and corporate disclosure.

The relationship between size and ESG disclosure is also affected by the political aspect. Larger firms are more exposed to political attack, regulations such as nationalization are imposed, demands are made to take social responsibility (Jensen & Meckling, 1979; Watts & Zimmerman, 1986). The study stated that large firms enhance their corporate reporting and minimize their reported earnings to face government intervention. Skinner (1994) suggest that larger firms may have greater initiative to report full disclosure to minimize litigation and legal cost.

2.4.4. The relationships between ESG, performance, and financial crisis

The financial crisis of 2007-2008 started with cheap credit lending that creates the housing bubble. The federal reserve lowered the federal funds rate in 2003 for a good intention to boost the available businesses. This result in a rising in home prices as borrowers take advantage of low mortgage rate. Borrowers with poor or low credit history were able to buy house. The banks sold these loans with low-risk financial instrument such as mortgage-backed securities. By time, the interest rate rises which caused a defaulted borrower.

Many papers such as Ahmad et al. (2023) investigates the impact of global financial crisis on financial performance. The researcher done his study on UK firms to test the relationships among global financial crisis, firm financial performance and ESG. The aim of the research is to find how qualitative factors impact the firm performance during economic conditions. Firm size used as a moderator variable in the study. The study explained that financial as well as ESG performance declined during the financial crisis period. The study recommend that corporate governance is a strategy tool to manage the financial crisis and enhance the firm financial performance as it has a positive effect on financial performance.

2.5. Variables specification and hypotheses development

Based on studies reviewed in chapter 2, we specify the dependent and independent variables to examine the relationship between sustainability and performance. The purpose of the study is to test hypotheses to determine the effect of ESG on performance. Thus, we developed the following hypotheses to test the variables:

Return on Assets (ROA), Return on Equity (ROE), Tobin's Q

Buallay et al. (2020) specifies Return on Assets, Return on Equity, and Tobin's Q as dependent variables for the firm's performance. The study found a positive relationship for ROA and ROE on performance. However, they found negative impact on performance.

ESG combined score (ESG)

Farooq (2015) used ESG combined score as a proxy for ESG. The study specifies the variable as an independent variable to measure firms investing level in ESG. The study found a negative relationship between ESG disclosure and firms' performance. Therefore, we develop the following hypothesis:

H₁: There is a negative significant relationship between sustainability and performance.

SIZE

Ruan & Liu (2021) used Size as a proxy for firms' size. The indicator was measured by the natural logarithm of total assets. As per the study, the measure was used as a control variable. They found a positive relationship between ESG activities and firm performance in China. Therefore, we develop the following hypothesis:

H₂: There is a positive significant relationship between firm's SIZE and performance.

Leverage (LEV)

Farooq (2015) used leverage as a proxy for use of debt within the firm. The indicator was measured by total debt divided by total assets. As per the study, the measure used as a control variable. The study found a negative relationship between ESG disclosure and firm performance in emerging markets. Therefore, we develop the following hypothesis:

H₃: There is a negative significant relationship between LEV and performance.

Market-to-Book value (MB)

Ruan & Liu (2021) used Market-to-Book ratio as a metric that compares the firm's book value to its market value. The measure is used as control variable. The study found a negative impact for MB on performance in China. Therefore, we develop the following hypothesis:

H₄: There is a negative significant relationship between MB and performance.

Gross Domestic Product Growth (GDPGR)

Buallay et al. (2020) used GDPGR as a proxy for economic growth. The study found a negative relationship between MENA banks and performance. Therefore, we develop the following hypothesis:

H₅: There is no significant relationship between economic growth and sustainability.

CRISIS (CRI)

Ahmad et al. (2023) used CRI as a dummy variable for the financial crisis period. The study found a negative significant relationship between crisis and performance. Therefore, we developed the following hypothesis:

H₆: There is a negative significant relationship between financial crisis and performance.

COVID

Hwang et al. (2021) used the COVID variable as a proxy for the COVID-19 crisis. The study found a negative significant relationship between the COVID-19 crisis and performance. Therefore, we developed the following hypothesis:

H₇: There is a negative significant relationship between the COVID – 19 crisis and performance.

3. Methodology

3.1. Introduction

This section discusses the research methodology. The research methodology is the specific technique used to identify, select process, and analyze the data. The methodology section evaluates the reliability and validity of the study. This chapter outlines the conceptual framework, the research approach, the research design, population, sampling methodology, sources of secondary data, collection, and analysis plan.

3.2. Sampling, Data collection, and Conceptual framework

3.2.1. Sampling

The sample used in the study is secondary data generated from Thomson Reuters Refinitiv DataStream started from 2006 – 2021 for listed non-financial firms. The researcher chooses this period because most of firm's data are started in 2006 and the data available to 2021 at the time research being conducted. At this time, two crises happened which are 2007-2008 financial crisis and COVID-19 in 2019-2020. Therefore, the researcher included the two periods to extend the contribution of the study. The choose of non-financial firms due to the gap by literature and massive number of researchers done on banks and financial firms.

3.2.2. Data collection

Table 3.1 below shows the industry categories according to Thomson Reuters Refinitiv DataStream and the number of listed firms for each category. The total number of firms in the data is 200.

Industry	Number of firms
Basic materials	34
Consumer cyclicals	24
Consumer non-cyclicals	24
Energy	14
Health care	9
Industrials	25
Real estate	21
Technology	41
Utilities	8
Total	200

Source: Thomson Reuters Refinitiv DataStream

Table 3.1. Listed firms according to industry

Table 3.2 below shows the countries in the MENA region included in data according to Thomson Reuters Refinitiv DataStream and the number of listed firms for each country. The total number of firms in the data is 200.

Country	Number of firms
Bahrain	4
Egypt	8
Israel	36
Jordan	1
Kuwait	7
Morocco	2
Oman	4
Qatar	30
Saudi Arabia	26
Turkey	64
United Arab Emirates	18
Total	200

Source: Tomson Reuters Refinitiv DataStream

Table 3.2. Listed firms according to country

3.2.3. Variables

Table 3.3 below shows the measurements of variables to be used in the approach of this study to measure the ESG performance of firms. Expected relationships between variables and ESG relied on the previous studies obtained from various approaches used to measure the relationship between sustainability and performance.

Variables	Measure	Expected sign	Supporting studies
Dependent Variables			
ROA	How profitable is the company in relation to its total assets ROA = Net Income / total assets	+	Buallay, A., Fadel, S. M., Al-Ajmi, J. Y., & Saudagaran, S. (2020).
ROE	How the company management is using financing from equity to grow business. It is a measure of investment returns for shareholders ROE = net income/ shareholder's equity	+	Buallay, A., Fadel, S. M., Al-Ajmi, J. Y., & Saudagaran, S. (2020).
Tobin's Q	The ratio of the sum of the total liabilities, market value of share capital, preferred equity and minority interest divided by total assets of a firm The (market value of equity + total liabilities + preferred equity + minority interest) / book value of assets	-	Buallay, A., Fadel, S. M., Al-Ajmi, J. Y., & Saudagaran, S. (2020).
Independent variables			
ESG Combined Score (ESG)	400 company-level ESG measures categorized into 10 categories measured by Thomson Reuters Refinitiv	-	Farooq, O. (2015)

Control Variables			
SIZE	Natural logarithm of firms' market capitalization	+	Ruan, L., & Liu, H. (2021).
Leverage (LEV)	Total debt to total assets ratio Leverage= Total debt / total assets	-	Farooq, O. (2015)
Market to book value (MB)	Compares a firm book value to its market value MB= (Market price per share × Tradable share number + Net assets per share × Non-tradable share number)/Net book value of equity	-	Ruan, L., & Liu, H. (2021).
Gross Domestic Product Growth (GDPGR)	The growth of the total market value of all finished goods in a country within a period of time	No significant relationship	Buallay, A., Fadel, S. M., Al-Ajmi, J. Y., & Saudagaran, S. (2020)
Dummy Variables			
CRISIS (CRI)	A dummy variable that takes the value of 1 at years 2007,2008 and otherwise 0	-	Ahmad et al. (2023)
COVID	A dummy variable that takes the value of 1 at years 2020,2021 and otherwise 0		
Country dummy	Country dummy		
Industry dummy	Industry dummy		
Interaction Variables			
CRI_ESG	Financial crisis dummy variable × ESG combined score		
COVID_ESG	COVID-19 dummy variable × ESG combined score		

Table 3.3. Definition of variables and expected relationships

3.2.4. Interaction variables

The interaction variable is used in multiple linear regression. An interaction effect occurs when one of the independent variables depends on the effect of another variable. It increases the complexity of the model by constructing a variable of a set of independent variables. In regression analysis, two interaction variables have been used to check the impact on the dependent variable based on firms' heterogeneity, specifically on the equations (5,6,7,8,9,10). The interaction variables used are the following:

$$CRI_ESG = Crisis \times ESG \text{ combined score}$$

The formula used for the interaction variables used for three models to measure performance by the effect of ESG in CRISIS period;

$$COVID_ESG = COVID \times ESG \text{ combined score}$$

The formula used for the interaction variables used for three models to measure performance by the effect of ESG in COVID period.

3.2.5. Conceptual framework

The conceptual framework in figure 3.1 shows the expected relationships between the variables (dependents and independents) and the direction of effect. It defines the objectives and research process and maps out how the variables work together to reach the conclusion. It shows the expected cause (the explanatory variable) and expected effect (the outcome variable). Figure 3.1 show the relationship between dependent variables (ROA, ROE, Tobin's Q), the independent variable (ESG), and control variables (LEV, MB, SIZE, and GDPGR). While figure 3.2 shows the hypothesis of control variables (CRISIS and COVID) and the interaction variables (CRISIS ESG and COVID ESG).

