EFFECT OF BOARD OF DIRECTORS' CHARACTERISTICS ON CORPORATE SUSTAINABILITY AND FIRM PERFORMANCE THROUGH CORPORATE GOVERNANCE

MALEE JATURAT

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY PROGRAM IN BUSINESS ADMINISTRATION

FACULTY OF BUSINESS ADMINISTRATION
RAJAMANGALA UNIVERSITY OF TECHNOLOGY THANYABURI

ACADEMIC YEAR 2021

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Dissertation Title	Effect of Board of Directors' Characteristics on Corporate Sustainability and Firm Performance through Corporate Governance
Name – Surname	Mrs. Malee Jaturat
Program	Business Administration
Dissertation Advisor	Assistant Professor Kusuma Dampitakse, Ph.D.
Dissertation Co-advisor	Associate Professor Chanongkorn Kuntonbutr, D.B.A.
Academic Year	2021

DISSERTATION COMMITTEE

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(Associate Professor Kanibhatti Nitirojntanad, D.B.A.)

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..... Committee
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..... Committee
(Assistant Professor Kusuma Dampitakse, Ph.D.)

Approved by the Faculty of Business Administration, Rajamangala University of Technology Thanyaburi in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

..... Dean of Faculty of Business Administration
(Assistant Professor Nartraphee Tancho, Ph.D.)

January 20, 2022

ชื่อเรื่องดุษฎีนิพนธ์	ผลกระทบของคุณสมบัติคณะกรรมการบริษัทต่อความยั่งยืนและผลการดำเนินงานขององค์การ ผ่านการกำกับดูแลกิจการ
ชื่อ-นามสกุล	นางมาลี จตุรัส
สาขาวิชา	บริหารธุรกิจ
อาจารย์ที่ปรึกษาหลัก	ผู้ช่วยศาสตราจารย์กุสุมา ดำพิทักษ์, ปร.ด.
อาจารย์ที่ปรึกษาร่วม	รองศาสตราจารย์ชนงกรณ์ กุณฑลบุตร, D.B.A
ปีการศึกษา	2564

บทคัดย่อ

การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อศึกษาความสัมพันธ์ระหว่างคุณสมบัติของคณะกรรมการกับความยั่งยืน และผลการดำเนินงานของบริษัท การศึกษานี้มีวัตถุประสงค์เพื่อตรวจสอบการกำกับดูแลกิจการ และบทบาทของคณะกรรมการในการกำกับดูแลกิจการในโมเดลการวิจัย คุณสมบัติของคณะกรรมการบริษัทที่ใช้ในการศึกษาคือ สัดส่วนของคณะกรรมการเพศหญิง อายุ ระดับการศึกษา สาขาวิชาที่ศึกษา เครือข่ายทางการเมือง ระยะเวลาการดำรงตำแหน่ง และค่าตอบแทนคณะกรรมการ ความยั่งยืนขององค์การ ใช้กรอบการรายงานความยั่งยืน(GRI) เป็นตัวแปรในการวัด การวัดผลการดำเนินงานใช้อัตราผลตอบแทนต่อสินทรัพย์ อัตราผลตอบแทนต่อส่วนของผู้ถือหุ้น อัตราการเติบโตของยอดขาย อัตราส่วนระหว่างมูลค่าของบริษัทต่อมูลค่าของสินทรัพย์ อัตราการเติบโตอย่างยั่งยืน และผลตอบแทนจากหลักทรัพย์โดยใช้แนวคิดแบบจำลองการประเมินราคาของหลักทรัพย์ กลุ่มตัวอย่างที่ใช้คือบริษัทที่จดทะเบียนกับตลาดหลักทรัพย์แห่งประเทศไทย จำนวน 508 บริษัท สถิติที่ใช้ในการทดสอบสมมติฐานคือ การวิเคราะห์การถดถอยพหุคูณ

ผลของการวิจัยพบว่า สัดส่วนของคณะกรรมการที่มีอายุมากกว่า 50 ปี สัดส่วนของคณะกรรมการที่จบการศึกษาด้านวิศวกรรม สัดส่วนของคณะกรรมการที่มีเครือข่ายทางการเมือง และค่าตอบแทนคณะกรรมการมีผลกระทบต่อความยั่งยืนขององค์การ สัดส่วนของคณะกรรมการที่จบการศึกษาด้านวิทยาศาสตร์มีผลกระทบต่อผลการดำเนินงานขององค์การ นอกจากนี้ยังพบว่า การดำเนินงานตามหลักการกำกับดูแลกิจการเป็นปัจจัยที่ทำหน้าที่เป็นสื่อกลางระหว่างคุณสมบัติของคณะกรรมการบริษัทกับความสามารถในการดำรงอยู่ในระยะยาวขององค์กร อันเป็นการส่งเสริมให้เกิดผลลัพธ์ที่ต้องการ

การค้นพบดังกล่าวเป็นประโยชน์ต่อผู้ถือหุ้นในฐานะเจ้าของกิจการ ในการระบุคุณสมบัติของบุคคลเพื่อพิจารณาแต่งตั้งมาเป็นกรรมการบริษัท นอกจากนี้ สำนักงานคณะกรรมการกำกับหลักทรัพย์และตลาดหลักทรัพย์สามารถใช้ผลการศึกษาความสำคัญของการกำกับดูแลกิจการที่ดี เพื่อจูงใจให้องค์กรปฏิบัติตนอย่างมีความรับผิดชอบมากขึ้น และส่งเสริมความโปร่งใสของบริษัท และใช้ผลการศึกษานี้เป็นแนวทางในการกำหนดคุณสมบัติของคณะกรรมการบริษัทที่เข้าจดทะเบียนในตลาดหลักทรัพย์แห่งประเทศไทย

คำสำคัญ: คุณสมบัติของคณะกรรมการบริษัท ความยั่งยืน ผลการดำเนินงาน การกำกับดูแลกิจการ

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ABSTRACT

The purpose of this research is to investigate the relationship between the characteristics of the board of directors and the sustainability and performance of the company. The study also aims to investigate corporate governance and the role of the board of directors as a mediator in the research model. The characteristics of the board of directors were studied, including the number of women on the board, the age of the board, the level of education, the field of education, the political connections of the board, the length of the board's tenure, and the compensation of the board. The Global Reporting Initiative was used to measure sustainability while the return on assets, return on equity, sales growth, Tobin's Q, sustainability growth rate, and security return based on the capital asset pricing model were used to measure firm performance. The research sample consisted of 508 companies that are publicly traded on the Stock Exchange of Thailand. The hypotheses and the effects between variables were tested using multiple regression analysis.

The results revealed that the proportion of the board of directors who are over 50 years old, the proportion of the board of directors who have graduated in an engineering field, the proportion of boards who have a political connection, and who are motivated by board compensation all have an impact on the sustainability of a company. The proportion of boards that have graduated in science-related degrees has an impact on the performance of the company. Furthermore, corporate governance serves as a mediator

between the characteristics of the board of directors and the long-term viability of the organization, thereby encouraging the desired outcome.

The findings should be useful to the shareholders in determining which characteristics of individuals should be considered for the appointment to the board of directors. In addition, the Securities and Exchange Commission can use the results of the study on the importance of corporate governance to motivate organizations to conduct themselves more responsibly and to maintain their company transparency. Furthermore, the findings may be used as a guide to determine board qualifications for companies that are listed on the Stock Exchange of Thailand.

Keywords: board of directors, characteristics, sustainability, firm performance, corporate governance

Acknowledgment

This dissertation would not have been possible without all of the assistance and support I received while working on it.

I would like to express my deepest appreciation to my advisors, Assistant Professor Dr. Kusuma Dampitakse and Associate Professor Dr.Chanongkorn Kuntonbutr, for their invaluable help in developing the research and methodology. Your thoughtful comments inspired me to improve my thinking and the overall quality of my work.

My heartfelt gratitude goes to the members of the committee, Associate Professor Dr.Kanibhatti Nitirojntanad, Associate Professor Dr.Sungworn Ngudgratoke, and Assistant Professor Dr.Nartraphee Tancho, for their constructive and insightful comments, as well as their invaluable guidance and suggestions.

Finally, I would like to express my gratitude to my parents and family for their unending encouragement and support.

Malee Jaturat

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CHAPTER 1
INTRODUCTION

1.1 Background and Statement of the Problem

Since the end of the previous decade, business enterprises from a wide range of industrial sectors have played an essential role in the growth of the country economy. Business transactions have had an impact on employment, taxes, the government budget, and the development of technology, all of which have contributed to the economic success and human development of the nation. Many businesses have been in operation for a long length of time and have been able to produce revenue for the businesses and their owners up to this point. On the contrary, several businesses have failed and been forced to shut down their services. These failures have led to the economic and social problems in the form of unemployment, economic crisis, and a decrease in purchasing power.

The board of directors has the responsibility of management in order to benefit an organization or a business owner. Generally, businesses encounter board of directors' issues, such as operational transparency, honesty, and social and environmental responsibility, as well as ethical concerns. Despite the fact that large businesses in Thailand and abroad have been in operation for a long time, some have encountered problems arising from board of directors' non-transparent management. For instance, Enron Corporation, an American energy business that provided commodities and services, declared bankruptcy in 2001, and thousands of employees were laid off (Rhode & Paton, 2002). Another example is Arthur Anderson, an auditing and consulting firm that had been in operation for more than a century, which was forced to close its business since the executives failed to maintain transparency in their manipulation of the financial system, including accounting systems, income management, and off-balance sheet liabilities. Similarly, WorldCom Corporation, an applicable network operator, declared bankruptcy in 2003 due to incorrectly recorded GAAP (generally accepted accounting principles) (Lavey, 2006). In addition, the bankruptcy of Parmalat Dairy, a large Italian firm in the food industry, was caused by the president and board of directors' investment portfolio management based on their personal preferences, such as the football club and tour services of Parma Tour Company (Dobson, 2004). Not only the world large

corporations, other businesses around the world may have encountered similar problems. As a result, investors and academics throughout the world have begun to pay attention to corporate governance, and created a policy for best practices in corporate governance in order to improve managerial behaviors for greater ethical concern.

In 1997, Thailand encountered a financial-economic crisis known as the "Tom Yum Goong Crisis". Unethical business practices were identified as one of the major causes of the crisis. The Thai government had no choice, but to float national currency value. As a result, the depreciation of the Thai baht had an impact on a variety of industries, beginning with financial institutions and real estate. Many business firms had to go out of business, which caused higher unemployment and a national liability rate. Obviously, this problem arose from unethical business practices relevant to international liabilities and loans.

In 2002, the Securities & Exchange Commission (SEC) filed a lawsuit against Picnic Corporation Public Company Limited Company for accounting manipulation to record deposit payments as income and loan extension contracts. However, the charge was later dismissed by the criminal court in the year 2006 due to insufficient evidence (Nikomborirak, Lertampainon, & Paibunjitt-aree, 2011). The SEC also filed a criminal complaint to the Department of Special Investigation (DSI) against an executive of Group Lease public company limited (GL Group) for misappropriation of corporate property and incorrectly recording generally accepted accounting principles in 2007 (Securities and Exchange Commission, 2018).

As previously stated, the most important factors influencing business bankruptcy or closures are ethics, faithfulness, and transparency. To avoid a problem, the Organization for Economic Cooperation and Development (OECD) proposed "Corporate Governance" as guidance and supervision for business. Corporate governance was introduced to Thailand after the 1997 financial crisis since the cause of the crisis was a lack of corporate governance in business operations (Limpaphayom, 2000). Thus, the government specifies that businesses must monitor the process in terms of enhancing confidence in the capital market. When determining corporate governance, the executive must use transparent administration practices and accept responsibility for all stakeholders, supported by an external auditor.

In fact, the firms listed on the Stock Exchange of Thailand (SET) are enormous, and firms with no transparent or ethical administrations can damage wide range of stakeholders. Thus, in 2002, the SET adopted the idea of corporate governance applicable to listed companies to reduce conflicts between the executives and stakeholders.