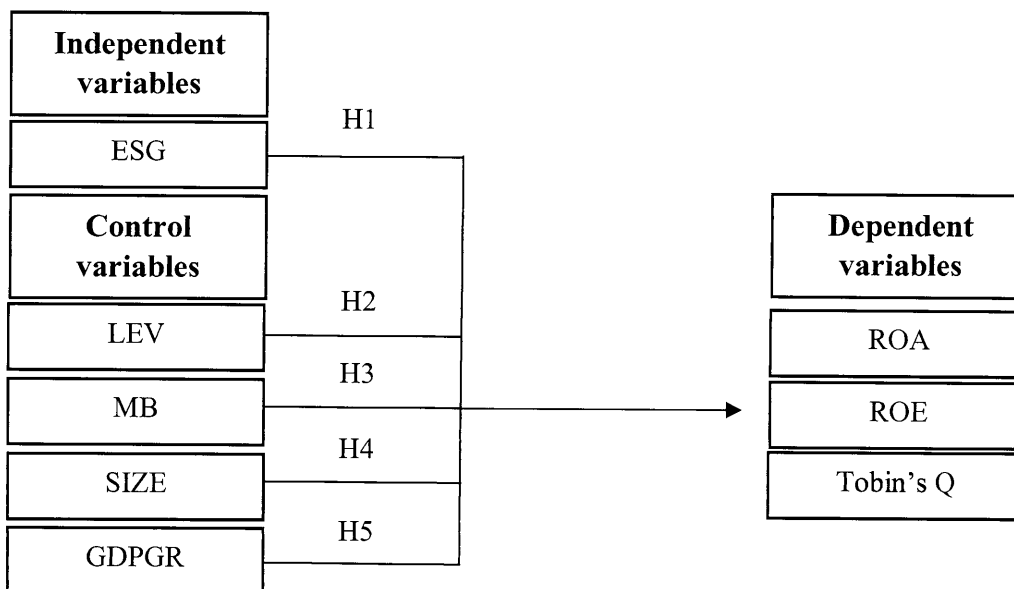


Figure 3.1. Conceptual framework

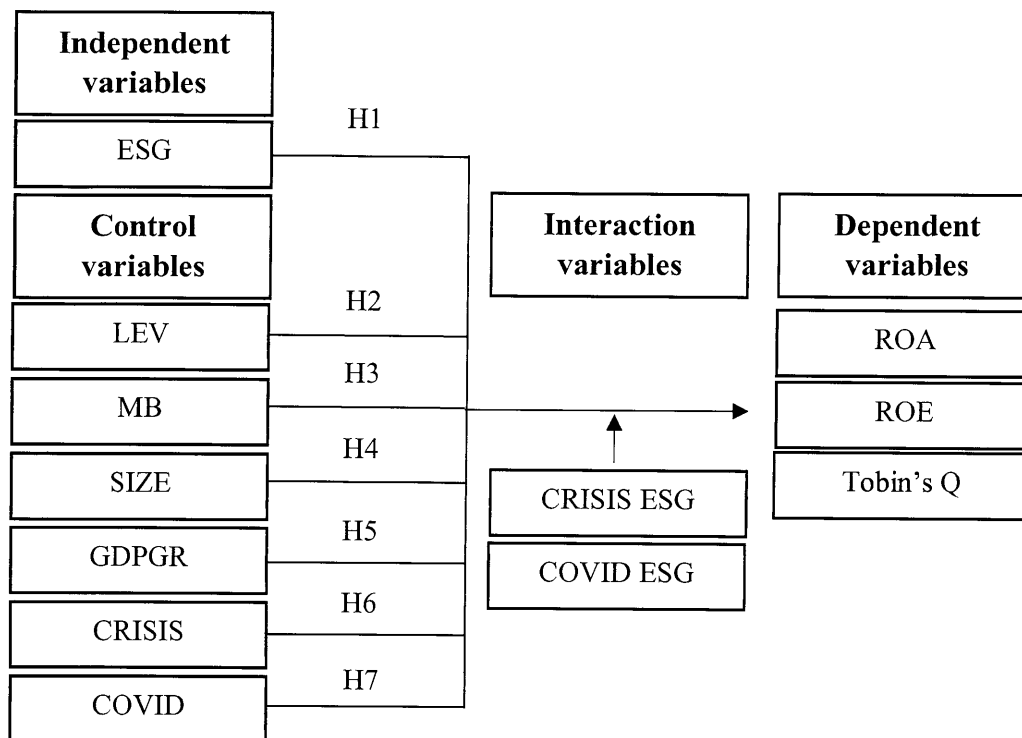


Figure 3.2. Conceptual framework with interaction variables

3.3. Data sources, data analysis, and econometric models

3.3.1. Sources of Secondary data

Secondary data is any dataset collected to be used by researchers. It allows researchers to use it for analysis and helps to find a solution for business or to reach a conclusion. There are many sources of secondary data including books, journals, government records, and websites which is readily available for other users. The main sources of secondary data used for variables in this research are the Thomson Reuters Refinitiv DataStream and the International Monetary Fund (IMF) Database.

Variable	Source
Return on Assets (ROA)	Thomson Reuters Refinitiv DataStream
Return on Equity (ROE)	Thomson Reuters Refinitiv DataStream
Tobin's Q	Thomson Reuters Refinitiv DataStream
ESG	Thomson Reuters Refinitiv DataStream
Size	Thomson Reuters Refinitiv DataStream
Leverage (Lev)	Thomson Reuters Refinitiv DataStream
Market to book ratio (MB)	Thomson Reuters Refinitiv DataStream
Gross Domestic Product Growth (GDPGR)	International Monetary Fund

Table 3.4. Sources of variables

3.3.2. Econometrics software

To analyze data, Eviews 12 Student Version software was used to apply econometric models and run the regression. In addition, the software was used to conduct descriptive statistics, a heteroscedasticity test, a VIF test, and a correlation matrix.

3.3.3. Data collection and data analysis

The data used on this research is collected from Thomson Reuters Refinitiv DataStream. Thomson Reuters Refinitiv has available data for a comprehensive ESG database in the industry for over 6000 public companies, more than 400 ESG metrics, with a history running from 2002. The ESG framework measures transparent relative ESG companies' performance across three main pillars which makeup the overall ESG score. These three pillars contain categories which are environmental (emissions, innovation, and resource use), social (community, human rights, product responsibility, and work force), and governance (CSR strategy, management, and shareholders) (Thomson Reuters, 2017).

The sample used in this research consists of 3186 listed companies located in 11 different countries. All countries are located in the MENA region. The data over the period from 2006 to 2021 has been collected to construct a dated panel database. This period has been chosen due to the availability of data for which there are a good number of observations started from that year. This period also includes the CRISIS and COVID periods. The sample consists of 3200 firm-year observations. The financial database contains 2756 ROA observations, 2717 ROE observations, and 2619 Tobin's Q observations, whereas the ESG database consists of 1063 observations due to missing values. The final sample with independent and ESG variables concludes with a total of 924 firm-year observations for ROE and Tobin's Q models and 917 firm-year observations for the ROA model. Therefore, the database for all three regressions indicates a strongly balanced panel.

3.3.4. Models and econometric specification

By applying the econometric linear regression model, the form of Fixed-Effect Model (FEM) and Random-Effect Model (REM) is the following:

$$y_i = \beta_0 x_i^T + \varepsilon_i, \quad i = 1, \dots, n \quad (1)$$

Where:

y_{it} : dependent variable, $n \times 1$ vector

x_i : regressors for observation i in t years, $k \times 1$ vector

$\mathbf{X}: (x_1, \dots, x_n)^T$: regressor matrix, $n \times k$ matrix

β : regression coefficient

ε_i : disturbances (or error terms), $n \times 1$ vector

The following equations (2-4) have been designed to answer the first question: How does ESG influence firm performance?

$$ROA_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 MB_{it} + \beta_5 GDPGR_{jt} + \beta_6 Cou_dum + \beta_7 Ind_dum + \varepsilon_{it} \quad (2)$$

$$ROE_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 MB_{it} + \beta_5 GDPGR_{jt} + \beta_6 Cou_dum + \beta_7 Ind_dum + \varepsilon_{it} \quad (3)$$

$$TOBINQ_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 MB_{it} + \beta_5 GDPGR_{jt} + \beta_6 Cou_dum + \beta_7 Ind_dum + \varepsilon_{it} \quad (4)$$

Where:

β_0 : *y – intercept of the equation*

β_{1-7} : *Beta coefficient of each variable*

ROA_{it} : *Return on Assets of i in year t*

ROE_{it} : *Return on Equity of i in year t*

$TOBINQ_{it}$: *Tobin's Q of i in year t*

ESG_{it} : *Environmental, Social, and Governance Combined Score of i in year t*

$SIZE_{it}$: *Firm Size of i in year t*

LEV_{it} : Leverage of i in year t

MB_{it} : Market to book ratio of i in year t

$GDPGR_{jt}$: Gross Domestic Product Growth of country j in year t

Cou_dum : Country dummy

Ind_dum : Industry dummy

ε_{it} : error term

i : firm

j : country

t : years start from 2006 to 2021

The following equations (5-7) have been designed to answer the first part of the second question: What is the effect of the financial crisis on the relationship between ESG and firm performance? Here we implement CRISIS years dummy variables and the CRISIS ESG interaction variable:

$$\begin{aligned} ROA_{it} = & \beta_0 + \beta_1 ESG_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 MB_{it} \\ & + \beta_5 GDPGR_t + \beta_6 Cri + \beta_7 Cri_ESG + \beta_8 Cou_dum \\ & + \beta_9 Ind_dum + \varepsilon_{it} \end{aligned} \quad (5)$$

$$\begin{aligned} ROE_{it} = & \beta_0 + \beta_1 ESG_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 MB_{it} \\ & + \beta_5 GDPGR_t + \beta_6 Cri + \beta_6 Cri_ESG + Cou_dum \\ & + Ind_dum + \varepsilon_{it} \end{aligned} \quad (6)$$

$$\begin{aligned} TOBINQ_{it} = & \beta_0 + \beta_1 ESG_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 MB_{it} \\ & + \beta_5 GDPGR_t + \beta_6 Cri + \beta_7 Cri_ESG + Cou_dum \\ & + Ind_dum + \varepsilon_{it} \end{aligned} \quad (7)$$

Where:

β_0 : y – intercept of the equation

β_{1-7} : Beta coefficient of each variable

ROA_{it} : Return on Assets of i in year t

ROE_{it} : Return on Equity of i in year t

TOBINQ_{it}: Tobin's Q of i in year t

ESG_{it}: Environmental, Social, and Governance Combined Score of i in year t

SIZE_{it}: Firm Size of i in year t

LEV_{it}: Leverage of i in year t

MB_{it}: Market to book ratio of i in year t

GDPGR_{jt}: Gross Domestic Product Growth of country j in year t

CRI: Dummy variable that takes value of 1 at years 2007, 2008 and otherwise 0

CRI_ESG: Interaction variable between Crisis dummy and ESG combined score

Cou_dum: Country dummy

Ind_dum: Industry dummy

ε_{it}: error term

i: firm

j: country

t: years start from 2006 to 2021

The following equations (8-10) have been designed to answer the second part of the second question: What is the effect of COVID-19 crisis on the relationship between ESG and firm performance? we implement COVID years dummy variables and the COVID ESG interaction variable:

$$\begin{aligned} ROA_{it} = & \beta_0 + \beta_1 ESG_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 MB_{it} \\ & + \beta_5 GDPGR_t + \beta_6 COVID + \beta_7 COVID_ESG \\ & + \beta_8 Cou_dum + \beta_9 Ind_dum + \varepsilon_{it} \end{aligned} \quad (8)$$

$$\begin{aligned} ROE_{it} = & \beta_0 + \beta_1 ESG_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 MB_{it} \\ & + \beta_5 GDPGR_t + \beta_6 COVID + \beta_7 COVID_ESG \\ & + Cou_dum + Ind_dum + \varepsilon_{it} \end{aligned} \quad (9)$$

$$\begin{aligned} TOBINQ_{it} = & \beta_0 + \beta_1 ESG_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 MB_{it} \\ & + \beta_5 GDPGR_t + \beta_6 COVID + \beta_7 COVID_ESG \\ & + Cou_dum + Ind_dum + \varepsilon_{it} \end{aligned} \quad (10)$$

Where:

β_0 : *y – intercept of the equation*

β_{1-7} : *Beta coefficient of each variable*

ROA_{it} : *Return on Assets of i in year t*

ROE_{it} : *Return on Equity of i in year t*

TOBINQ_{it}: Tobin's Q of *i* in year *t*

ESG_{it}: Environmental, Social, and Governance Combined Score of *i* in year *t*

SIZE_{it}: Firm Size of *i* in year *t*

LEV_{it}: Leverage of *i* in year *t*

MB_{it}: Market to book ratio of *i* in year *t*

GDPGR_{jt}: Gross Domestic Product Growth of country *j* in year *t*

COVID: Dummy variable that takes value of 1 at years 2020, 2021 and otherwise

COVID_ESG: Interaction variable between COVID dummy and ESG combined scor

Cou_dum: Country dummy

Ind_dum: Industry dummy

ε_{it}: error term

i: firm

j: country

t: years start from 2006 to 2021

3.4. Methodology

3.4.1. Diagnostic test

The objective of conducting models' validity is to assess how accurate is the relationship between the measure and underlying trait it is trying to measure (Gaur & Gaur, Statistical Methods for Practice and Research: A Guide to Data Analysis Using SPSS, 2009). According to Pérez, Ferré, & Boqué (2009), the diagnostic test is adapted to check the model fitting of regression analysis based on certain assumptions. Regression diagnostics are used to evaluate the model assumptions and investigate whether or not there are observations with a large, undue influence on the analysis. These diagnostics include graphical and numerical tools for checking the adequacy of assumptions with respect to data and the form of the model. Detecting extreme points (outliers) that may dominate the regression and detecting if there are strong relationships between independent variables (collinearity) is necessary in order to assess if they are affecting the results. The diagnostic assumptions used in this study:

- Multicollinearity: Ragnar Frisch introduced the term "multicollinearity," which describes a perfect linear relationship between some or all explanatory factors.
- Autocorrelation: represents the degree of similarity between time series or cross-sectional data. To detect autocorrelation, the study utilized Durbin-Watson.

- Heteroskedasticity: Known as complementary notion. However, the opposite is homoscedasticity, also known as homogeneity of variance. The heteroskedasticity refers to unequal variance of residuals over the range of measured values. When running the regression, heteroskedasticity results in an unequal scatter of the residuals (also known as the error term). Heteroskedasticity tests hypotheses of the format:

H_0 : *There is no heteroskedasticity in data.*

H_a : *There is heteroskedasticity in data.*

- Normality: To determine whether the data is normally distributed or not. Jarque-Bera was used to determine the data normality. Jarque-Bera is a goodness-of-fit test of whether sample data have the skewness and kurtosis matching a normal distribution.

H_0 : *The data is normally distributed.*

H_a : *The data is not normally distributed.*

3.4.2. Regression analysis

The regression is a statical technique that relates a dependent variable to one or more independent variables. The study used Ordinary Least Square (OLS), fixed and random cross-sectional effects based on the Hausman test to investigate relationships.

3.4.3. Hausman test

The aim of preliminary analysis is to determine the best model that fits the data. The Hausman test is a statistical test to decide the appropriate estimation for the parameters of the model. The test helps the researcher to choose between the Fixed-Effect Model (FEM) and the Random-Effect Model (REM). The main purpose of the test is to figure out whether there is correlation between the unique errors and the regressors in the model. The null hypothesis suggests that there is no correlation between the two. Following are the null and alternative hypotheses of the test:

H_0 : *The random – effect is appropriate.*

H_a : *The fixed – effect is appropriate.*

The null hypothesis states that the preferred model is the random effects. However, the alternative model states that the model is the fixed effects.

To interpret the results of the Hausman test, if p-value is less than 0.05, reject the null hypothesis.

3.4.4. Robustness checks

In econometrics, there are all sorts of analytic tools: OLS, fixed effects, autoregressive process, and many more. These tools promise pretty spectacular results if the appropriate data and tool is used correctly. “Robustness tests” are tests which include the white test, the Hausman test, the Breusch-Pagan test, or just running the model again with additional control variable. These are presented with the main analysis to check whether the results are “robust”.

In this part, researchers examine how core regression coefficient estimates behave when the regression specification is modified by adding or removing regressors. The study has conducted one robustness test to test robustness of the outcome of regression:

- Lagged variable: The lagged variable is used in the regression model to consider the economic reaction to changing conditions.

3.5. Conclusion

The chapter highlighted the methods used in Chapter 4. The secondary data extracted from the Thomson Reuters DataStream Refinitiv and the International Monetary Fund (IMF). The researcher used The following Autoregression Model in the study:

$$Y_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 MB_{it} + \beta_5 GDPGR_{ji} \\ + \beta_6 Cou_dum + \beta_7 Ind_dum + \epsilon_{it}$$

The data analyzed using descriptive statistics, a Correlation Matrix, a Diagnostic test, and a VIF test. The results are analyzed and interpreted in Chapter 4.

4. Research findings and analysis

4.1. Introduction

In this chapter, the researcher used methods discussed in chapter 3 to test hypotheses and discuss the findings.

4.2. Descriptive Analysis

In this section, descriptive statistics is used to provide an overview on variables. Table 4.1 presents the descriptive statistics for dependent, and independent variables.

	ROA	ROE	Tobin's Q	ESG	Size	Lev	MB	GDPGR
Mean	7.151	7.214	2.323	34.049	6.607	27.858	2.910	2.667
Median	6.860	12.440	1.836	30.385	6.609	26.545	1.800	2.980
Maximum	58.1600	361.120	19.681	94.480	8.757	79.050	289.630	17.746
Minimum	-84.480	-2468.450	0.058	0.750	4.695	0.030	-	-8.855
							194.310	
Std. Dev.	9.307	120.433	2.213	21.231	0.559	17.720	15.629	3.663
Skewness	-1.999	-16.369	2.821	60.568	0.152	0.425	6.064	-0.213
Kurtosis	28.426	304.085	15.914	2.202	3.488	2.484	200.321	4.148
Observations	924	917	924	924	924	924	924	924

Table 4.1. Descriptive statistics, and normality tests

All ESG variables are expressed as scores between 0 to 100. Range (minimum and maximum), interquartile range (mean), and standard deviation as shown in table 4.1 to measure variability of data. The mean is the average of numbers. The table shows the number of common observations for each variable, which is 924 except for ROE observations which are 917. Morning star set a comprehensive ESG risk rating criteria, 0-10 being negligible, 10-20 low, 20-30 medium, 30-40 high, and 40+ severe. The table shows the average ESG combined score on MENA listed non-financial firms. The ESG combined score on average is 34.049%, which is relatively high. The mean of performance ratios (ROA, ROE, Tobin's Q) 7.151%, 7.214%, and 2.323% respectively is negligible. The GDPGR is almost 2.667% in MENA

countries, indicating growing economies in the region. The mean of ESG is the highest followed by LEV. Tobin's Q has the lowest score. Moreover, the standard deviation is used to determine whether the data value is close to or far from the mean.

The main task in statistical analysis is to access location and dispersion of the distribution of the variables included. We winsorize variables higher than 100 in the LEV variable. The SIZE variable has been transformed to a natural logarithm of total assets. To enhance robustness of the study, many researchers have used the method of winsorization (Ahmed, Eliwa, & Power, 2019; Aboud, Eliwa, & Saleh, 2019). The descriptive statistics in Table 4.1 are based on the variables after winsorization. Using winsorization, we observe from skewness, and kurtosis that the data does not suffer from outliers. According to Wilson, et al., (2010) and Byrne, (2010), the data is considered normally distributed if skewness lies between -2 to +2 and kurtosis between -7 to +7. The distributions of most variables seem skewed to the right.

4.2.1. ESG scores in MENA countries

ESG score mean	
Bahrain	24.406
Egypt	24.394
Israel	26.444
Jordan	19.150
Kuwait	24.541
Morocco	25.407
Oman	25.649
Qatar	23.681
Saudi Arabia	23.866
Turkey	26.514
United Arab Emirates	24.947

Table 4.2. ESG score mean among countries

Table 4.2 shows the mean of ESG score among countries in the period 2006-2021. The highest country ESG score is the United Arab Emirates followed by Israel. The lowest is Jordan. Figures show that Israel, Bahrain, Egypt, Turkey, and Oman have been adapting ESG over a long period. The reason why Jordan has a low ESG score is that the country started to implement ESG strategies as recently as in 2019. Qatar, Kuwait, United Arab Emirates, and Morocco implemented ESG in 2007 with the event of the financial crisis. As shown, all ESG trends are downward in 2020 because of the COVID-19 effect. Jordan has the highest negative effect on ESG in the COVID-19 era followed by Bahrain.

As shown in figure 4.1, Israel has a growing ESG score from 2006 until 2020. In 2020, the ESG score has reached a peak at almost 40. Then, the ESG score decreased in 2020 and 2021 due to the COVID-19 effect.

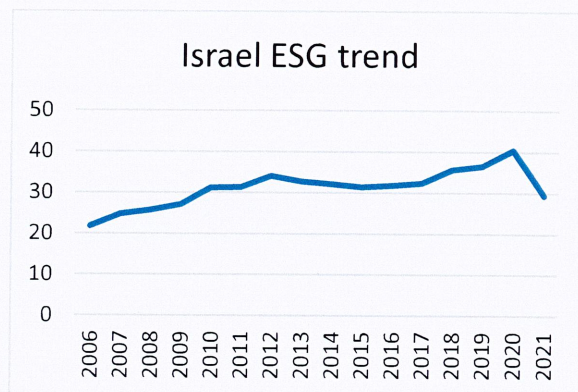


Figure 4.1. Israel ESG trend

As shown in figure 4.2, Bahrain has a strong consistent trend regarding ESG until 2020 and 2021, when there was a sharp decrease in the ESG score because of COVID-19.

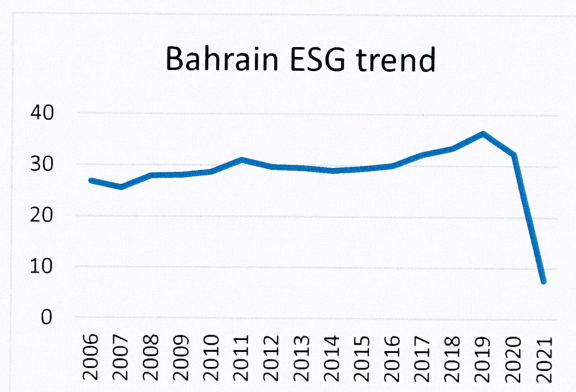


Figure 4.2. Bahrain ESG trend

As shown in figure 4.3, Kuwait has as high an ESG score as Bahrain, and it was affected during the COVID-19 period but not so much as Bahrain.

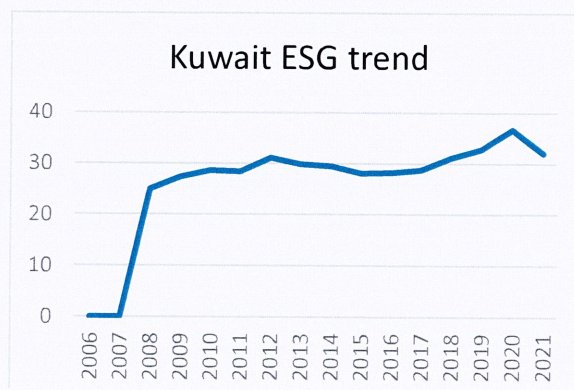


Figure 4.3. Kuwait ESG trend

In Saudi Arabia, the ESG started to grow strongly from 2006. This might have happened because of the massive changes in Saudi Arabia's capital markets. The score reached a peak in 2020 before the COVID-19 period.

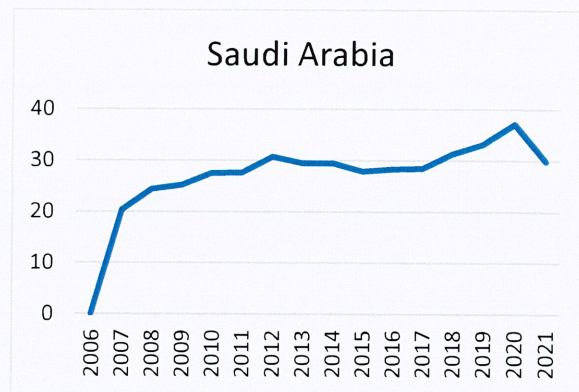


Figure 4.4. Saudi Arabia ESG trend

In figure 4.5, the graph shows the implementation of ESG in the UAE which is in line with Dubai's Financial Markets (DFM) data to ESG. From 2007 the ESG started in the UAE and it was almost consistent from 2008 with a small change for the better until the COVID-19 period.

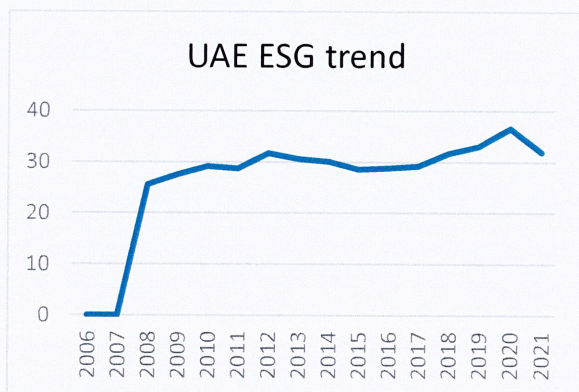


Figure 4.5. UAE ESG trend

In figure 4.6, Oman has a good ESG score but not as good as those in other countries in the Gulf Cooperation Countries (GCC). It has an almost consistent ESG score in the period the study investigates.

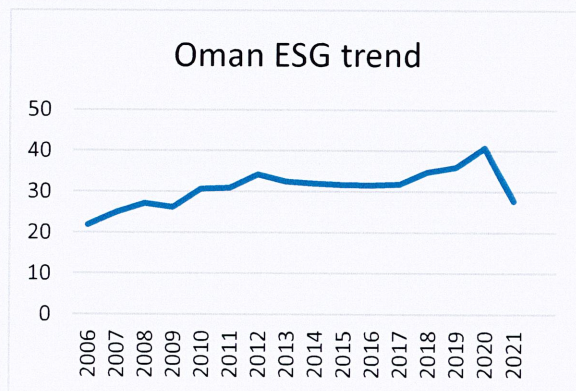


Figure 4.6. Oman ESG trend

In figure 4.7, Qatar has available data from 2007. The ESG score is relatively high as in other GCC countries until 2020.

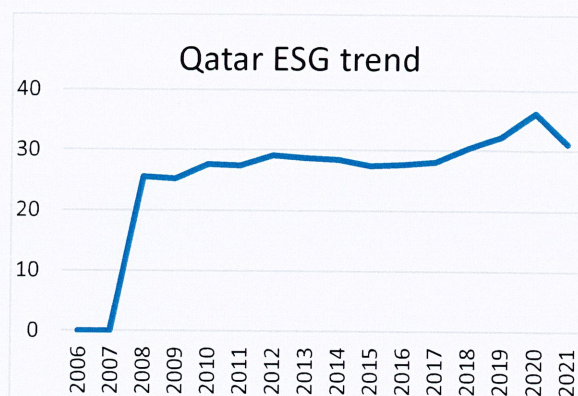


Figure 4.7. Qatar ESG trend

Figure 4.8 shows that Jordan's ESG has unavailable data except for 2019.

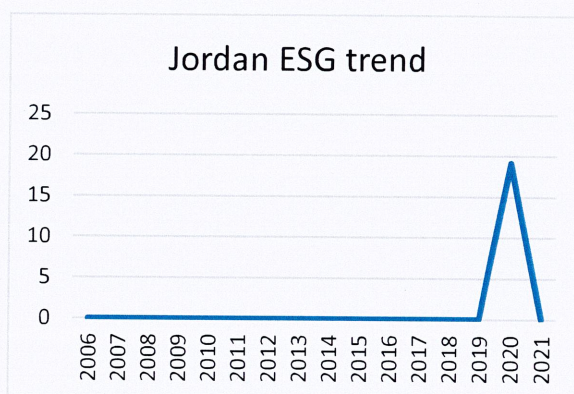


Figure 4.8. Jordan ESG trend

The ESG score in Egypt is a bit inconsistent and affected in the COVID-19 period.



Figure 4.9. Egypt ESG trend

In Morocco in figure 4.10, the ESG trend is volatile. In 2020, Morocco has the highest ESG score of the MENA countries in the 2006-2021 period with higher than 50.

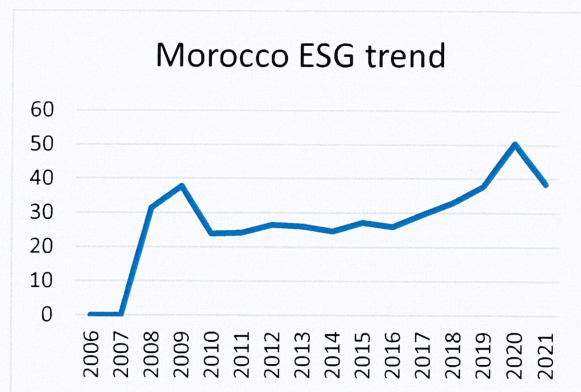


Figure 4.10. Morocco ESG trend

In figure 4.11, Turkey has a rising ESG trend. The country has had a high ESG score in recent years.

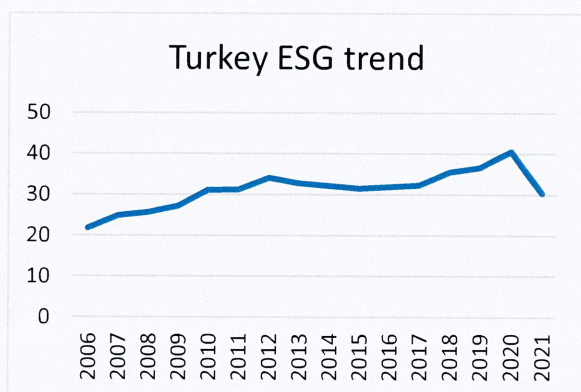


Figure 4.11. Turkey ESG trend

4.3. Diagnostic tests

According to (Gaur & Gaur, 2009), the model's validity can be determined by determining the accuracy of the relationship between the measure and the underlying trait it is attempting to assess. A linear regression model is used to examine the relationship between sustainability and performance. Therefore, we run several tests to check whether our data meet the assumptions of the model. Also, we conducted preliminary checks including a Variance Inflation Factor (VIF) test of multicollinearity to find the appropriate econometrics for the sample data.

4.3.1. Multicollinearity

	ROA	ROE	Tobin's Q	ESG	Size	Lev	MB	GDPGR
ROA	1							
ROE	0.294	1						
Tobin's Q	-0.052	-.156	1					
ESG	-0.036	0.002	0.080	1				
Size	0.001	0.028	-0.014	0.059	1			
Lev	-0.111	-0.049	0.290	0.060	0.085	1		
MB	0.0185	-0.153	0.013	0.002	-0.074	-0.025	1	
GDPGR	0.170	0.011	0.117	0.049	0.098	0.030	0.051	1

Table 4.3. Pairwise correlation matrix

Table 4.3 presents the correlation matrix of dependent and independent variables. Correlation ranges from -1 for a perfect negative correlation to +1 for a perfect positive correlation (Kanbur, 2009). The absolute values of the correlation coefficient between the independent variables range between 0.002 and 0.098. These coefficients indicate that our models do not suffer from a serious multicollinearity problem. The VIF test in Table 4.4 is conducted as a formal test of multicollinearity.