In regards to corporate governance guidelines, OECD recommendations include five fundamental principles that shall be followed: 1) shareholder rights, 2) equitable shareholder treatment, 3) stakeholder roles, 4) disclosure and transparency, and 5) board responsibilities. In 2017, the Stock Exchange of Thailand enforced eight essential principles, including 1) establish clear roles and responsibilities, 2) define objectives and central ideas, 3) strengthen board effectiveness, 4) CEO and people management, 5) nurture innovation and responsible operations, 6) strengthen effective risk management and internal control, 7) ensure disclosure and financial integrity, 8) ensure engagement and communication with shareholders.

The notion of enforcement for corporate governance encourages administrators to monitor and follow-up on business activities, such as faithfulness, transparency, morality, and ethics. Thus, the CEO of each organization is the key person who responds to decision-makers in numerous duties, such as vision, mission, and business procedures. On the other hand, an executive's lack of ethics, faithfulness, and transparency can lead to corporate bankruptcy, a loss of investment among shareholders, unemployment, bad debts, and the discontinuation of services for customers. Obviously, if an executive focuses on his personal interests rather than the corporate shareholders, it will be detrimental to the business sustainability. Thus, business judgments must be precise and found on the responsibility of ethical executive personnel, or the organization may suffer resource challenges in the future.

In addition, if a company disregards the environment and emits toxic gases into the atmosphere, dumps waste into rivers, causes noise pollution, or other problems in the community, social or community opposition may arise and lead to business failure. Brundtland (1992) defined sustainability development as "development that meets current needs without jeopardizing future generations' ability to meet their own needs." The goals of business today are not maximum profit, but sustainability. Thus, each organization has to figure out the factors that leads to sustainability.

According to A. J. Ali and Camp (2017), the executive is the main factor that may lead the organization to both sustainability and failure, while corporate governance also involves monitoring and following-up management of an organization to work with ethics, faithfulness, and transparency in order to achieve sustainability (Gaa, 2009). Moreover, corporate governance supports the board of directors in terms of making decision by considering all of the stakeholders.

The characteristics of a board of directors are one of the most important factors influencing the administration of an organization, particularly in terms of decision-making and policy formulation. The properties of the steering committee and their operation as faithfulness are critical factors influencing the operation of both benefits for shareholders and corporate sustainability. In practice, the qualifications of the board of directors have an impact on the operation, although it is unclear which traits result in which outcomes. Furthermore, if a board lacks efficiency and effectiveness in operations, it may be unable to deliver good performance. This leads to the question 'would the characteristics of the board of directors affect corporate performance?' In fact, appointing a board member to act on behalf of the owner may cause agency problems. In case the management is conducted without considering the owner's interests, or inside information is used for personal gain, corruption issues may occur and the organization will be forced to close down. This is a negative impact on the economy and society.

Previous studies on corporate governance mainly concentrated on the form of the board of directors and the examination of different factors, such as independent directors, board size, and shareholder structure. However, none of the studies clearly identifies the impact of the degree of corporate governance on sustainability and business performance. Still, it is unclear whether there are any variables with an impact on the organization long-term sustainability. Thus, this study will focus on corporate governance and the characteristics of the board of directors in order to identify which aspects help the company achieve corporate sustainability and firm performance.

1.2 Research Objectives

The goals of this research are to investigate the impact of the board characteristics on the sustainability and firm performance of Thai companies listed on the Stock Exchange of Thailand as follows:

1) To investigate which one of the board characteristics encourages good corporate governance and lead to corporate sustainability, and

2) To investigate which one of the board characteristics promotes corporate governance and consistently leads to firm performance.

1.3 Research Questions and Hypotheses

The preceding discussion raises the following significant research questions for this study:

1) Which one of the board characteristics contributes to corporate sustainability and should be implemented through corporate governance?

2) Which one of the board characteristics contributes to firm performance and should be implemented through corporate governance?

1.3.1 The Hypotheses Related to the Influence of Board Characteristics

The board of directors can be a critical factor in determining whether a company will survive or fail. The nature of the board is one of the most important factors that influences the long-term sustainability of the company. Directors must be carefully chosen based on their skills and characteristics taken into consideration in order to develop organizational strategies and policies, which will affect the long-term viability of the company. Thus, it is important to determine the qualifications of the board of directors. The hypotheses are as follows:

Hypothesis 1: The board of directors' characteristics have a positive effect on corporate sustainability,

Hypothesis 2: The board of directors' characteristics have positive effect on firm performance, and

Hypothesis 3: The board of directors' characteristics have a positive effect on corporate governance.

1.3.2 The Hypotheses Related to the Influence of Corporate Governance.

The application of corporate governance can ensure that the board intends to improve the efficiency of the organization. This study is based on the belief that corporate governance will result in long-term sustainability and firm performance. Thus, the hypotheses are as follows:

Hypothesis 4: Corporate governances have a positive effect on corporate sustainability, and

Hypothesis 5: Corporate governance has a positive effect on firm performance.

1.3.3 Hypotheses on the Indirect Effect of the Board Characteristics on Corporate Sustainability and Firm Performance

The sequence of conceptual variables in board characteristics, corporate governance, and corporate sustainability is the next assumption to investigate. It is expected that if board characteristics have a positive impact on corporate governance, it will also contribute to sustainability and firm performance in the long run. Thus, the hypotheses are as follows:

Hypothesis 6: The board of directors' characteristics have a positive effect on corporate sustainability through corporate governance, and

Hypothesis 7: The board of directors' characteristics have a positive effect on firm performance through corporate governance.

1.4 Research Framework

Independent variable Mediator variable Dependent variables

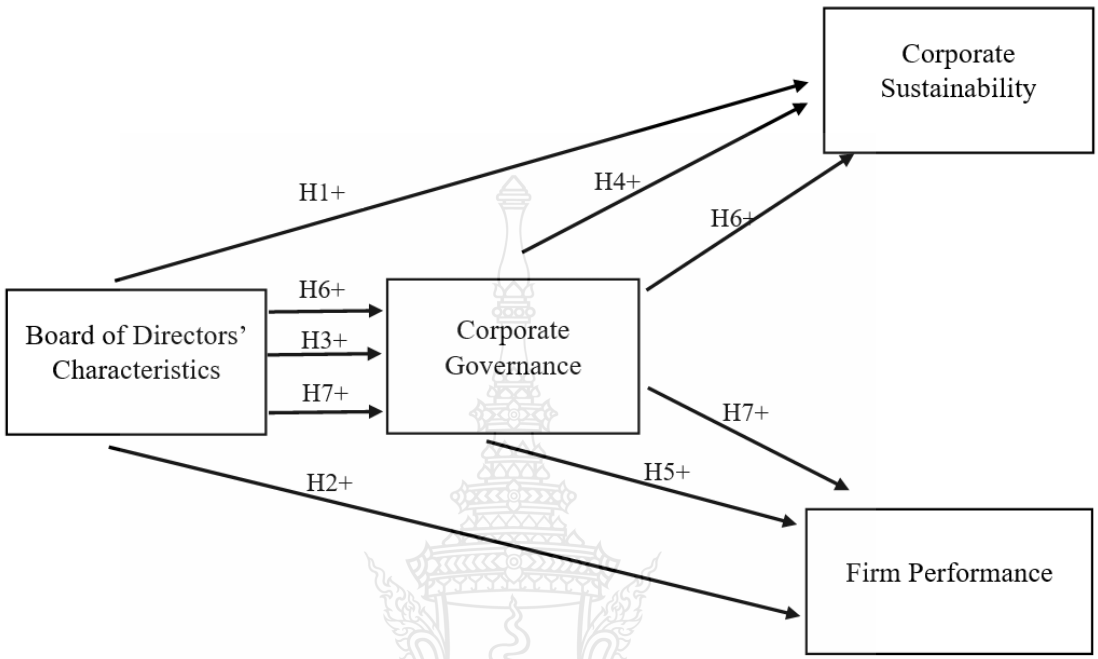


Figure 1.1 Research framework

1.5 Definitions of Terms

The board of directors are the executives appointed by the shareholders to oversee the administration and monitor the operation of the organization.

Board characteristics are the characteristics of the board of directors that decide and apply the policies of the organization.

Corporate governance is the effective management with transparency, accountability, and consideration of all stakeholders.

Corporate sustainability refers to business activities that meet the needs of today's generation while focusing on the environment and society in order to support all stakeholders in the future. In this study, corporate sustainability is considered to be entirely based on business disclosure according to the GRI standard.

Firm performance is the outcome of the operations of an organization measured by ROA, ROE, Sales Growth, Tobin's Q, Sustainability Growth Rate, and Security Return.

1.6 Scope of the Study

This study focuses on the relationship among board characteristics, corporate governance, corporate sustainability, and firm performance. The population is companies listed on the Stock Exchange of Thailand. The data will be collected from the secondary data of the annual report and Form 56-1 of 2018.

1.7 Limitation of the Study

The limitations of this study are the assumptions underlying the measurement of corporate sustainability and firm performance. Even though there are several factors that lead to the achievement of the firm, this study only concentrates on board characteristics and corporate governance.

1.8 Contribution to Academic Literature and Practice

1) Theory Contribution

This study focuses on the integration of two theories of management and accounting. Accounting theory is based on Agency Theory (Jensen & Meckling, 1976) and Stakeholder Theory (Barnard, 1938), whereas management theory is based on Upper Echelons Theory (Hambrick & Mason, 1984).

The aforementioned theories are integrated and expanded upon various theories. The Upper Echelon Theory describes the relationship between the basic qualifications of the board of directors and their vision for the organization strategies that lead to operational excellence, while the Agency Theory describes the people who were appointed by the business owners as their agents, and the Stakeholder Theory describes the board of directors on good business responsibility. Not only for the owners' satisfaction, the duty of the board is to manage the business and focus on various impacts that may be involved in business operations.

2) Practice Contribution

The characteristics of the board of directors who are executives in companies listed on the Stock Exchange of Thailand are the subject of this study. The following are examples of how the findings are expected to be used by stakeholders in specific companies:

2.1) The results of this study can serve as a guideline for determining what qualifications should be considered for the board of directors in order to maximize wealth for shareholders while ensuring the long-term sustainability of the company.

2.2) In addition to the responsibilities to monitor and supervise all listed companies, the Stock Exchange of Thailand is in charge of overseeing investors in the stock market by promoting and encouraging companies to practice good corporate governance in their operations. The outcome can be used as a guideline to develop a policy for the board structure to build confidence among shareholder and investor and ensure good firm performance.

1.9 Organization of the Study

This study is divided into five chapters. Chapter 1 presents the content related to the background and statement of the problem, research questions, hypothesis, research framework, limitations of the study, and contribution. Chapter 2 presents a review of the literature on board characteristics, corporate governance, corporate sustainability, firm performance, and literature reviews. Chapter 3 presents the research methodologies, consisting of research design, population and sample groups, data collection methods, variable definitions and metrics, and the sequence of data analysis. Chapter 4 presents the research findings, and chapter 5 consists of the conclusion, discussion, research implications, and future research.

CHAPTER 2
LITERATURE REVIEW

The literature review presented in this chapter is divided into six sections as follows: 1. Relevant theories, which include Upper Echelon theory, agency theory, and stakeholder theory. 2. the characteristics of the board of directors, who determine the organization strategy (Goll, Brown Johnson, & Rasheed, 2008). Board characteristics is the main factor that affects sustainable development (Glass, Cook, & Ingersoll, 2016; Michelon & Parbonetti, 2012), and is an important part of managing an organization to achieve a business goal. 3. Corporate governance concept, which is a mechanism for controlling an organization performance in order to be transparent, accountable, and ethical, as well as considering the interests of all stakeholders in a fair and equitable manner. Corporate governance is considered as a significant factor on firm performance (Ghalib, 2018) since it fosters investor confidence (Michelon & Parbonetti, 2012), and has a long-term impact on corporate sustainability (Peters & Romi, 2014). 4. Corporate sustainability concept, which is the final goal of any organization and required for a sustainable organization. Sustainability is considered as the greatest benefit being received by all stakeholders, as well as the preservation of natural resources and the environment, and the creation of a good community. Currently, sustainable development is such a critical issue for all sectors that several companies have concentrated on with attempts to find factors that influence their long-term sustainability. 5. Firm performance, which can directly lead to the achievement of the firm. Researchers typically use firm performance as a proxy for business outcomes, such as accounting and marketing data, with integrated tools to display results across a variety of different dimensions. Lastly, literature review leading to the theoretical framework.