Variable	Centered VIF
ESG	1.008
SIZE	1.024
LEV	1.011
MB	1.011
GDPGR	1.016

Table 4.4. VIF test results

Table 4.4 presents the VIF test results. VIF measures the amount of multicollinearity in the regression model. VIF tests assess how strongly is the correlation between independent variables in regression analysis. Multicollinearity is a term for correlation between independents which can cause issues for regression models. The hypothesis that independent variables are not correlated determines a strong model. The coefficients' standard errors are inflated by extreme multicollinearity. In general terms, if VIF is equal to 1 it means variables are not correlated, if VIF is between 1 and 5 it means variables are moderately correlated, and if VIF is greater than 5 it means variables are highly correlated. According to Gujarati and Porter (2003) When VIF is higher than 10, there is a serious multicollinearity problem. Table 4.4 shows that all independent variables are almost equal to 1, which means the variables are not correlated.

4.3.2. Autocorrelation

Autocorrelation is defined as the correlation between members of observations ordered in time series data or space cross-sectional data (Gujarati, 2021). To detect autocorrelation, Durbin-Watson performed by STATA to find the test outcomes. The test was developed by James Durbin and Geoffrey Watson in 1950. The following equation defines the test statistics:

$$d = \frac{\sum_{t=2}^T (e_t - e_{t-1})^2}{\sum_{t=1}^T e_t^2}$$

	ROA	ROE	Tobin's Q
D-W	0.435	1.765	0.172

Table 4.5. D-W stat of each regression

The test outcome in Table 4.6 shows that Durbin-Watson ranges from 0.172 to 1.765. For different models applied, models indicate positive autocorrelation.

4.3.3. Data Normality

The normality test is applied to determine whether sample data represents a normally distributed population or not. The following Table performed the normality tests for the models:

	ROA model	ROE model	Tobin's Q model
Jarque-Bera	32126.520	3651733.000	7238.945
Probability	0.000	0.000	0.000

Table 4.6. Data normality

The hypothesis of the test states the following:

H_0 : *The observations are normally distributed.*

H_a : *The observations are not normally distributed.*

The null hypothesis suggests that the observations are normally distributed. The alternative hypothesis suggests that the observations are not normally distributed. To decide whether to accept or reject the null hypothesis, if p-value is less than 0.05, then the null hypothesis is rejected and there is evidence that the data are not normal.

4.3.4. Heteroskedasticity test - Breusch-Pagan

Heteroskedasticity test			
Likelihood ratio	Value chi2	Df	Probability
ROA model	128.59	1	0.000
ROE model	3410.00	1	0.000
Tobin's Q model	1205.24	1	0.000

Table 4.7. Heteroskedasticity test results

Table 4.5 shows the Breusch-Pagan test for the three models. The test of heteroskedasticity is used in a linear regression model and assumes that the error terms are normally distributed. The main objective of the test is to establish whether the variance of errors from a regression is dependent on the values of the independent variables. It determines whether heteroscedasticity is present in a regression model. It is a Chi-Square (X^2) test.

H_0 : Homoscedasticity is present (the residuals are distributed with equal variance).

H_a : Heteroscedasticity is not present (the residuals are not distributed with equal variance).

The p-value of the three tests is less than significance level ($\alpha = 0.05$). Therefore, we reject the null and conclude that heteroscedasticity is present in the regression model.

4.4. Regression analysis

4.4.1. Main regression results

Variable	ROA model		ROE model		Tobin's Q model	
	Fixed	Random	Fixed	Random	Fixed	Random
Intercept	11.17 (0.87)	5.27 (0.67)	-382.59 (-1.32)	8.04 (8.51)	11.44 (3.75)	8.04 (8.51)
SIZE	-0.20 (-0.10)	0.81 (0.73)	60.66 (1.37)	7.25 (0.90)	-1.73*** (-3.70)	-0.41*** (-2.88)
LEV	-0.07** (-2.36)	-0.08*** (-3.02)	-0.52 (-0.73)	-0.38 (-1.62)	0.05*** (6.66)	0.04*** (10.04)
ESG	-0.04** (-2.44)	-0.05*** (-2.96)	0.11 (0.27)	-0.26 (-1.13)	0.03*** (6.37)	.018*** (5.26)
GDPGR	0.31*** (5.30)	0.31*** (5.32)	0.85 (0.64)	0.61 (0.51)	0.01 (0.18)	-0.01 (-0.03)
MB	0.03* (1.78)	0.02 (1.64)	-0.91*** (-2.73)	-1.25*** (-4.86)	0.01 (0.58)	0.01 (0.64)
No of obs	924	924	917	917	924	924
R-square	0.04	0.14	0.01	0.06	0.06	0.57
F-stat	11.74		1.01		10.61	17.98
Prob(F-statistic)	0.00	0.00		4.33	0.00	0.00

Note: ***, ** and * are statistical significance at 1%, 5% and 10% levels, respectively; t-statistics are reported in parentheses

Table 4.8. Regression results

The regression analysis used to investigate the relationships between dependent and independent variables is based on the equations (2), (3), (4). We developed models in order to answer the question: How does ESG influence firm performance?

This regression shows the results without effects of interaction or dummy variables for a whole period.

The number of observations shown in Table 4.8 is 924 except for the ROE model which is 917. This means there are few missing common values in ROE for a few years. We have done a Fixed Effect Model (FEM) and a Random Effect Model (REM) in cross-section. The difference between FE and RE is that FE assumes one true effect size where heterogeneity is ignored. Where RE assumes that study effect

is from a distribution of study effect, heterogeneity is incorporated. The purpose of the diversity of FEM and REM is to find if heterogeneity exists between the company types. Table 4.8 shows the results concluded in the three regression models.

In the ROA model, the results show that LEV has a significant negative relationship with firm performance at 0.05 (5%) level in FEM. This means the more the firm uses debt to invest, the greater the negative effect on the firm performance. In REM, LEV has a negative significant relationship with firm performance at 0.01 (1%) level. In the same model, the ESG has a significant negative relationship with firm performance at 0.05 (5%) level in FEM. This means the more the firm adopts ESG initiatives, the greater the negative effect on the firm performance. This might be because of the cost involved with ESG initiatives but this has not been investigated in our study. In REM, LEV has a negative significant relationship with firm performance at 0.01 (1%) level. The GDPGR has a positive relationship with firm performance at 0.01 (1%) level in both FEM and REM. Means the economic growth improve firms' performance. MB has a positive significant relationship with firm performance at 0.10 (10%) level in FEM. This means that the market-to-book value indicates a positive effect on firm performance. In goodness-of-fit statistics, R-square is 4% in FEM and 14% in REM, which explains the variation in dependents.

In the ROE model, the results show a negative relationship between MB and firm performance at 0.01 (1%) level in FEM and REM. This means the higher the market-to-book value, the lower the firm performance. The R-square is 1% in FEM and 6% in REM.

In Tobin's Q model, the results show that size has a significant negative relationship at 0.01 (1%) level in FEM and REM. This indicates that the higher the size of the company, the lower the firm performance. The ESG has a positive relationship with

firm performance at 0.01 (1%) level in FEM and REM. The R-square was 6% in FEM and 57% in REM.

4.4.2. Hausman test

The null hypothesis of the states that the random effect is the appropriate model. However, the alternative hypothesis states that the fixed effect regression is the appropriate model.

Test cross-section random effects			
Test summary (cross-section random)	Chi-Sq. Statics	Chi-Sq. d.f.	Prob.
ROA model	1.45	5	0.9191
ROE model	5.65	5	0.3423
Tobin's Q model	19.18	5	0.0018

Table 4.9. Hausman test

Based on the outcome of Table 4.9, the probability value of ROA and ROE models is more than 0.05. Therefore, accept the null hypothesis where the appropriate model of the study is the REM. However, for Tobin's Q the probability value is less than 0.05. Therefore, reject the null hypothesis and accept the alternative where the appropriate model is the FEM.

4.4.3. Effect of macroeconomic conditions on relationship between ESG and firm performance

Capital markets ignored sustainability until the onset of the financial crisis, unlike Non-Governmental Organizations (NGO) which had begun adopting ESG initiatives decades earlier. The view of firms is that high sustainability allows them to enjoy downside risk. Albuquerque et al., (2020) developed a theoretical framework where firms reduce systematic risk exposures using CSR activities. Therefore, the ESG is like a wall facing the macroeconomic conditions.

Variable	ROA	ROE	Tobin's Q
Intercept	4.02 (0.51)	-69.36 (-1.33)	11.60 (3.78)
SIZE	0.97 (0.86)	6.79 (0.83)	-1.75*** (-3.72)
LEV	-0.79*** (-3.14)	-0.37 (-1.57)	0.05*** (6.41)
GDPGR	0.30*** (5.19)	0.58 (0.47)	0.01 (0.15)
MB	0.02 (1.64)	-1.25 (-4.86)	0.01 (0.57)
ESG	-0.36** (-2.13)	-0.24 (-1.06)	0.03*** (6.18)
CRI	10.79*** (4.00)	24.90 (0.673)	0.21 (0.32)
Crisis ESG	-0.22** (-2.36)	-0.44 (0.827)	-0.02 (-0.67)
No of observations	924	917	924
R-square	0.15	0.06	0.06
F-stat			F(7,750)=12.58 Prob>F=0.0000
Hausman test	Chi2(25) =105.59 Prob>chi2=0.0000	Chi2(25) =57.06 Prob>chi2=0.0003	

Note: ***, ** and * are statical significance at 1%, 5% and 10% levels, respectively; t-statistics are reported in parentheses

Table 4.10. Regression results for crisis effect

Table 4.10 shows the results based on the equations (5), (6), (7). The crisis models were developed to answer the question: What is the effect of the financial crisis on the relationship between ESG and firm performance?

The ROA model is REM based on the Hausman test. The model in Table 4.10 shows that LEV has a negative significant relationship on firm performance at 0.01 (1%) level. ESG has a negative significant relationship on firm performance at 0.05 (5%) level. GDPGR has a positive significant relationship at 0.01 (1%) level. CRI has a significant positive relationship at 0.01 (1%) level. This indicates that the crisis affects firm performance negatively. The interaction variable has a significant negative relationship at 0.05 (5%) level. This indicates that the crisis that affects the ESG had a negative effect on firm performance during the CRISIS period.

The ROE model is REM based on the Hausman test. The model contains 917 observations. There are no significant variables in this model.

The Tobin's Q model is FEM based on the Hausman test. The model shows that SIZE has a significant negative effect on firm performance at 0.01 (1%) level. This means the larger the firm, the lower the firm performance at the period of crisis. LEV has a significant positive effect on firm performance at 0.01 (1%) level. This indicates that the higher the firm debt in relation to the shareholder's equity, the higher the firm performance at the crisis period. ESG has a significant positive effect on firm performance at 0.01 (1%) level.

The COVID-19 outbreak reshaped economies and led to corporate bankruptcies and job losses (Fu & Shen, 2020). The COVID-19 crisis has changed priorities to make policy makers focus on crisis management. The pandemic revealed the effectiveness of a company's structure and its resilience to social and economic stress. Also, there could be benefits to the environmental aspect of cleaner air. There are also benefits to the social factor of human capital. External factors like the policy of lockdowns are a vital reason for the economic impact on the financial crisis. Limited methodologies assess the impact of the COVID-19 pandemic on firms.

Variable	ROA	ROE	Tobin's Q
Intercept	6.13 (0.77)	-76.64 (-1.43)	12.44 (4.11)
SIZE	0.75 (0.64)	8.25 (1.00)	-1.86*** (-4.01)
LEV	-0.08*** (-2.98)	-0.389 (-1.64)	0.05*** (6.30)
GDPGR	0.27*** (4.26)	0.888 (0.67)	0.02 (1.61)
MB	0.02 (1.64)	-1.27*** (-4.91)	0.01 (0.06)
ESG	-0.05*** (-2.62)	-0.36 (-1.35)	0.02*** (4.16)
COVID	-1.78* (-1.77)	-2.64 (-0.13)	0.22 (0.90)
COVID ESG	0.02 (0.99)	0.25 (0.58)	0.01* (1.78)
No of observations	924	917	924
R-square	0.14	0.01	0.13
F-stat			F(7,750)=15.20
Hausman test	Chi2(25)=91.38 Prob>chi2=0.0000	Chi2(25)=57.25 Prob>chi2=0.0002	

Note: ***, ** and * are statistical significance at 1%, 5% and 10% levels, respectively; t-statistics are reported in parentheses

Table 4.11. Regression results for COVID-19 effect

Table 4.11 shows the results based on the equations (8), (9), (10) to answer the question: What is the effect of COVID-19 crisis on the relationship between ESG and firm performance?

Based on the Hausman test we have done, REM run for ROA and ROE, and FEM run for Tobin's Q, results are reported in Table 4.11.

In the pandemic, the ROA model concludes that LEV has a significant negative relationship on firm performance at 0.01 (1%) level. This means the more the company uses debt to raise funds, the lower the firm performance. In the same model, ESG has a significant negative relationship on firm performance at 0.01 (1%) level. This means there is a strong negative effect of ESG on firm performance during the COVID-19 period. Also, the model concludes that GDPGR has a significant positive relationship on firm performance at 0.01 (1%) level. GDPGR impacts the firm performance positively and this is a rational result. Moreover, COVID has a significant negative relationship on firm performance at 0.10 (10%) level. The dummy variable COVID which replaces the years 2020-2021 has a negative impact on firm performance during the COVID-19 pandemic.

The ROE model concludes that MB has a significant negative relationship on firm performance at 0.01 (1%) level. This indicates that the higher the MB, the lower the firm profitability ratios. The high MB indicates a high price share value.

Tobin's Q model concludes that SIZE has a significant negative relationship on firm performance at 0.01 (1%) level. This indicates that the larger the company, the lower the firm performance in COVID-19 period. LEV has a significant positive relationship on firm performance at 0.01 (1%) level. This result is the vice versa of the ROA model result. ESG has a significant positive relationship on firm performance at 0.01 (1%) level. The interaction variable COVID ESG has a positive relationship on firm performance at 0.10 (10%) level which means that ESG had a positive effect on firm performance during COVID-19.

4.4.4. Robustness check

Variable	ROA	ROE	Tobin's Q
SIZE	2.89** (2.45)	5.83** (-2.16)	-0.98* (-1.74)
LEV	-0.06** (-2.25)	-0.50 (-0.03)	0.06*** (7.51)
ESG L1	-0.04*** (-2.67)	-0.02* (-0.85)	0.04*** (6.95)
GDPGR	0.34*** (6.68)	0.90 (0.79)	0.04*** (2.71)
MB	0.05*** (3.27)	-0.81*** (2.62)	-0.01* (1.62)
No of observations	878	871	879
R-square	0.09	0.02	0.14

Note: ***, ** and * are statistical significance at 1%, 5% and 10% levels, respectively; t-statistics are reported in parentheses

Table 4.12. Regression results for lagged ESG

Some researchers have argued that the effect of ESG takes time, therefore we used lagged ESG (t-1) to check the effect. The PRI, the World's Leading Proponent of Investment (2018), stated that SI requires a long-time perspective. Also, Eccles et al. (2014) state that significantly outperforming their counterparts over the long term. Therefore, we conducted lagged ESG (t-1).

The results in Table 4.12 show the 3 models analysis results. In ROA FEM, SIZE has a significant positive effect on firm performance at 0.05 (5%) level. LEV has a significant negative effect on firm performance at 0.05 (5%) level. ESG L1 has a significant negative relationship to firm performance at 0.01 (1%) level. GDPGR has a significant positive effect on firm performance at 0.01 (1%) level. MB has a significant positive effect on firm performance at 0.01 (1%) level.

In ROE REM, SIZE has the same result of ROA FEM. ESG L1 has a significant negative effect on firm performance at 0.10 (10%) level. This indicates that ESG in the long term will affect firm performance negatively, and this is not a rational result.

MB has a significant negative effect on firm performance at 0.01 (1%) level. This result is the vice versa effect of ROA result.

In Tobin's Q REM, SIZE has a significant negative effect on firm performance at 0.10 (10%) level. This means that in the long term, firm SIZE will affect firm performance negatively. LEV has a significant positive effect on firm performance at 0.01 (1%) level. This indicates that the high use of debt rather than shareholder wealth will increase the firm performance in the long term. ESG L1 has a significant positive effect on firm performance at 0.01 (1%) level. Therefore, ESG will help the firm to have a better performance in the long term. GDPGR has a significant positive effect on firm performance at 0.01 (1%) level. Therefore, the economic growth will help in increasing firm performance in the long term. MB has a significant negative effect on firm performance at 0.10 (10%) level. This indicates that the higher MB will affect firm performance negatively. This may happen because of overvalued shares.

4.5. Comparison between Whole period and crises results

Variable	WHOLE PERIOD			FINANCIAL CRISIS			COVID-19		
	ROA	ROE	Tobin's Q	ROA	ROE	Tobin's Q	ROA	ROE	Tobin's Q
Intercept									
SIZE			-			-			-
LEV	-		+			+	-	-	+
GDPGR	+						+		
MB		-						-	
ESG	-		+			+	-		+
CRI						+			
Crisis ESG						-			
COVID							-		
COVID ESG							+		

Table 4.13. Comparison results between periods

Table 4.13 shows the results comparison between periods. The main points is that the ESG has mixed results in all periods except the financial crisis period it was significant negative relationship between ESG and firms performance in Tobin's Q model. An important note, the results of SIZE was significant negative relationship in the three periods for all Tobin's Q models. MB was significant negative relationship in ROE models of ROA and Tobin's Q model. The CRI has a significant positive relationship on firm performance. However, COVID has a significant negative relationship on firm performance.

4.6. Discussion of results

Hypothesis	ROA model	ROE model	Tobin's Q model
H ₁ : There is a negative significant relationship between sustainability and performance	Accept	Reject	Reject
H ₂ : There is a positive significant relationship between firm SIZE performance	Reject	Reject	Reject
H ₃ : There is a negative significant relationship between firm LEV and performance	Accept	Reject	Reject
H ₄ : There is a negative significant relationship between firm MB and performance	Reject	Accept	Accept
H ₅ : There is no significant relationship between economic growth and performance	Reject	Accept	Accept
H ₆ : There is a negative significant relationship between financial crisis and performance	Reject	Reject	Reject
H ₇ : There is a negative significant relationship between COVID – 19 crisis and performance	Accept	Reject	Reject

Table 4.14. Main regression results hypothesis testing

Table 4.14 provides a summary of the results with respect to the hypotheses. The null hypothesis is accepted when p-value is 10% or lower and the alternative hypothesis is rejected. The researcher accepts the hypothesis of negative relationship between sustainability and performance in the ROA model only. The findings support the following theories: Neoclassical, Shareholder, agency, institutional, legitimacy, signaling, triple bottom line, capital structure theories. Farooq, O. (2015) supported this finding. In Tobin's Q model ESG had a positive relationship between sustainability and performance. It is mainly clear that more sustainable firm has better performance in the long-run. The researcher rejects the hypothesis that SIZE has a positive significant relationship with firm performance in all models. Large firms usually tend to invest into the ESG activities because of economies of scale to better reflects shareholders' demand. However, the researcher rejects this hypothesis because it is likely that firms in MENA are not sensitive to ESG and firm performance. As the results show, vice versa has a negative effect on performance in Tobin's Q model. The result is consistent with shareholder and legitimacy theory.

The smaller the firms' size, the better firm's performance. Also, we accept the hypothesis that LEV has a significant negative relationship with performance in the ROA model. Farooq, O. (2015) supported this finding. With respect to MB, we accept that MB has a negative significant relationship with performance in the ROE model. This result is supported by (Ruan, L., & Liu, H., 2021). Also, we accept that there is no significant relationship between economic growth and firm performance in the ROE and Tobin's Q models. Buallay et al. (2020) supported this finding. Moreover, all models reject the hypothesis of the negative relationship between the financial crisis and performance. The ROA model found a positive effect on firm performance. The interaction variable CRI ESG found a negative effect on firm performance in the ROA model which means the ESG in the crisis period negatively affected firm performance. The researcher accepts that there is a negative significant relationship between COVID-19 and firm performance in the ROA model. Hwang et al. (2021) supported this finding. Accepting the hypothesis that there is negative significant effect on firm performance in the ROA model supports the shareholder theory by Friedman (1970) and the legitimacy theory supported by Cho et al. (2012).

5. Conclusions, limitations and recommendations

5.1. Introduction

This chapter summarizes the overall content of the thesis. Also, it includes the limitations of the study and recommendations for further research.