2.1 Theoretical Foundations

2.1.1 Upper Echelon Theory

The Upper Echelon Theory (Hambrick & Mason, 1984) is a widely accepted theory with over 10,000 citations that describes the relationship between organizational performance and basic board characteristics. According to this theory, past organizational

results, operational efficiency, and board characteristics can be utilized to predict future organizational outcomes (Hambrick & Mason, 1984). The theory claims that the board characteristics, including knowledge, experience, education, age, gender, and personality (Plöckinger, Aschauer, Hiebl, & Rohatschek, 2016), are important factors in determining the performance of the company (Tulung & Ramdani, 2016). If the board of directors have various fundamental characteristics, that possibly has an impact on the firm performance and sustainability.

Several studies have examined the relationship between board characteristics and firm performance. According to W. S. Lee, Choi, & Moon (2018), a senior CEO with a high education led to better support for stakeholders. Their findings also supported Herman and Smith (2015), who found that having a senior leader with experience, and skills in persuasion could be useful for stakeholders. According to Carpenter, Geletkanycz, and Sanders (2004), there are circumstances caused by internal or external forces that impact organizational operations. Generally, the decision of the chief executive officer (CEO) is partly guided by the board in order to implement the best strategy for the business. Thus, unique responsibilities of the executive, including defining the company vision, setting objectives, and designing strategies, are required to ensure the growth and sustainability of the organization.

2.1.2 Agency Theory

Agency theory is based on the concept of Jensen and Meckling (1976), which describes the relationship between the principal (shareholder/owner) and the agent (executive). The business owner or the principal has a contract with his agent who has the knowledge and experience to assist the organization for a good performance and return. The principal must authorize the agent to become a manager or a representative of an organization, and the agents must be accountable and perform various operations to maximize profit and return to the owner.

The concept of agency theory comes from the fact that business owners are unable to operate their work due to a lack of knowledge, capabilities, and experience. Thus, they have to appoint an agent to manage the company. Additionally, this theory is applied to the concept of corporate governance. In other words, the agents must be

responsible for supervising the business to ensure that it operates with efficiency, honesty, transparency, and the prevention of corruption.

2.1.3 Stakeholder Theory

Stakeholder theory is based on Barnard (1938)'s book "The Functions of the Executive", which suggested that managers should be responsive to the people associated with them. Similarly, Freeman (1984) encouraged managers to create satisfaction for those who were affected by an organization, such as shareholders, employees, customers, suppliers, local community, society, the environment, and the government. Generally, stakeholders refer to groups or individuals who may be influenced or affected by the achievement of the organization mission. Similarly, J. Post, Lawrence, and Weber (2002) also defined stakeholders as individuals or groups who are affected or influenced by organizational policy, decisions, and operations.

According to stakeholder theory, stakeholders in each organization should be treated legally, both in terms of human rights and environmental concerns (Freeman, Wicks, & Parmar, 2004). If the managers can manage the business to meet the needs of all stakeholders, this will lead to good firm performance and sustainability. Freeman, Harrison, and Zyglidopoulos (2018) divided stakeholders into two groups: primary and secondary stakeholders. Primary stakeholders refer to customers, employees' local communities, suppliers, and financiers, while secondary stakeholders refer to government officials and regulators, NGOs, union leaders, consumer advocate groups, special interest groups, and the media as shown in Figure 2.1.

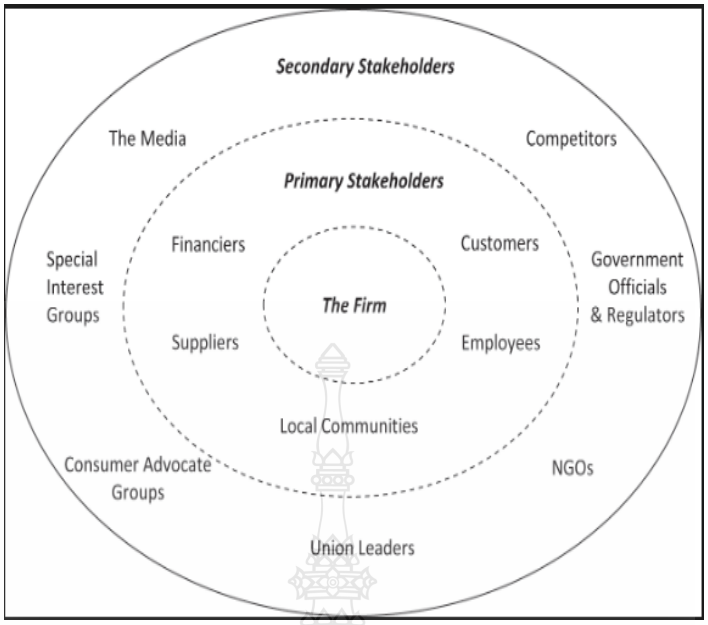


Figure 2.1 Stakeholder theory (Freeman et al., 2018)

2.2 Board of Director Characteristics

Every organization requires at least one or a group of people to serve as a leader, who defines business goals, objectives, and strategy, assigns work to people in an organizational structure, monitors workers who work in subordinate positions, and performs tasks to achieve the results that the organization goals. In this way, the board of directors is a group of people who will guide the organization to success while ensuring that the business can continue to operate on a long-term basis.

2.2.1 Leader

A leader refers to a person who can control and monitor subordinates to work in order to achieve the objectives of the set target (McFarland, 1979) and can persuade others to work as required (Huse & Gabrielsson, 2012). The leader is considered as the most influential person in the organization, and is required to perform the duties of a leadership position, while the other people in an organization, such as the head of a division or an assistant worker in various departments, are followers (Yukl, 1989).

It is important that the leader should have knowledge, experience, responsibility, good corporate governance, and the abilities to oversee operations and utilize corporate governance to accomplish the goals of the organization. When a business

is established in the form of a limited liability company or a public company, the shareholders act as the business owners. In the case of a public company, where there are many shareholders, it is impossible that all business owners will be able to manage the organization on their own. As a result, the company must appoint a representative to respond to defined objectives and goals, as well as important policies such as production, marketing, production quality, the environment, society, and the economy, as well as managing their company operations. Such responsibilities are established to manage the organization while ensuring transparency and accountability. In this study, the term 'leader' is defined as a group of people on the board of directors.

In the order of subsequent tasks, the board of directors appoints a person from the department to perform their duties in accordance with the organization goals and policies. The board of directors must control over the operations department to ensure that the organization operates with transparency and accountability, and that it adheres to business ethics to protect the interests of all stakeholders.

Thus, this study focuses on exploring the qualifications of the board of directors that influence corporate governance and sustainability to improve firm performance. The board of directors is responsible for a variety of tasks, including organizational leadership, operational oversight, and the development of a commercial network. As a result, they have a considerable impact on the organization sustainability (Okorley & Nkrumah, 2012).

Since the board of directors is responsible for two crucial functions: maintaining corporate governance and allocating resources to management (Hillman & Dalziel, 2003), they should have broad knowledge, significant expertise and experience in corporate operations, the ability to generate proper internal political balance in order to lead the organization to sustainability and success. To ensure excellent corporate governance, transparency, and accountability, the Stock Exchange of Thailand has determined the following composition of the board of directors of listed companies on the Stock Exchange of Thailand:

1) Executive Director is a committee that works for the board of directors and the operation of the company, performs regular obligations of the company, or works as a director with the right to sign on behalf of the company.

2) Non-executive directors are classified into two types:

2.1) Independent director refers to an external director who is not an executive or a permanent employee and has no authority to sign as a company representative. Independent directors must supervise and defend the shareholders' equity while reducing conflicts between the company and relevant stakeholders.

2.2) Outside Directors are individuals who are not shareholders' representatives, but may represent someone who obtain benefits from the company, such as customers, suppliers, and creditors. Outside directors are board members, but different from independent directors since they protect the interests of specific groups.

2.2.2 Board of Directors' Qualification

The board of directors is regarded as an important team in guiding the organization toward the shareholders' or owners' goals. As a result, it is important that shareholders carefully choose the persons who will serve on the board of directors by considering their qualifications since the selected ones have to define strategies and policies that affect firm performance (Erhardt, Werbel, & Shrader, 2003). Thus, it is essential to study the board of directors' qualifications on the features as follows:

1) Gender

The board of directors includes female and male members, whose personalities and interpersonal relationships differ. According to Eckel & Grossman (2008), females are more risk averse than males. Moreover, women have been found to have better negotiation skills, particularly when communicating with organizational stakeholders. Smith, Smith, and Verner (2006) studied female board members, and found three interesting points. Firstly, women on boards of directors understand marketing better than men. Secondly, female directors project a positive image of the company in terms of social awareness and maintain positive relationships with all levels of various shareholders. Lastly, the presence of women on boards has improved understanding of the business environment.

It can be concluded that female board members have an impact on corporate governance, which can lead to good performance and business sustainability. Furthermore, several studies support the benefits of having a female executive. For example, Arayssi, Dah, and Jizi (2016) studied and discovered that the female committee

were rational, which was an important factor for sustainability. Srinidhi, Gul, and Tsui (2011) found that an increase in numbers of female directors could lead to higher quality profit and income, as a result of good corporate governance. According to Adams and Ferreira (2009), companies that limit the number of female directors on their boards of directors have a lower share value. Moreover, the female gender ratio on boards of directors resulted in the efficiency of good corporate governance since women play a direct role as consultant leaders according to Terjesen, Sealy, and Singh (2009). Importantly, due to limited high-level job opportunities, women have attempted to work to the best of their abilities in the hopes of being accepted by others (Liu, Wei, & Xie, 2014).

Furthermore, Kılıç and Kuzey (2016) indicated that gender diversity had a positive relationship with firm performance. Further evidence also suggests that gender diversity on boards of directors, particularly among female directors, has a positive effect on firm performance (García-Meca, García-Sánchez, & Martínez-Ferrero, 2015; Liu et al., 2014). Moreover, gender diversity on boards of directors improves business results. This is supported by Francoeur, Labelle, and Sinclair-Desgagné (2008), who found that a diverse gender board of directors on both the board of administrators and the board of corporate governance resulted in a stable stock market return. Similarly, Fernandez-Feijoo, Romero, and Ruiz-Blanco (2014) suggested that the board of directors' gender ratio resulted in high corporate social responsibility. According to the data presented above, the various genders had an impact on the efficiency of firm performance and good corporate governance, resulting in a more sustainable organization.

Currently, female directors are rarely found for a variety of reasons due to the culture of some countries that does not provide women to demonstrate their abilities. However, a large number of females on the board of directors may obstruct innovation since they prefer no venturesome in investment.

2) Age

The board of directors with diversity of age benefit the company due to their various levels of experience, socialization, and competency. The younger generation may be able to use new technologies to improve operations, and the older leaders have knowledge and experience to improve management effectiveness. Several studied

revealed that the senior board of directors had high knowledge and a proclivity to collect and evaluate information correctly due to an accumulation of skills from their experience (Hambrick and Mason, 1984), which significantly impacted the profit per share (Welbourne and Cyr, 1999), and firm performance (Dagson and Larsson, 2011). Moreover, older board members tend to be more receptive to social issues and more willing to support wellness and encourage sustainability reporting (Hafsi and Turgut, 2013).

However, Darmadi (2011) found a positive relationship between a young board of directors and good firm performance in organizational marketing. A young committee may accept high risk and reform the organization in order to be ready to create a business opportunity in the future (Horváth and Spirollari, 2012). Bin Khidmat, Ayub Khan, and Ullah (2020) investigated the age of the board of directors by dividing them into two groups: those under 50 years old and those over 50 years old, and discovered that there was no statistically significant difference between the two groups.

3) Education Level

A level of education can demonstrate knowledge and cognitive thinking skills, as well as the ability to be inventive and problem-solve quickly. This is useful to the organization since it allows them to swiftly grasp business strategy. In addition, education can represent knowledge of various theories and clearly define the degree level and study areas for specific abilities. Thus, board education can indicate the manager's ability to work and achieve organizational goals. However, the nature of learning may differ depending on the discipline in which it is taught and practiced.

The results of the studies on board education revealed that diverse backgrounds had added value for business, as different qualities were beneficial to the company and educational knowledge would help the board members achieve their work objectives. Furthermore, the board of directors with a high education level reflect their opportunities to learn profound concepts and the importance of environmental and social responsibility Thus, they may have an understanding of the significance of sustainability (Anderson, Reeb, Upadhyay, and Zhao, 2011). Additionally, educational attainment is related to corporate social responsibility disclosure (Prabowo et al., 2017), and the educational level

of the director, specifically post-graduate directors, had a significant impact on the overall CSR rating (Beji, Yousfi, Loukil, and Omri, 2020).

Certain studies focused on the educational level of the board of directors whether a master degree had a positive effect on the management ability. S. K. Huang (2013) found that a committee comprised of members who graduated with a master's degree in business administration had a higher level of corporate social responsibility, which is a component of the result of a sustainable organization. This is supported by Lewis, Walls, and Dowell (2014), who found that companies with chief executives who have postgraduate degrees in MBAs are significantly more likely to be sustainable.

Furthermore, several studies attempted to investigate the qualifications of the board of directors at the doctoral level to determine whether this characteristic benefits the company. The results revealed that CEOs with a Ph.D. had a positive impact on the business (Augustine Ujunwa, 2012). Moreover, if the board members and CEOs hold a Ph.D., this could lead to strong company performance (Darmadi, 2013). Interestingly, board education has a significant and positive impact on environmental accounting disclosure (Kipngetich, Bonuke, and Tenai, 2019). This is also supported by Gold et al. (2021), who found that board educational background diversity in Nigeria had a positive and significant impact on sustainability reporting. In addition, education diversity was found to be related and positively influenced firm efficiency according to F. Ali, Wang, Jebran, and Ali (2021).

4) Field of Education

An established business organization must operate in order to maximize profit and achieve sustainability. Thus, it is necessary to manage major business activities such as marketing, purchasing, production, product development, or innovation, as well as management in various fields such as finance, accounting, personnel, and auditing. Furthermore, technology is essential to develop the organization to keep up with change and competitions. Managers and the board of directors are required to establish vision, goals, and supervision to ensure that the operations are transparent and accountable to the stakeholders. In terms of corporate governance, the Stock Exchange of Thailand has adopted the governance principle as a guideline for the practices as follows:

The board of directors represents the shareholders who play a role in monitoring operational policy, providing support to managers, and monitoring follow-up activities. In terms of governance practices, organizations must ensure that new innovations are implemented and that accounting, financial, and other relevant information is transparently disclosed. Additionally, directors have to analyze the business weaknesses, strengths, and opportunities for risk management. Obviously, to apply knowledge to manage the organization for sustainability, the board of directors must have a variety of knowledge from the organization main activities and corporate governance practices, such as marketing, human resources, financial, accounting, auditing, risk management, innovation product development, engineering, technology, and communication.

It is necessary that the board of directors must have knowledge of the businesses in which they hold positions. For example, the directors in the agro and food industry should have knowledge of the products in processing and research, the directors in the financial industry should have knowledge of financial management and investment, the directors in the property & construction and resource industry should have knowledge of engineering, and the directors in the service industry should have knowledge of customer service. In addition, knowledge in accounting, risk management, and auditing is required to achieve accurate financial reporting, transparency, and reliability. In fact, if the board of directors consists of individuals with expertise in accounting, management, engineering, and information technology, it may have an impact on operations management. A board of directors with accounting graduates, for example, will understand internal control and monitoring, use accounting information for decision making, and use financial statement analysis to understand business health. A board of directors with engineering graduates will have expertise in the working system, be able to invent new products and innovations, and have knowledge of product quality control, which will encourage businesses to create products or services to satisfy customers. In the field of science, a board of directors with specialized knowledge based on the organization nature, such as the medical services, processed food, and food and drug, have knowledge and expertise in research and product development. Furthermore, graduates of information technology will understand how to use technology to improve operations, assist an organization in making work easier, faster, and more cost-effective,

and implement an automated robotic system in the business, which will improve operational efficiency and lower operating costs. As a result, a board of directors with diverse knowledge and skills may impact firm performance and lead to sustainability.

There are several studies on various educational backgrounds of board directors. Certain studies found that accounting and financial expertise of the directors had a positive impact on a company overall performance (Johl, Kaur, and Cooper, 2015), and board education has a significant and positive impact on environmental accounting disclosure (Kipngetich et al., 2019). In Nigeria, it was found that the diversity of board educational background had a positive and significant impact on sustainability reporting (Gold et al., 2021). Furthermore, educational diversity was related to firm performance, which was helpful in promoting business efficiency (F. Ali et al., 2021).

Certain studies on specific competencies of the directors found that top-performing directors with financial expertise had a significant impact on overall firm performance (Francis, Hasan, and Wu, 2012), and a committee comprised of members holding a master's degree in business administration and a degree in science had a level of corporate social responsibility (S. K. Huang, 2013). In addition, the diversification of academic backgrounds and academic fields can all contribute to the improvement of corporate social responsibility reports (CSR) (Yng and Hashim, 2019).

5) Foreign Board

Listed companies on the stock exchange attract the attention of national and international investors. If the board of directors comprises of members from different countries, it is more likely that foreign investors will place their trust in the board of directors more readily. Foreign directors with the knowledge about the environment, culture and consumer behavior in foreign countries can consult with the board of directors in order to expand the business to foreign markets (Masulis, Wang, & Xie, 2012).

Mi Choi, Sul, and Kee Min (2012) investigated the relationship between foreign board members and company value as measured by Tobin's Q. Their findings indicated that the foreign director was positively related to firm performance. Furthermore, Austin Ujunwa, Okoyeuzu, and Nwakoby (2012) discovered that the number of foreign directors on the board had a positive impact on business performance. This was confirmed by

Müller, Ienciu, Bonaci, and Filip (2014), who discovered that the proportion of foreign directors had a positive effect on firm performance.

6) Political Connections

Previous studies found that political connections or ex-politicians on the boards may have a positive impact on the enterprise in terms of sustainability and firm performance. The political directors relevant to legislation or environmental and social issues could lead to the sustainability of the firm. In case information that can produce positive results for the company is disclosed, it benefits firm performance.

In fact, several environmental issues are currently being addressed around the world, and politicians cannot ignore them. In the past, politicians paid attention to environmental issues and enacted legislation to protect the environment, such as legislation to promote carbon reduction and legislation to conserve the environment (Solomon & Lewis, 2002). Some political directors can have a significant impact on the formation of corporate sustainability policies and regulations by reducing risks and provide more access to essential information (Hillman, 2005).

Previous studies found a positive relationship with firm performance if the directors had a network of political connections (Sitthipongpanich and Polsiri, 2013) and more government experience and political connections (Kim and Lim, 201). Furthermore, Idris, Buchdadi, Muttaqien, and Hariguna (2020) investigated political connections on boards and discovered a positive relationship with firm performance.

However, a negative impact on firm performance ROE and ROA was found in Pakistan if the board of directors had a political connection (Cheema, Munir, and Su, 2016). Additionally, a study on banks with politically connected directors in Pakistan discovered a negative and significant effect on lower return on assets, return on equity, net interest margin, and profit margin during government transition (Haris, Yao, Tariq, Javaid, and Ain, 2019).

7) Board Tenure

The board of directors plays an important role in the operations of publicly traded companies with the primary responsibility of overseeing management operations and providing strategic advice to the organization on how to operate in order to generate returns for shareholders. The operational efficiency of the boards is influenced by two

factors: (1) independence, which affects corporate governance efficiency, and (2) various knowledge associated with the organization operations, both internally and externally, which affects operation efficiency and board management. Newly appointed committees or short-term positions have little understanding of the nature of business or issues within the business. On the other hand, long-term positions will result in a better understanding of business expertise and problems within the business, which will lead to better supervision and better advice to prevent or resolve problems that may arise in the company. Hashim and Devi (2008) examined the relationship between board tenure and earnings quality and found that independent boards' long-term duties assisted in supervising operations management led to an improvement in financial quality reporting. Harjoto, Laksmana, and Lee (2015) and Fallah and Mojarrad (2019) pointed out that there was a significant rise in corporate social responsibility as board tenure and competence rose, along with the CSR activities of the company. Moreover, a study conducted by Katmon, Mohamad, Norwani, and Al Farooque (2019) revealed that board tenure had a favorable impact on CSR quality, which may ultimately contribute to sustainability.

However, I. Khan, Khan, and Senturk (2019) as well as T. M. Khan, Gang, Fareed, and Khan (2021) found no correlation between board tenure and social responsibility. Furthermore, board tenure had no effect on firm performance measured by accounting-based profitability, such as ROA, return on sales, or stock-market-based measures such as Tobin's Q or return on stock prices (Kagzi & Guha, 2018).

8) Board Compensation

The board of directors acting as a shareholder representative ensures that the owner receives a reasonable return on investment. However, when faced an ethical quandary, managers are more likely to act for their personal interests rather than the benefit of their shareholders according to agency theory. A solution to the agency problems is to provide adequate board compensation to encourage them to operate effectively without raising ethical problems.

Mehran (1995) stated that the level of compensation was the driving force behind the improvement in firm performance. Similarly, Kato and Long (2006) also found that the compensation of the board of directors had a significant impact on the performance of the stock price. Later, Firth, Fung, and Rui (2006) discovered that

providing cash compensation to boards of directors had a relationship with the performance of the company. According to Hoskisson, Castleton, and Withers (2009), the board of directors received substantial compensation, and the board's supervision was more deliberate. Galbreath (2017) also discovered that the compensation of the board of directors had a positive impact on non-financial outcomes, such as the welfare of society and the environment. Moreover, most sustainability activities include consideration for the well-being of employees and the safety of coworkers, as well as the protection of the environment (Collin, Ponomareva, Ottosson, and Sundberg, 2017). Thus, agencies and social responsibility costs must also be more provided.

2.3 Corporate Governance

The board of directors is a group of individuals that ensures effective and long-term growth of the firm. The CEO (Chief Executive Officer) will be appointed by the board of directors to execute the organization policies, objectives, and goals in order to meet the target. In addition to carrying out their assigned responsibilities, the board of directors is responsible for monitoring and supervising the CEO to guarantee transparency and accountability in the company operations.

However, issues relevant to transparency and agency may be caused by the board of directors (McColgan, 2001) as follows:

1) Moral Hazard

A moral hazard is a conflict of interest between agents and shareholders in which the agents prioritize their personal gain over the interests of shareholders. For example, the agents may use the company information to purchase stocks before the company performance report is released to shareholders and stakeholders.

2) Debt Problem

Debt problems, also known as managerial problems, arise from the management of funding sources for various projects. In fact, shareholders and creditors are the key sources of the fund. Funding from shareholders is simple since it does not require evaluation or review prior to investment. In contrast, a loan requires difficult procedures, but provides a better return since the interest is tax deductible on a yearly basis.

1) Social Problem

Social problems affect the government and society. Generally, people believe that companies have a negative impact on communities and the environment in the form of producing wastewater, noise, and air pollution. This problem may result in legal difficulties, and negatively affect the reputation of the company.

2) Time Period Problem

The board of directors acts as an agent for the shareholders by committing to an agreement to manage the company on their behalf for a set period of time. Such agreement can be renewed based on their performance evaluated by the shareholders. As a result, the board of directors frequently invests in initiatives that provide short-term profits in order to present excellent performance to shareholders. However, short-term profits may have a negative impact on long-term operations, and fail to provide long-term value to the company.