5.2. Summary and conclusion

The aim of the study was to investigate the relationship between performance and sustainability in MENA region listed non-financial firms in different times and macroeconomic conditions to know whether this creates value for shareholders. Therefore, we examined a sample of listed firms in the region between 2006-2021 where two huge crises happened. The sample contained 3186 listed non-financial firms and 3200 firm-year observations.

The researcher formulated models by size, leverage, ESG, gross domestic product growth, market-to-book, the financial crisis, and COVID-19. To differentiate between models, we used dependent variables ROA, ROE, and Tobin's Q and ran a Hausman test to check which to use between the fixed effect model and the random effect model. The appropriate model was random for ROA and ROE. However, it was fixed for Tobin's Q.

The regression results show mixed results regarding the main model of the effect of ESG on firm performance. The effect of ESG on firm performance during crisis period was negative in ROA model, while during the COVID-19 effect on firm performance was positive in Tobin's Q model. However, the effect of COVID-19 on ESG scores was huge. Results of SIZE show a negative effect on firm performance. ESG has mixed results. In the main regression model ESG negative has significant effect on performance in the ROA model. However, ESG has a significant positive effect on firm performance in Tobin's Q model. In the financial crisis period, ESG shows a negative significant effect on firm performance in ROA

model. However, ESG has a positive significant effect on firm performance in Tobin's Q model in the financial crisis period. In the COVID-19 period, ESG has a negative significant effect on firm performance in the ROA model. However, ESG has a positive significant effect on firm performance in Tobin's Q model. Leverage obtained mixed results but mostly shows a negative effect on firm performance in the economic conditions. However, the market-to-book ratio mostly has no significant effect on firm performance. Gross domestic product growth mostly has a positive significant effect on firm performance in the economic conditions.

The study provides a clear understanding of mixed result because of the different regression models and different dependent variables. The literature review helps to show the consistent theories with the results.

5.3. Limitations

The most important limitation in this study is data availability. For many years in many companies and countries, ESG scores were not recorded. Many countries have paid attention to the importance of ESG recently, especially after the crisis period. Therefore, data availability of ESG has limited our ability to have a larger sample.

Due to time limitation, the researcher advised to include Autoregression Distributed Lag (ARDL) estimation to analyze dynamic relationships with time series data which is the causality direction between the considered variables. Moreover, the researcher advised to include more robustness checks.

5.4. Recommendations

It is recommended that countries develop standards for companies for ESG investing which will help investors, shareholders, and firms in the decision-making process. Assessing ESG policies defines companies' goals and metrics to achieve them. We also recommend that future research investigates the effect of crisis on ESG regulations among MENA countries. Moreover, it is recommended to compare the impact of ESG on the performance of banks vs non-financial firms. It is also suggested that policy makers enhance the awareness of firms regarding the importance of ESG, especially since many countries in the MENA region are engaged in working towards achieving the 17 goals of SDGs.

The next researchers may include control variables such as Market Value, Total Assets, Capital expenditure, and Effective Tax rate, as well as many macroeconomic variables such as Governance Variable, and Inflation Rate.

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Appendix

Aksa Akrilik Kimya Sa0yii AS	Turkey	Consumer cyclicals
Magic Software Enterprises Ltd	Israel	Technology
Nice Ltd	Israel	Technology
Cimsa Cimento Sa0yi ve Ticaret AS	Turkey	Basic Materials
ENKA Insaat ve Sa0yi AS	Turkey	Industrials
A0dolu Efes Biracilik ve Malt Sa0yii AS	Turkey	Consumer non-cyclicals
Eregli Demir ve Celik Fabrikalari TAS	Turkey	Basic Materials
Raysut Cement Company SAOG	Oman	Basic Materials
Migros Ticaret AS	Turkey	consumer non-cyclicals
Ford Otomotiv Sa0yi AS	Turkey	Consumer cyclicals
Polisan Holding AS	Turkey	Basic Materials
Petkim Petrokimya Holding AS	Turkey	Basic Materials
Tofas Turk Otomobil Fabrikasi AS	Turkey	Consumer cyclicals
Turkiye Sise ve Cam Fabrikalari AS	Turkey	Industrials
Cognyte Software Ltd	Israel	Technology
Turkiye Petrol Rafinerileri AS	Turkey	Energy
Turk Hava Yollari AO	Turkey	Industrials
ICL Group Ltd	Israel	Basic Materials
Telecom Egypt Co SAE	Egypt	Technology
Bezeq Israeli Telecommunication Corp Ltd	Israel	Technology
Aygaz AS	Turkey	Energy
Brisa Bridgestone Sabanci Lastik Sa0yi ve Ticaret AS	Turkey	Consumer cyclicals
Kordsa Teknik Tekstil AS	Turkey	Consumer cyclicals
Vestel Elektronik Sa0yi ve Ticaret AS	Turkey	Technology
Dyo Boya Fabrikalari Sa0yi Ve Ticaret AS	Turkey	Basic Materials
Arcelik AS	Turkey	Consumer cyclicals
Aselsan Elektronik Sa0yi ve Ticaret AS	Turkey	Industrials
Israel Corporation Ltd	Israel	Basic Materials
Teva Pharmaceutical Industries Ltd	Israel	health care
Akcansa Cimento Sa0yi ve Ticaret AS	Turkey	Basic Materials
Kerevitas Gida Sa0yi ve Ticaret AS	Turkey	consumer non-cyclicals
Saudi Basic Industries Corporation SJSC	Saudi Arabia	Basic Materials
SABIC Agri-Nutrients Company SJSC	Saudi Arabia	Basic Materials
Savola Group Co	Saudi Arabia	consumer non-cyclicals
Eastern Company SAE	Egypt	consumer non-cyclicals
Taro Pharmaceutical Industries Ltd	Israel	health care
Bahrain Duty Free Shop Complex BSC	Bahrain	Industrials
Saudi Cement Company SJSC	Saudi Arabia	Basic Materials
Batm Advanced Communications Ltd	Israel	Technology
Pi0r Entegre Et ve Un Sa0yii AS	Turkey	consumer non-cyclicals
Pi0r Sut Mamulleri Sa0yii AS	Turkey	consumer non-cyclicals

Global Yatirim Holding AS	Turkey	Industrials
Arab Potash Co PLC	Jordan	Basic Materials
Emaar Properties PJSC	United Arab Emirates	Real estate
Gulf Hotel Group BSC	Bahrain	Consumer cyclicals
Mobile Telecommunications Company KSCP	Kuwait	Technology
Agility Public Warehousing Company KSCP	Kuwait	Industrials
Dubai Investments PJSC	United Arab Emirates	consumer non-cyclicals
Partner Communications Company Ltd	Israel	Technology
Netas Telekomunikasyon AS	Turkey	Technology
Otokar Otomotiv ve Savunma Sa0yi AS	Turkey	Consumer cyclicals
Bahrain Commercial Facilities Co BSC	Bahrain	Real estate
Tat Gida Sa0yi AS	Turkey	consumer non-cyclicals
Dogan Sirketler Grubu Holding AS	Turkey	consumer non-cyclicals
Qatar Cinema and Film Distribution Co QPSC	Qatar	Consumer cyclicals
Qatar Electricity and Water Company QPSC	Qatar	Utilities
Zad Holding Company QPSC	Qatar	consumer non-cyclicals
Qatar Industrial Manufacturing Company QPSC	Qatar	consumer non-cyclicals
Qatar Otio0l Cement Company QPSC	Qatar	consumer non-cyclicals
Qatar 0vigation QPSC	Qatar	Utilities
Ooredoo QPSC	Qatar	Technology
Silicom Ltd	Israel	Technology
Tamdeen Real Estate Co KPSC	Kuwait	Real estate
Medicare Group QPSC	Qatar	Health care
Egypt Kuwait Holding Co SAE	Egypt	basic materials
Check Point Software Technologies Ltd	Israel	Technology
SASA Polyester Sa0yi AS	Turkey	Consumer cyclicals
Elbit Systems Ltd	Israel	industrials
Salam Inter0tio0l Investment QPSC	Qatar	consumer non-cyclicals
Sapiens Inter0tio0l Corporation NV	Israel	Technology
Ituran Location and Control Ltd	Israel	Technology
Kardemir Karabuk Demir Celik Sa0yi ve Ticaret AS	Turkey	basic materials
Ceragon Networks Ltd	Israel	Technology
Mabane Company KPSC	Kuwait	Real estate
0tio0l Industrialization Company SJSC	Saudi Arabia	basic materials
Turkcell Iletisim Hizmetleri AS	Turkey	technology
Akenerji Elektrik Uretim AS	Turkey	utilities
SHL Telemedicine Ltd	Israel	Health care
Ezz Steel Co SAE	Egypt	basic materials
Delek Group Ltd	Israel	energy
Karsan Otomotiv Sa0yii ve Ticaret AS	Turkey	industrials
Logo Yazilim Sa0yi ve Ticaret AS	Turkey	technology

Zorlu Enerji Elektrik Uretim AS	Turkey	utilities
Global Telecom Holding SAE	Egypt	technology
Nova Ltd	Israel	technology
Qatari German Company for Medical Devices QPSC	Qatar	Health care
Saudi Electricity Company SJSC	Saudi Arabia	energy
Emirates Telecommunications Group Company PJSC	United Arab Emirates	technology
Qatar Fuel Company QPSC	Qatar	energy
Koza A0dolu Metal Madencilik Isletmeleri AS	Turkey	basic materials
Saudi Telecom Company SJSC	Saudi Arabia	technology
United Development Company QPSC	Qatar	real estate
Industries Qatar QPSC	Qatar	consumer non-cyclicals
Alijarah Holding Co QPSC	Qatar	real estate
Jarir Marketing Company SJSC	Saudi Arabia	Consumer cyclicals
Widam Food Company QPSC	Qatar	consumer non-cyclicals
Saudi Industrial Investment Group SJSC	Saudi Arabia	basic materials
Ulker Biskuvi Sa0yi AS	Turkey	consumer non-cyclicals
Gulf Warehousing Company QPSC	Qatar	industrials
Turk Traktor ve Ziraat Makineleri AS	Turkey	industrials
Dogus Otomotiv Servis ve Ticaret AS	Turkey	industrials
Coca-Cola Icecek AS	Turkey	consumer non-cyclicals
Etihad Etisalat Company SJSC	Saudi Arabia	technology
Itissalat Al Maghrib Ste SA	Morocco	technology
Arabtec Holding PJSC	United Arab Emirates	industrials
Aldar Properties Pjsc	United Arab Emirates	real estate
Qatar Gas Transport Okilat Co Ltd QPSC	Qatar	energy
BIM Birlesik Magazalar AS	Turkey	Consumer cyclicals
Aramex PJSC	United Arab Emirates	industrials
Oman Telecommunications Company SAOG	Oman	technology
Almarai Company SJSC	Saudi Arabia	Consumer cyclicals
Barwa Real Estate Company QPSC	Qatar	real estate
Yanbu Otio0l Petrochemicals Company SJSC	Saudi Arabia	basic materials
Vestel Beyaz Esya Sa0yi ve Ticaret AS	Turkey	Consumer cyclicals
Emirates Integrated Telecommunications Company PJSC	United Arab Emirates	technology
Selcuk Ecza Deposu Ticaret ve Sa0yi AS	Turkey	consumer non-cyclicals
El Sewedy Electric Co SAE	Egypt	industrials
Douja Promotion Groupe Addoha SA	Morocco	real estate
Qatari Investors Group QPSC	Qatar	basic materials