2.3.1 Corporate Governance Principles

Corporate governance is a system that provides a framework and procedures for the interaction between the board of directors, executive directors, and shareholders in order to establish a competitive advantage that drives business development and delivers value to shareholders and stakeholders. The board of directors' duties begin with establishing a goal and assigning tasks and roles to the operations department, including monitoring them to guarantee transparency, auditability, and compliance with board goals while having no detrimental impact on other stakeholders.

The Board of Securities and Exchange Commission of the Stock Exchange of Thailand developed strong corporate governance standards by adhering to four fundamental leadership concepts as follows:

1) Transparency or Openness

Transparency is the operation of a company in compliance with the law, business ethics, and with respect to the rights of stakeholders. Business transparency assists the firm in receiving performance and capital markets feedback with efficacy, which is the foundation of stakeholders' confidence in the company. When a business works in a transparent manner, it builds confidence among investors. This makes simpler to acquire funding for the company and lowering the cost of capital.

2) Integrity

Integrity in business is a direct commercial operation within ethical framework by being aware of rules and regulations, and acting in accordance with applicable laws. Accounting reports are required to be comprehensive, timely, and in compliance with applicable requirements. If businesses run honestly and accurately disclose company performance data, it has an impact on executives and stakeholders who may utilize the knowledge to develop strategies to improve firm performance.

3) Accountability

Accountability refers to the board of directors' ability to perform the duties delegated by shareholders, and be accountable for the company performance and profitability by disclosing company reports and financial status to shareholders or stakeholders in accordance with the company actual financial situation.

4) Competitiveness

Competitiveness is defined as an ability to continue operating a business in order to create prosperity and value for shareholders. The competitiveness of the company is linked to corporate governance, which helps the company become more capable in the future.

In the past, there have been a number of issues in the organization involving corruption, such as accounting manipulations in revenue and profit in business disregarding stakeholders. In fact, the bankruptcy of an organization causes business closures and unemployment, which is considered as a social problem and affects overall economy of the nation. The primary cause of such problem is that the organization does not conduct business in an ethical and transparent manner.

With an awareness of the aforementioned problem, the Stock Exchange of Thailand enforced the concept of corporate governance by encouraging listed companies to implement the principle in 1998. Later in 1999, regulations for listed companies to establish an Internal Audit Committee and a code of best practice to guide directors to run an effective board were issued. In 2001, the “Good Corporate Governance Committee”, comprised of representatives from various professional organizations with the mission of developing guidelines for the dissemination of corporate governance reports, was established. Since 2012, the business performance of publicly traded

companies on the Stock Exchange of Thailand has been evaluated based on the criteria of good corporate governance principles as follows:

Principle 1: Rights of Shareholders

All shareholders, including majority or minority shareholders, institutional shareholders, and foreign investors, are all considered to be the company owners with the board of directors acting as their representative. The board of directors works to promote, encourage, and protect the interests of each shareholder by exercising their authority. Moreover, a shareholder meeting needs to be held in order to make important decisions that may affect shareholders, such as increasing company capital, declaring dividends, investing in important projects for the company survival, and appointing the audit committee, among other things.

Principle 2: Equitable Treatment of Shareholders

All shareholders, including majority or minority shareholders, institutional shareholders, and foreign investors, must be equally treated even though they do not hold a position on the board of directors. It is necessary that the board of directors must establish a system to disclose internal information regarding current management and financial status of the company to minority shareholders. Inadequate information may cause disadvantages to this small group of shareholders. Thus, the board of directors must provide guidelines to prevent such problem, and develop procedures to monitor and compensate for such incidents.

Principle 3: Role of Stakeholders

Generally, stakeholders in a company are shareholders, executives, workers, consumers, suppliers, creditors, communities, society, the environment, government agencies, and competitors. It is essential to manage a company in a manner that does not violate the legal rights of stakeholders. Policies that serve as guidelines for all organizational personnel must be clearly defined to guarantee transparency and long-term viability of the organization operations and business ethics.

Principle 4: Disclosure and Transparency

The board of directors is responsible for disclosing accurate, reliable, transparent financial and non-financial information to related parties in a timely manner. In order to do so, an effective internal control system, risk management, information

auditing by an external auditor, and information dissemination are required to ensure that the information to be disclosed is accurate and reliable, and stakeholders can easily access the information.

Principle 5: Responsibilities of the Board

One of the key responsibilities of the board of directors is to practice corporate governance for the best interests of the company and shareholders. To do perform this duty, the board of directors must have leadership qualities, vision, knowledge, experience, and expertise, as well as dedicate time and effort to make independent decisions. The appropriate board size, knowledge, experience, and ability to monitor and follow up on business operations should be considered in order to appoint the board of directors. This can ensure that the organization operates in accordance with corporate governance policies and ethics without infringing the rights of other stakeholders. In term of sustainability, each member of the board of directors must learn new knowledge to keep up with the appropriate environmental and consumer behavior changes.

The Stock Exchange of Thailand updated the good corporate governance criteria that have been used in the financial statements since 2018 as follow:

Principle 1: Establish Clear Leadership Roles and Responsibilities of the Board

Principle 2: Define Objectives that Promote Sustainable Value Creation

Principle 3: Strengthen Board Effectiveness

Principle 4: Ensure Effective CEO and People Management

Principle 5: Nurture Innovation and Responsible Business

Principle 6: Strengthen Effective Risk Management and Internal Control

Principle 7: Ensure Disclosure and Financial Integrity

Principle 8: Ensure Engagement and Communication with Shareholders

Figure 2.2 Corporate governance code (European Corporate Governance Institute, 2017)

Previous studies demonstrated that good corporate governance had an impact on firm performance. Good corporate governance variables, such as ownership, the type of auditors, the size of the board of directors, and social responsibility, have been found to have a significant impact on business performance according to Rose (2016), who discovered a positive relationship between return on equity and return on assets and good corporate governance. In addition, Detthamrong, Chancharat, and Vithessonthi (2017) revealed that the size of the auditing committee had a negative impact on the performance of the organization.

After the Asian Financial Crisis in 1997, the Thai Institute of Directors (IOD), a leading organization in Thailand dedicated to improving director professionalism and corporate governance, was founded in 1999. Since its inception, IOD has been an important institution for promoting good corporate governance in Thai companies. Various events organized by the IOD help raise the profile of the directorship and provide good practice for directors to perform their duties effectively and in compliance with international standards. Each year, the IOD conducts a survey of the listed companies in order to classify and rate the level of good corporate governance in each company based on regulatory guidelines derived from the OECD good corporate governance principles. The IOD also provides companies with overall assessment results for corporate governance development guidelines, as well as policies and regulations related to corporate governance. Since 2007, the corporate governance score ranges have been

divided into six categories by IOD: 90-100 percent means excellent, 80-89 percent means very good, 70-79 percent means good, 60-69 percent means satisfactory, 50-59 percent means pass, and less than 50 percent means no data available. However, the companies with a score of excellent, very good, or good were shown only.

In 2018, criteria based on good corporate governance standards from 2012 were used to evaluate IOD corporate governance. Board responsibilities (35 percent), disclosure and transparency (20 percent), role of stakeholders (20 percent), equitable treatment of shareholders (10 percent), and shareholder rights (10 percent) are among the 241 criteria, including the evaluation (15 percent). 657 companies were evaluated, 22 percent of which were listed on the MAI market and 78 percent on the SET market.

Score Range	Number of Logos	Description
90 – 100		Excellent
80 – 89		Very Good
70 – 79		Good
60 – 69		Satisfactory
50 – 59		Pass
Less than 50	No Logo Given	-

Figure 2.3 Corporate governance score (Thai Institute of Directors Association, 2018)

Certain studies on companies with corporate governance found a relationship between good corporate governance and firm performance since good corporate governance build shareholders confidence to make the right investment decision (Nam and Nam, 2004). Moreover, good corporate governance scores have a statistically significant positive correlation with an organization performance in terms of examining the qualifications of different directors, and the effects of good corporate governance, sustainability, and organizational performance (Surang Sangsawang, 2018). However, a negative correlation between corporate governance and ROA was found in Sri Lankan banking sector (Alagathurai and Nimalathashan, 2013).

The development of corporate governance practices can be accomplished by increasing the board of directors' independence to monitor (Ntim, 2009). The frequency of board meetings is used as a proxy to assess the monitoring efficiency of corporate governance (Vafeas, 1999). In the past, Ntim (2009) studied the impact of board meetings and discovered that the frequency of board meetings was positively related to governance performance. Thus, if the board has a tendency to hold more meetings, it will be able to generate more financial performance.

2.3.2 Board Characteristics and Corporate Governance

Since owners may lack knowledge and ability to manage their business, it is essential to hire an agent to be a part of the board of directors. Thus, the business owner has to determine the qualifications of the agents in terms of the number of agents, knowledge, capabilities, experience, and expertise to ensure that they can perform and generate returns for the business. With the responsibilities to operate in compliance with the business goals, policy development, operation process to ensure equality among stakeholders and the transparency of the firm, the board of directors is an important component of a good corporate governance system (Kang, Cheng, & Gray, 2007).

In case the board of directors lacks essential qualifications, it negatively affects the quality of corporate governance. According to Chen, Firth, Gao, and Rui (2006), the proportion of independent committees, the size of the board, and the period of the chairman's term were associated with organizational governance. Similarly, Crifo, Escrig-Olmedo, and Mottis (2018) also found that high levels of corporate governance were in a high percentage of internal committees and social responsibility.

The research framework below was developed based on the literature review on the board of directors in terms of board characteristics and good corporate governance.

Figure 2.4 The relationship between the board of directors' characteristics and corporate governance

2.4 Corporate Sustainability

The concept of corporate sustainability was first discussed in the 1990s and is still of interest to researchers and scholars today. Since a sustainable organization can continue operating without interruption or closure, companies with the desire to achieve sustainable development goals must formulate policies in environmental, social, and economic aspects by. The sustainability of an organization is dependent on the board of directors with a diverse range of experiences and ideas to make decisions for the company in order to achieve sustainability and generate value for shareholders and stakeholders.

Several studies on corporate sustainability were conducted with the goal of developing sustainability metrics that can be used to guide any company in measuring their business. It has been widely accepted that corporate sustainability is an important aspect of social responsibility operations and practices (Frias-Aceituno, Rodríguez-Ariza, & Garcia-Sánchez, 2014). In Thailand, sustainable development of organizations was introduced by the Stock Exchange of Thailand in 2012 to educate listed companies on how to apply the concept to financial annual reports. In accordance with the OECD assessment form, the Stock Exchange of Thailand uses the name "Thailand Sustainability Index" to assess an organization sustainability in economic, environmental, and social aspect.

In the area of accounting study, "sustainability accounting" is a report that impacts the society, the environment, and the economy. Since businesses focus on profit, they the environment issues may be neglected, which can lead to air pollution, water pollution, noise pollution, and huge quantities of trash in a long term. Due to this issue, several studies were conducted to figure out whether sustainability concept had a long-term positive impact on the business. Siew, Balatbat, and Carmichael (2013) found a relationship between the Environment, Social, and Governance (ESG) score and firm performance. Furthermore, Hussain, Rigoni, and Orij (2018) investigated the connection between corporate governance and organizational sustainability in three dimensions and discovered that corporate governance systems were connected to performance on sustainable development.

Interestingly, a study on corporate sustainability responsibility as an indicator of sustainability revealed that corporate social responsibility (CSR) was related to the

financial success of the company (McPeak and Bi, 2012). Moreover, the diversity of the board of directors is linked to corporate sustainability responsibility (Ferrero-Ferrero, Fernández-Izquierdo, and Muñoz-Torres, 2015), and a favorable relationship between the independent board, corporate social responsibility, and organizational success was found (Dunn and Sainty, 2009).

2.4.1 Corporate Sustainability Indicators

In each organization, there are various indicators of the sustainability. There have been attempts to discover methods for assessing such indicators as follows:

The TBL (Triple Bottom Line) concept was a three-dimensional measurement of sustainable development (Van den Bergh, 1996; WCED, 1987; Westing, 1996) based on a monetary, social, economic, and environmental sustainability measure.

The Global Reporting Initiative Sustainable Guidelines standard established performance metrics to guide companies toward sustainability development. In 2002, the World Summit on Sustainable Development created the GRI, which includes the three-dimensional measuring indicators:

1) Economic indicators consist of long-term data on customers, employees, suppliers, and investors.

2) Environmental indicators consist of raw materials, energy, products, services, and transportation.

3) Social indicators consist of employees, consumers, human rights, and product responsibilities.

Previous studies did not clearly explain what exact factors influence sustainable development. However, leadership was found to have a significant impact on corporate sustainability (Okorley and Nkrumah, 2012). High growth and above-average shareholder returns can drive large companies to sustainability (Artiach, Lee, Nelson, and Walker, 2010). Furthermore, good corporate governance is a factor that influences corporate sustainability disclosure (Michelon & Parbonetti, 2012).

Besides studying the qualifications of the board of directors, and how they affect the organization sustainability, it is interesting to study the concept of senior management since top management is the person who leads the organization to achieve sustainable

development by effectively utilizing management knowledge, capabilities, experience, and expertise within the organizations.

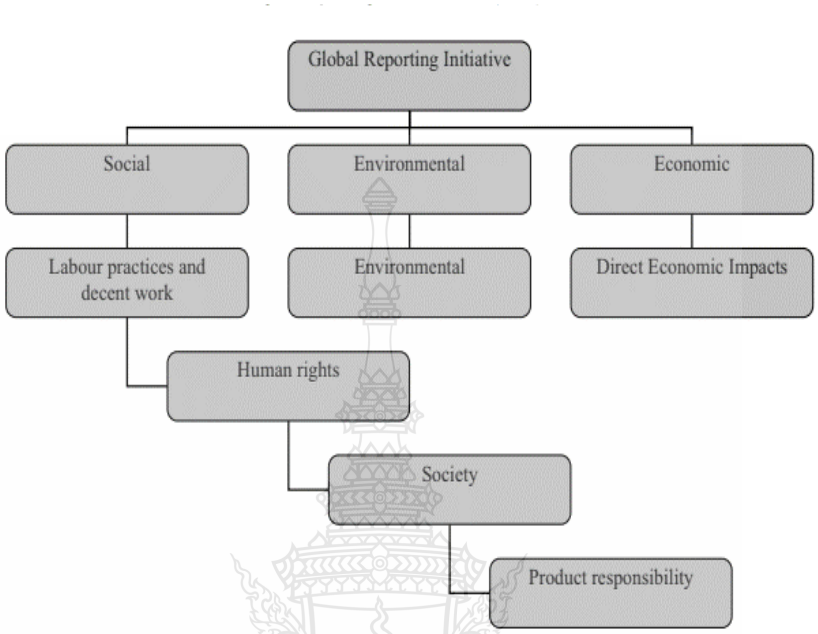


Figure 2.5 The hierarchical structure of global reporting initiative (GRI) framework (Buja, 2013)

2.4.2 The Concept of Board Characteristics and Corporate Sustainability

Corporate sustainability refers to an organization ability to continue operating at a high level of performance. Sustainability reflects the quality of the production, services, as well as transportation systems that meet the needs of the customers through the development of various innovations.

More importantly, the interests of all stakeholders should be taken into account. In other words, neglecting or exploiting stakeholders may result in environmental issues, such as wastewater and toxic air. Furthermore, those issues may be investigated by relevant government agencies, which may have an impact on the company reputation and product sales. This may force the company to close or make it inoperable for an extended period of time. Thus, it is necessary to have an operating policy that is comprehensive and accountable to all stakeholders.

The development of corporate policies is the responsibility and obligation of the board of directors, which serves as the organization chief executive officer. The board of directors is responsible for controlling and monitoring the business to ensure that it operates in accordance with policies and objectives. Moreover, it is necessary to encourage employees to contribute to the long-term viability of the organization.

Obviously, organizational leaders play an important role in leading their organization to sustainability. Shareholder-appointed boards of directors may have a different impact on sustainability organizations. Many studies on leaders and sustainability found that the proportion of external boards was related to sustainability in the corporate social responsibility dimension (C. Post, Rahman, and McQuillen, 2015), and more independent boards result in better environmental performance (De Villiers, Naiker, and Van Staden, 2011). However, Zhang (2012), who conducted a study based on agency theory to investigate the relationship among the diversity of the board of directors, independent board of directors, and social responsibility performance, discovered that gender diversity had a positive relationship with social responsibility, while the proportion of external board of directors and non-administrative committees had a negative relationship.

Furthermore, a study on the relationship between the characteristics of CEOs with a master's degree in business administration and science and their social responsibility performance revealed that social responsibility performance was related to their education (S. K. Huang, 2013). Giannarakis (2014) indicated that board size had a significant positive relationship with the disclosure of social responsibility information. Moreover, board size had a positive relationship with the organization sustainability report (M. Shamil, M. Shaikh, Ho, and Krishnan, 2014), which is in line with M. Shamil et al. (2014), who found that board size and dual leadership were positively related to the organization sustainability. Furthermore, Oosthuizen and Lahner (2016) discovered that the qualifications of the board of directors were related to sustainability performance since the board was responsible for improving and developing business sustainability operations.

Thus, this study aims to develop a conceptual framework for board of directors' characteristics and corporate sustainability as shown in Figure 2.6.

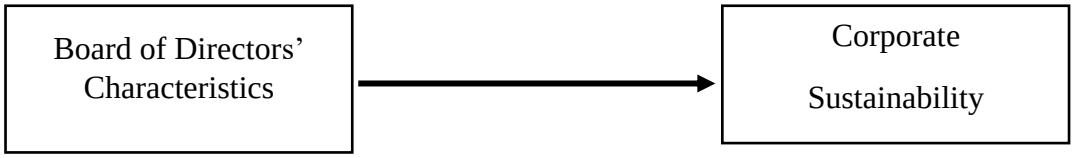


Figure 2.6 The relationship between the board of directors' characteristics and corporate sustainability

2.4.3 The Concept of Corporate Governance and Corporate Sustainability

According to the corporate governance principles, the board of directors must be responsible for the oversight and follow-up of the business operation in order to ensure transparency and disclosure of information while protecting shareholders' and stakeholders' rights. Customers, consumers, employees, partners, the community, and the environment are all stakeholders that the company should take into consideration. Certain studies on corporate governance and corporate sustainability in terms of social responsibility found that corporate governance was related to social responsibility in banking group (Jizi, Salama, Dixon, and Stratling, 2014). In addition, social responsibility and sustainability necessitate good corporate governance based on stakeholder engagement, fairness, transparency, and accountability (Salvioni, Franzoni, and Gennari, 2016).

As a result of the literature review, the conceptual framework of the relationship between corporate governance and sustainability has been developed as shown in Figure 2.7.

Figure 2.7 The relationship between corporate governance and corporate sustainability

2.5 Firm Performance Measurement

In general, good performance is required to achieve goals and profitability. Firm performance refers to the achievement of organizational goals (Singer & Edmondson, 2008). The achievement of requirements as a result of using all of the firm ability and resources is referred to as firm performance. However, the organization performance may or may not meet the organization goals. In this case, the cause must be determined and corrective action must be taken to achieve the performance specified by the organization.

Since firm performance is the outcome that the owner desires to know, a system is required to measure it for decision-making. This is the process of determining the efficiency and effectiveness of operations (Neely, Gregory, & Platts, 1995) as it allows organizations to see how efficient they are in various aspects (Demirbag, Tatoglu, Tekinkus, & Zaim, 2006), such as accounting reports or marketing results. The data of firm performance can be used to communicate with relevant stakeholders, such as shareholders, investors, and government agencies enables organizations to make decisions and take action.

Even though measuring firm performance is critical since their past performance must be revealed, firm performance can be used by any level of executive in the organization in order to find a solution in a timely manner. A good performance measurement system is critical to an organization success since it is in charge of transforming an organization strategy into a workflow that communicates through a process and provides feedback to improve future operations (Kaplan & Norton, 1996). The information that helps the organization understand its situation can be used to make the best decisions (Inamdar, Kaplan, & Reynolds, 2002).

Historically, firm performance was frequently measured in terms of financial performance (Kaplan & Norton, 1996). Nowadays, it can be measured in financial and marketing terms.

1) Firm Performance Measurement in Financial Terms

Firm performance measurement in financial terms can be clearly and easily understood since income statements are frequently used to show income and expenses during the previous accounting period. Furthermore, there is a statement of financial position that shows the value of the organization assets, liabilities, and equity at a specific

time, and effectively informs the organization stakeholders about the organization performance (Rompho, 2003). The accounting figures shown in the profit and loss statement are typically used to measure firm performance in monetary terms (Zuriekat, Salameh, & Alrawashdeh, 2011). It was found that the return on assets, return on investment, and net profit margin can be used to evaluate an organization resource utilization (Gumbus & Lussier, 2006; Hoque, 2005; Kaplan & Norton, 1992), while return on assets (ROA), return on equity (ROE), Tobin's Q, profit margin (PM), earnings per share (EPS), price-earnings ratio (PE), and return on sales (ROS) are commonly used to assess firm performance in the accounting dimension.

Several studies attempted to measure firm performance in monetary terms. For example, Arora and Sharma (2016) conducted research on the corporate governance performance of developing countries, measuring it using return on equity and profitability. Similarly, Azeez (2015) investigated corporate governance and firm performance in Sri Lanka using earnings per share, return on assets, and return on equity performance indicators. Return on assets and return on equity were used by Zabri, Ahmad, and Wah (2016) to assess firm performance. Buallay, Hamdan, and Zureigat (2017) used return on assets, return on equity, and Tobin's Q to assess firm performance. Q. E. Ahmed and Hamdan (2015) measured firm performance using return on assets, return on equity, and earnings per share. Rose (2016) measured firm performance using return on equity and return on assets. Abdulsamad, Yusoff, and Lasyoud (2018) investigated the impact of board director qualifications on the performance of Malaysian-registered companies by measuring performance using ROA and earnings per share. Furthermore, Ruslan (2018) investigated firm performance by measuring accounting performance, including ROA, and market performance by Tobin's Q.

The details of measurement in monetary terms are as follows:

1.1) Return on Assets

Based on Agency Theory, the board of directors acts as an agent in the sense that it acts on behalf of shareholders, whereas shareholders serve as a principal. When shareholders and agents enter into a contract with the management of the organization and entrust the management with authority, the board of directors, who have overall responsibility for efficient and effective management of limited resources, must work

efficiently and effectively to maximize profits while managing the resources and continuing to operate unrestricted. Thus, shareholders should be measuring the results of the agent's operations to understand how the agents operate under the agreement. Using resources to generate a net profit each year is the management style that generates the highest business return. As a result, the calculation to determine the return on business resources (Boyte-White, 2019) is as follows:

$$\text{Return on Assets} = \frac{\text{Net profit}}{\text{Total assets}} \times 100$$

If the return on assets is high, it means that the board of directors can use whether financial or human resources to produce high-quality results and earn a reasonable return. The board of directors can manage the assets obtained from the shareholders' investment in order to generate net profits and distribute the profits to the shareholders.

1.2) Return on Equities

The shareholder is the owner who invests cash in the business and delegates authority to the board of directors to manage the investment in order to reap the benefits as net profits. As a result, in order to assess management ability, the board of directors must manage funds received from shareholders in order to generate or return a profit. If the return to shareholders is high, it indicates that the board of directors has the ability to effectively fund management, which gives shareholders confidence. The Return on Equity is computed as follows: (Hargrave, 2020).

$$\text{Return on Equities} = \frac{\text{Net profit}}{\text{Shareholder equities}} \times 100$$

Financial performance measurement of a company is popular, but there are several shortcomings in terms of the accounting data of the previous events, and the accuracy or quality of the accounting data.

1.3) Sale Growth

The primary source of revenue for a business is from sales. An increase in sales can generate income and profit, which indicates that the company products are of high

quality and well-known by customers. Furthermore, it may reflect that the managers can improve its competitiveness in the market. Thus, sales growth can be used to evaluate firm performance.