Lamprell Plc	United Arab Emirates	energy
Emaar The Economic City SJSC	Saudi Arabia	real estate
Allot Ltd	Israel	Consumer cyclicals
Sahara InterOil Petrochemical Company SJSC	Saudi Arabia	basic materials
Cellcom Israel Ltd	Israel	technology
Advanced Petrochemical Co SJSC	Saudi Arabia	basic materials
Saudi Kayan Petrochemical Company SJSC	Saudi Arabia	basic materials
TAV Havalimanlari Holding AS	Turkey	industrials
Quraia Petrochemical Industries Company KSCP	Kuwait	basic materials
Mano Corporation QPSC	Qatar	technology
Tekfen Holding AS	Turkey	industrials
Mobile Telecommunications Company Saudi Arabia SJSC	Saudi Arabia	technology
Talaat Mostafa Group Holding Co SAE	Egypt	real estate
Rabigh Refining and Petrochemical Company SJSC	Saudi Arabia	energy
Dar Al Arkan Real Estate Development Company SJSC	Saudi Arabia	real estate
Aamal Company QPSC	Qatar	consumer non-cyclicals
Koza Altin Isletmeleri AS	Turkey	basic materials
Saudi Arabian Mining Company SJSC	Saudi Arabia	basic materials
Ezdan Holding Group QPSC	Qatar	real estate
Gulf InterOil Services QPSC	Qatar	energy
Abdullah Al Othaim Markets Company SJSC	Saudi Arabia	consumer non-cyclicals
Vodafone Qatar PQSC	Qatar	technology
Turk Telekomunikasyon AS	Turkey	technology
Mazaya Real Estate Development QPSC	Qatar	real estate
Mouwasat Medical Services Company SJSC	Saudi Arabia	health care
Oil Petrochemical Company SJSC	Saudi Arabia	basic materials
Al Meera Consumer Goods Company QPSC	Qatar	consumer non-cyclicals
Emlak Konut Gayrimenkul Yatirim Ortakligi AS	Turkey	real estate
Aksa Enerji Uretim AS	Turkey	utilities
Pegasus Hava Tasimaciligi AS	Turkey	industrials
Azrieli Group Ltd	Israel	real estate
Anel Elektrik Proje Taahhut ve Ticaret AS	Turkey	industrials
Omani Qatari Telecommunications Company SAOG	Oman	technology
Bizim Toptan Satis Magazalari AS	Turkey	Consumer cyclicals
Saudi Airlines Catering Company SJSC	Saudi Arabia	industrials
Enerjisa Enerji AS	Turkey	utilities
Caesarstone Ltd	Israel	Consumer cyclicals
Gulf Marine Services PLC	United Arab Emirates	energy

Akis Gayrimenkul Yatirim Ortakligi AS	Turkey	real estate
Halk Gayrimenkul Yatirim Ortakligi AS	Turkey	real estate
Sembcorp Salalah Power and Water Company SAOG	Oman	utilities
Mesaieed Petrochemical Holding Company QPSC	Qatar	basic materials
Wix.Com Ltd	Israel	technology
Dr Sulaiman Al-Habib Medical Services Group Co	Saudi Arabia	health care
Tremor Inter0tio0l Ltd	Israel	Consumer cyclicals
Cyberark Software Ltd	Israel	technology
Kuwait Telecommunications Company KSCP	Kuwait	technology
Solaredge Technologies Inc	Israel	energy
Damac Properties Dubai PJSC Co	United Arab Emirates	real estate
Kornit Digital Ltd	Israel	industrials
Sok Marketler Ticaret AS	Turkey	Consumer cyclicals
Saudi Arabian Oil Co	Saudi Arabia	energy
Iskenderun Demir ve Celik AS	Turkey	basic materials
Investment Holding Group QPSC	Qatar	industrials
Urogen Pharma Ltd	Israel	health care
Mavi Giyim Sa0yi ve Ticaret AS	Turkey	Consumer cyclicals
Emaar Development PJSC	United Arab Emirates	real estate
MLP Saglik Hizmetleri AS	Turkey	health care
Abu Dhabi Otio0l Oil Company for Distribution PJSC	United Arab Emirates	energy
Ra Inter0tio0l Group Plc	United Arab Emirates	industrials
Qatar Aluminum Manufacturing Company QPSC	Qatar	basic materials
Network Inter0tio0l Holdings PLC	United Arab Emirates	industrials
Fiverr Inter0tio0l Ltd	Israel	technology
Balad0 QPSC	Qatar	consumer non-cyclicals
NeoGames SA	Israel	technology
Playtika Holding Corp	Israel	technology
Galata Wind Enerji Anonim Sirket	Turkey	utilities
Bahrain Tourism Co	Bahrain	Consumer cyclicals
Orange Egypt for Telecommunications SAE	Egypt	technology
Dragon Oil LLC	United Arab Emirates	energy
Mellanox Technologies Ltd	Israel	technology
Adama Agricultural Solutions Ltd	Israel	basic materials
Frutarom Industries Ltd	Israel	consumer non-cyclicals
Kuwait Food Company KSCP	Kuwait	Consumer cyclicals

DP World Ltd	United Arab Emirates	industrials
Frakya Cam Sa0yii AS	Turkey	Consumer cyclicals
Şoda Sa0yii AS	Turkey	basic materials
A0dolu Cam Sa0yii AS	Turkey	basic materials
Mobileye BV	Israel	technology
Emaar Malls PJSC	United Arab Emirates	real estate
DXB Entertainments PJSC	United Arab Emirates	Consumer cyclicals

Table 0.1 List of firms in the sample

الملخص

الغرض من الدراسة- استخدمت القضايا البيئية والاجتماعية والحوكمة على نطاق واسع من قبل الشركات والبلدان بسبب طلب المساهمين لمزيد من الشفافية بشأن القضايا البيئية والاجتماعية والحوكمة، وتهدف الدراسة إلى رصد العلاقة بين المعايير البيئية والاجتماعية والحوكمة وأداء الشركات في منطقة الشرق الأوسط وشمال إفريقيا، وتناولت الدراسة أيضًا تأثير الأزمة المالية وكوفيد-١٩ على العلاقة بين الحوكمة البيئية وأداء الشركات، علاوة على ذلك فحصت الدراسة تأثير النماذج على البيئة والاجتماعية والحوكمة على المدى الطويل.

المنهجية- تبحث هذه الدراسة العلاقة بين المعايير البيئية والاجتماعية والحوكمة وأداء الشركات في منطقة الشرق الأوسط وشمال إفريقيا من خلال تحليل ٢٠٠ شركة مدرجة في أسواق الأسهم لدول منطقة الشرق الأوسط وشمال إفريقيا على مدى ١٥ عامًا (٢٠٠٦-٢٠٢١)، وحددت الدراسة عامي (٢٠٠٧-٢٠٠٨) كفترة للأزمة المالية، وعامي (٢٠٢٠-٢٠٢١) فترة لجائحة كوفيد-١٩، والمتغيرات المستقلة هي العائد على الأصول والعائد على حقوق المساهمين ومؤشر توبين كيو، وتستخدم هذه الدراسة متغيرات التحكم الخاصة بالشركة في النماذج.

النتائج- تركز الدراسة على إيجاد العلاقة بين الاستدامة والأداء في الشركات غير المالية، وفي تحليل التراجع، وجدت الدراسة تأثيرًا سلبيًا للمعايير البيئية والاجتماعية والحوكمة على أداء الشركة في نموذج العائد على الأصول. ومع ذلك، فقد وجدت تأثيرًا إيجابيًا على أداء الشركة في مؤشر توبين كيو، كما كان لنسبة السوق إلى القيمة الدفترية تأثيرًا سلبيًا كبيرًا على نموذج العائد على حقوق المساهمين.

في فترة الأزمة المالية، كان للقضايا البيئية والاجتماعية والحوكمة تأثير سلبي كبير على أداء الشركة في نموذج توبين كيو، كما كان للرافعة المالية تأثير سلبي كبير على أداء الشركة في نموذج العائد على الأصول. كان للحوكمة البيئية والاجتماعية وتأثير إيجابي في نموذج توبين كيو، وكان للنمو الاقتصادي تأثيرًا إيجابيًا على أداء الشركة في نموذج العائد على الأصول، وكما كان لنسبة السوق إلى القيمة الدفترية تأثيرًا سلبيًا في نموذج العائد على الأصول. كما وجد متغير التفاعل، وهو الحوكمة البيئية والاجتماعية والحوكمة في فترة كوفيد تأثيرًا إيجابيًا على أداء الشركة في نموذج توبين كيو.

القيمة- تسد الدراسة فجوة في الأدبيات من خلال دراسة تأثير الاستدامة في الشركات غير المالية في منطقة الشرق الأوسط وشمال إفريقيا. كما أنه يساهم في الموضوع العصري وهو الحوكمة البيئية والاجتماعية والحوكمة، والذي يحظى باهتمام مختلف أصحاب المصلحة.

جامعة البحرين
كلية إدارة الأعمال
قسم الاقتصاد والمالية



الاستدامة والأداء: دراسة حالة في منطقة الشرق الأوسط وشمال إفريقيا

أطروحة مقدمة كجزء من متطلبات الحصول على درجة الماجستير في المالية

إعداد

أحمد جواد أحمد

الرقم الجامعي: ٢٠١٦٢٥٠٠

إشراف

د. يمني عبدالله

جامعة البحرين

مملكة البحرين

يونيو ٢٠٢٣ م