Sales growth is calculated as a percentage. High percentage indicates that executives can manage the assets, which can lead to a significant return on sales. The sales growth formula (Marz, 2019) is presented as follows:

$$\text{Sale Growth Percentage} = \frac{\text{Current period net sale} - \text{Prior period net sales}}{\text{Prior period net sales}} \times 100$$

1.4) Sustainable Growth Rate

The sustainable growth rate is the maximum rate of growth that can be achieved without the use of external equity while maintaining a constant debt-equity ratio (Jan, 2019).

$$\text{Sustainable growth rate} = \frac{\text{ROE x b}}{\text{(1-ROE) x b}}$$

ROE = Return on equity = Net income / Total equity

b = Plowback (retention) ratio

= Addition to retained earnings / Net income

2) Firm Performance Measurement in Marketing Terms

2.1) Tobin's Q

Tobin's Q ratio was devised by Yale University professor James T. Tobin (Hayes, 2019). This ratio equals the market value of the organization assets, divided by the asset replacement cost. The market price of an asset represents the market value of the stock in the hands of shareholders. Tobin's Q ratio represents the relationship between market value and actual value, and is used to determine whether a company or market is overpriced or underpriced.

$$\text{Tobin's Q ratio} = \frac{\text{Market value of assets}}{\text{Replacement value of assets in place}}$$

The market value of an asset represents its value in the market, whereas the replacement value of an existing asset represents the cost of replacing the asset at the present time. Since it is difficult to estimate the replacement value, analysts prefer using the publicly available asset book value instead. The calculation method is based on the Chung and Pruitt (1994) guidelines, which have been tested for theoretical precision and found to have over 96 percent relationships. The following is the result of calculating Tobin's Q ratio using Chung and Pruitt's guidelines.

$$\text{Tobin's Q ratio} = \frac{(MVS + D)}{\text{Total Asset}}$$

MVS is all value of stock market value measured by
ordinary stock market value + preferred stock market value

D = Debt (AVCL – AVCA) + AVLTD

AVCL is accounting value of the firms Current Liabilities calculated by short term Debt + Taxes Payable

AVCA is accounting value of the firm Current Assets calculated by Cash + Inventory + Receivables

AVLTD is accounting value of the firm Long-Term Debt measured by Long Term Debt.

2.2) Stock Exchange and Security Return

The ability of executives to use limited organizational resources to generate returns in the form of profit or return on assets ratio is assessed in an organization performance appraisal. Furthermore, one of the owner's interests is the stock price. If the stock price is higher than the shareholders' expectations or the industry return, it indicates that the company can generate higher returns for shareholders. This is considered as a positive image for the investment company.

Risk is one of the most important factors that investors consider when evaluating a stock market investment since the return may not be as expected or it has security to return. Thus, a capital asset pricing model will be used to assess firm performance in terms of security returns in this study.

Sharpe (1964) and Lintner (1965) developed the CAPM, which is used to assess an individual security expected rate of return. The Capital Asset Pricing Model (CAPM) has grown in importance as a tool for evaluating capital costs, portfolio performance, and diversification, evaluating investments, selecting portfolio strategies, and managing stock risk and return forecasts.

Stock price, one of the interests of the owner and shareholder, is expected to be higher when evaluating board ability. Thus, CAPM as one of the proxies for evaluating firm performance will be used in this study.

The CAPM formula is presented as follows:

$R_a = R_{rt} + B_a (R_m - R_{rf})$

R_a is the required rate of return on the assets;

R_{rf} is the rate of return of risk-free security;

R_m is the broad market expected rate of return;

B_a is beta of the particular assets.

The beta of the particular assets is computed by

$$B_a = \frac{Cov(R_i,R_m)}{Val(R_m)}$$

R_i is stock price of firm will study

R_m is market stock price

Market stock price compute by

$$R_m = \frac{SETt - SETt\text{-}1 \times 100}{SETt\text{-}1}$$

SETt is index stock price on time at t

SETt-1 is index stock price on time at t-1

Stock price of firm will study

$$R_i = \frac{Pt - Pt\text{-}1}{Pt\text{-}1} \times 100$$

Pt is a close stock price on time at t

Pt-1 is a close stock price on time at t-1

If $R_i > R_a$ means the real return is more than expected, it implies that the firm has good performance.

If $R_i < R_a$ means the real return is less than expected, it implies that the firm has no good performance.

2.5.1 Board Characteristics, Corporate Governance, and Firm Performance

Since firm performance is a measure of an organization efficiency and effectiveness, the leader or board of directors must have adequate knowledge and ability to leverage the resources invested by shareholders in order to generate returns and value for them. In other words, the quality of the leader has a significant impact on the operation. Ameer, Ramli, and Zakaria (2010) discovered that an external or overseas board of directors had a stronger relationship with firm performance than an internal board of directors. According to Larmou and Vafeas (2010), increasing board size is linked to higher stock prices. Shukeri, Shin, and Shaari (2012) investigated board characteristics that influence firm performance and discovered that board size and ethnic diversity were positively related to firm performance, while independent boards were negatively related to firm performance. In a study of corporate governance and performance in Saudi Arabia, Buallay et al. (2017) found that board size had a significant effect on performance. Similarly, Pillai and Al-Malkawi (2018) revealed that corporate governance variables, such as audit type and board size, had a significant effect on firm performance. Additionally, Ghalib (2018) pointed out that the efficacy of good corporate governance was a significant factor in the profitability of banking. According to Iramani, Muazaroh, and Mongid (2018), good corporate governance had a direct positive effect on the firm performance in Indonesian banks. Furthermore, Ghalib (2018) indicated that corporate governance was a factor affecting a bank profitability in Indonesia, while an independent board had a detrimental effect on firm performance.

Thus, this study establishes the following conceptual framework for board of directors' characteristics and firm performance as shown in Figure 2.8.

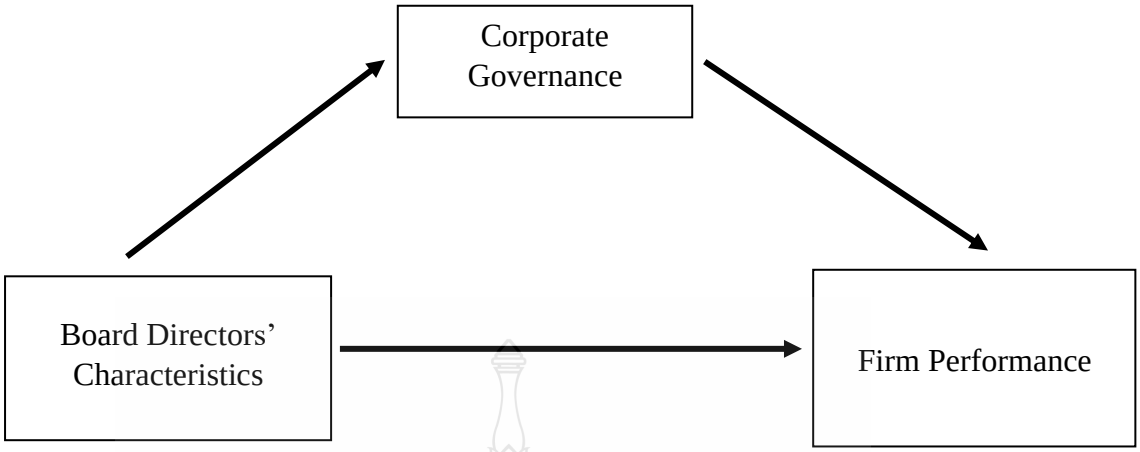


Figure 2.8 The relationship among the board of directors' characteristics, corporate governance, and firm performance.

Based on the conceptual framework, this study aims to investigate the direct impact of board characteristics on firm performance, and the indirect impact on corporate governance. According to the literature review, good corporate governance is yet another factor that influences firm performance.

2.5.2 Conclusion of Previous Studies

The variables in previous studies related to this study are displayed in the following tables: Table 2.1 summarizes the relationship between board characteristics and firm performance, Table 2.2 presents the relationship between board characteristics and firm performance, and Table 2.3 presents the relationship between board characteristics and corporate sustainability respectively.

2.5.3 Control Variable

1) Firm Size

There are currently large and small organizations in terms of personnel, finance, management, technology, production capacity, and competitiveness. If the size of the organization varies, business opportunities are frequently unequal since larger organizations with more resources have higher competitiveness.

In this study, registered capital and assets will be used to represent the size of the business. The number of board leaders varies due to the size and complexity of the business structure. A large company with a large board of directors tends to require more

knowledge and specialists and have better firm performance (J. Lee, 2009). Interestingly, Larmou and Vafeas (2010) found that larger board size can increase the stock price.

2) Type of Industry

Companies listed on the Stock Exchange of Thailand represent a variety of industries. Each of them is unique in terms of product, operations, technology, competition, related regulations, and operational work expertise. Thus, each type of industries may require the committee with the knowledge of a specific industry to determine the vision, goals, strategies, operations, tracking, and evaluation of specific performance, especially in industries with complex operations.

The Stock Exchange of Thailand divides the industry into 8 categories with 28 subcategories as shown in Table 2.4.

Table 2.1 Overview of board characteristics and firm performance

Independent Variable	Authors	Theory	Sample	Dependent Variable	Relationship	Measurement Variable	Statistical Analysis
Gender	Smith et al. (2006)	N/A	2,500 largest Danish firms observed during the period 1993–2001	Firm performance -Gross profit/net sales -Contribution margin/net sales - Operating income /net assets - Net income after tax/net assets	Positive	The proportion of women in top management	Regression Analyses
Gender	Arayssi et al. (2016)	N/A	All listed in the Financial Times Stock Exchange 350 index between 2007 and 2012	Sustainability disclosure ESG	Positive	Women directors on corporate boards (WDOCBs)	Regression Analyses
Gender	Adams and Ferreira (2009)	N/A	Public traded firms from 1996-2003,	Tobin's Q and ROA	Positive	Female directors on the board	OLS regressions

Table 2.1 Overview of board characteristics and firm performance (Cont.)

Independent Variable	Authors	Theory	Sample	Dependent Variable	Relationship	Measurement Variable	Statistical Analysis
Gender	Terjesen et al. (2009)	Resource dependency, Institution and Agency theories	400 publications in psychology, sociology, leadership, gender, finance, management, law, corporate governance, and entrepreneurship domains	Corporate governance	Positive	Women directors on corporate boards	N/A
Gender	Liu et al. (2014)	N/A	China's listed firms from 1999 to 2011	Firm performance	Positive	Board gender diversity	N/A
Gender	Francoeur et al. (2008)	Agency theory, Stakeholder theory	Financial Post list of the 500 largest Canadian firms (FP500) 2001 to 2003 Catalyst censuses 2002 and 2004 Catalyst censuses	ROE	Positive	Women in the firm board of directors	Least-squares regressions
Age	Darmadi (2011)	N/A	383 firms, the total number of public firms listed on the IDX as at 31 December 2007	ROA Tobin's q	Positive	Age diversity	Cross-sectional regression analysis

Table 2.1 Overview of board characteristics and firm performance (Cont.)

Independent Variable	Authors	Theory	Sample	Dependent Variable	Relationship	Measurement Variable	Statistical Analysis
Age	Dagsson and Larsson (2011)	Agency theory Resource dependenc e theory Human capital theory	The companies listed on the OMX Stockholm exchange between 2005 and 2009	ROA and Tobin's Q	Positive	Age diversity	Regression analysis
Age	Johl et al. (2015)	Agency theory	the 700 public listed firms in Malaysia for the year 2009	Return on Assets	Positive	Directors accounting expertise	Ordinary Least Square (OLS) regression
Age	Tulung and Ramdani (2016)	Upper Echelon Theory	26 BPD data in Indonesia from 2010 until 2014	ROA, ROE, CAR, NIM and LDR	Positive	Age of TMT	Regression analysis
Age	Darmadi (2011)		169 the firms listed on the Indonesia Stock Exchange	Tobin's q ROA	Negative	Age diversity	Regression analysis
Education Level	Goll et al. (2008)	Upper Echelon Theory	Major US. Air carriers from 1972-1995	ROA, Operating profit per revenue passenger mile and operating per revenue passenger mile	Positive	Education Level	Regression analysis

Table 2.1 Overview of board characteristics and firm performance (Cont.)

Independent Variable	Authors	Theory	Sample	Dependent Variable	Relationship	Measurement Variable	Statistical Analysis
Education Level	Tulung and Ramdani (2016)	Upper Echelon Theory	26 BPD data in Indonesia from 2010 until 2014	ROA, ROE, CAR, NIM and LDR	Positive	Education	Regression analysis
Education Level	Darmadi (2013)	Upper Echelon Theory	160 firms listed on the Indonesia Stock Exchange for the financial year 2007	Return on assets Tobin's Q	Positive	-Postgraduate -Degree obtained from developed countries -Degree obtained in financial disciplines	Ordinary least squares (OLS) regressions.
Education field	Francis et al. (2012)	Agency theory	876 S&P 1500 nonfinancial companies January 2007 to December 2009	Cumulative stock returns	Positive	Financial expertise	Regression analysis
Education field	Bertrand and Schoar (2003)		The Forbes 800 files, form 1996-1999 and Execucomp data from 1992-1999	Return on assets Tobin's q Financial leverage	Positive	MBA degree	Regression analysis

Table 2.1 Overview of board characteristics and firm performance (Cont.)

Independent Variable	Authors	Theory	Sample	Dependent Variable	Relationship	Measurement Variable	Statistical Analysis
Foreign board	Hahn and Lasfer (2016)	Agency theory	Companies listed on the London Stock Exchange (LSE) from 1999 to 2012 241 UK firms with complete data, resulting in 1716 firm-year observations	Firms' market-to-book price-to-earnings return on assets total shareholder return	Positive	Percentage of foreign non-executive directors	Regressions analysis
Foreign board	Masulis et al. (2012)	Agency theory	The boards of S&P 1500 companies from 1998 to 2006	Returns on assets	Negative	Foreign director	Least squares (2SLS) regressions
Foreign board	Mi Choi et al. (2012)	Agency theory	Firms in the Korean Exchange KOSPI200 index during 2004-2007	Tobin's q	Positive	foreign board members	Regression analyses.
Foreign board	Augustine Ujunwa (2012)	Agency theory, Resource dependence theory	122 quoted firms in Nigeria between 1991-2008	Return on assets	Positive	Board nationality	Regression analyses
Political connections	Sitthiponpanich and Polsiri (2013)	Resource dependence theory	Non-financial firm listed in SET covering the period 2001 to 2005	Tobin's Q	Positive	Network	Regression analyses

Table 2.1 Overview of board characteristics and firm performance (Cont.)

Independent Variable	Authors	Theory	Sample	Dependent Variable	Relationship	Measurement Variable	Statistical Analysis
Political connections	Siegel (2007)	N/A	Firms listed on the Korea Stock Exchange increased over the study time period, 1987–2003, from 389 to 684, and the sample of 665 firms	Equity joint ventures, joint production arrangements, joint sales and marketing arrangements, exclusive supply arrangements and joint R&D	Positive	Network ties	Regression analysis
Board Compensation	Conyon and He (2011)	N/A	Chinese firms listed exchanges from 2001 to 2005 sample of 1342 firms	Annualized stock return return on assets	Positive	Average compensation	Regression Analyses
Board Compensation	Kato and Long (2006)	Agency Theory	China listed firms from 1998 to 2002	Sale Growth Ownership Structure	Positive	Top three executive average pay	Regression Analyses
Board Compensation	Ke, Rui, and Yu (2012)	N/A	899 for state-controlled A shares, 62 for state-controlled H shares, and 45 for state-controlled Red Chip shares	ROA and RET	Positive	Annual cash compensation	Regression Analyses

Table 2.1 Overview of board characteristics and firm performance (Cont.)

Independent Variable	Authors	Theory	Sample	Dependent Variable	Relationship	Measurement Variable	Statistical Analysis
Board Compensation	Raithatha and Komera (2016)	Agency Theory	Indian listed firm from 2002 to 2011 21,834 firm year observations	Return on equity ROA Tobin's Q annual stock return (RET)	Positive	consolidated executive compensation	Regression Analyses
Board Tenure	S. Z. HUANG and Bens (2014)		firms in the US from 1998 to 2010 2,158 firms with 13,989 firm-year observations	Tobin's Q	Positive	average tenure (in number of years) of all outside directors on the board	Regression Analysis
Board Tenure	Hashim and Devi (2008)		649 non-financial companies listed on Bursa Malaysia Main Board for the year 2005	Earnings quality	Positive	Average number of years of board service	Regression Analysis

Table 2.2 The relationship of board characteristics and firm performance

Authors	Topic	Financial Performance Variable	Result	Sample and Main Analysis	Major Finding
Kılıç and Kuzey (2016)	The effect of board gender diversity on firm performance: evidence from Turkey	Return on assets, return on equity return on sales	Positive	-Non-financial firms listed in the BIST for the time period of 2008-2012 -Regression analysis	This study showed that the inclusion of female directors was positively related to the financial performance of firms.
Zabri et al. (2016)	Corporate Governance Practices and Firm Performance: Evidence from Top 100 Public Listed Companies in Malaysia	Return on asset Return on equity	Positive	-Top 100 public listed companies in BMB, covering the period from 2008 to 2012 -Spearman's Correlation Test	The findings revealed that while board size had a weak negative relationship with ROA, it was insignificant in terms of ROE. There was no relationship between the independence of the board of directors and the performance of the company.

Table 2.2 The relationship of board characteristics and firm performance (Cont.)

Authors	Topic	Financial Performance Variable	Result	Sample and Main Analysis	Major Finding
Al-Matari, Al-Swidi, and Fadzil (2014)	The Effect of Board of Directors Characteristics, Audit Committee Characteristics and Executive Committee Characteristics on Firm Performance in Oman: An Empirical Study	Tobin`s Q.	Positive	-Top 100 public listed companies in BMB, covering the period from 2008 to 2012 -multiple linear regressions	The findings indicated a significant positive relationship between board size, board meeting, audit committee and executive committee independence, as well as Tobin's Q.
Augustine Ujunwa (2012)	Board characteristics and the financial performance of Nigerian quoted firms	Firm performance	Positive	-122 quoted firms in Nigeria between 1991 and 2008 -ordinary Least Square regression	Board size, CEO duality, and gender diversity were found to be negatively associated with firm performance, whereas board nationality, ethnicity, and the percentage of board members with a Ph.D. were found to be positively associated with firm performance.

Table 2.2 The relationship of board characteristics and firm performance (Cont.)

Francoeur et al. (2008)	Gender Diversity in Corporate Governance and Top Management	Return on equity	Positive	-Financial Post list of the 500 largest Canadian firms in 2001-2004 -regressions	Businesses with a high proportion of women in their management and governance structures generated enough value to keep pace with normal stock market returns.
Kato and Long (2006)	Executive Compensation, Firm Performance, and Corporate Governance in China: Evidence from Firms Listed in the Shanghai and Shenzhen Stock Exchanges	Sale Growth Ownership Structure	Positive	China listed firms from 1998 to 2002 Regression Analysis	Annual cash compensation (salary and bonus) for top executives was shown to be significantly sensitive and elastic to shareholder value in China. Sales growth was shown to be significantly related to executive compensation.
Conyon and He (2011)	Executive Compensation and Corporate Governance in China	Annualized stock return return on assets	Positive	Chinese firms listed exchanges from 2001 to 2005 sample of 1342 firms Regression Analysis	Companies with a higher proportion of independent directors on their boards of directors had a stronger pay-for-performance relationship.

Table 2.2 The relationship of board characteristics and firm performance (Cont.)

Authors	Topic	Financial Performance Variable	Result	Sample and Main Analysis	Major Finding
Ke et al. (2012)	Hong Kong stock listing and the sensitivity of managerial compensation to firm performance in state-controlled Chinese firms	ROA and RET	Positive	899 for state-controlled A shares, 62 for state-controlled H shares, and 45 for state-controlled Red Chip shares Regression Analysis	For state-controlled Red Chip shares, the sensitivity of managerial cash compensation to firm performance and the level of long-term managerial incentives are significantly higher.
Raithatha and Komera (2016)	Executive compensation and firm performance:Evidence from Indian firms	Return on equity ROA Tobin's Q annual stock return (RET)	Positive	Indian listed firm from 2002 to 2011 Regression Analysis	Accounting-based and market-based measures of firm performance had a significant impact on executive compensation.
Hashim and Devi (2008)	Board characteristics, Ownership structure and earnings quality: Malaysian evidence	Earnings quality	Positive	649 non-financial companies listed on Bursa Malaysia Main Board for the year 2005 Regression Analysis	There was a significant correlation between board tenure and the quality of earnings.

Table 2.3 The relationship of board characteristics and corporate sustainability

Authors	Topic	Financial Performance Variable	Result	Sample and Main Analysis	Major Finding
C. Post et al. (2015)	From Board Composition to Corporate Environmental Performance Through Sustainability-Themed Alliances	Corporate environmental performance	Positive	-All publicly traded oil and gas companies headquartered in the US that were listed in the 2009 -logistic regression analyses	The more women on a company board of directors, the more likely the company will form sustainability-related alliances, and the greater the proportion of independent directors on a company board of directors, the more likely the company will form sustainability-related alliances.
S. K. Huang (2013)	The Impact of CEO Characteristics on Corporate Sustainable Development	Corporate social responsibility	Positive	-Major ranking agencies between 2005 and 2010. A total of 661 firms were included in the sample with 392 observations in total -regression	The findings indicated that a firm CSR performance, as measured by the consistency of its CSR rankings, was related to the educational specializations of its CEOs in master's degrees in business administration (MBA) and science (MSc). Additionally, it was demonstrated that CEO tenure and gender had an effect on firms' CSR performance.

Table 2.3 The relationship of board characteristics and corporate sustainability (Cont.)

Authors	Topic	Financial Performance Variable	Result	Sample and Main Analysis	Major Finding
Oosthuizen and Lahner (2016)	Board diversity and sustainability performance	JSE Social Responsible Investment (SRI) Index as a proxy for sustainability performance	Positive	-All companies listed on the FTSE/JSE 2004, 2007 and 2010 -ANOVA	This research found that a director's background was likely to be associated with the board's performance in its sustainability role.
Zhang (2012)	Board demographic diversity, independence, and corporate social performance	KLD index to measure Corporate social performance	Positive	-475 publicly traded Fortune 500 companies between the years 2007 and 2008 -regression	Board gender and race diversity were found to be positively correlated with an institution social responsibility strength.
Giannarakis (2014)	The determinants influencing the extent of CSR disclosure	The ESG disclosure score	Positive	-366 companies from the Fortune 500 list for 2011. - Multiple regression	The size of the board of directors was significantly and positively associated with the extent of CSR disclosure.

Table 2.4 SET industry group and sector classification structure

No.	Industry Categories	Industry Subcategories
1	Agro & Food Industry	Agribusiness
		Food & Beverage
2	Consumer Products	Fashion
		Home & Office Products
		Personal Products & Pharmaceuticals
3	Financials	Banking
		Finance and Securities
		Insurance
4	Industrials	Automotive
		Industrial Materials & Machine
		Packaging
		Paper & Printing Materials
		Petrochemicals & Chemicals
		Steel
5	Property & Construction	Construction Materials
		Construction Services
		Property Development
		Property Fund & Real Estate Investment Trusts
6	Resources	Energy & Utilities
		Mining
7	Services	Commerce
		Health Care Services
		Media & Publishing
		Professional Services
		Tourisms & Leisure
		Transportation & Logistics
8	Technology	Electronic Components
		Information & Communication Technology

2.6 Theoretical Framework

A study titled ‘ The review and integrative model with the goal of developing a model that integrated the boards of directors and the company financial performance’ conducted by Zahra and Pearce (1989) was the first study suggesting that an attribute of the board of directors could have an effect on firm performance.

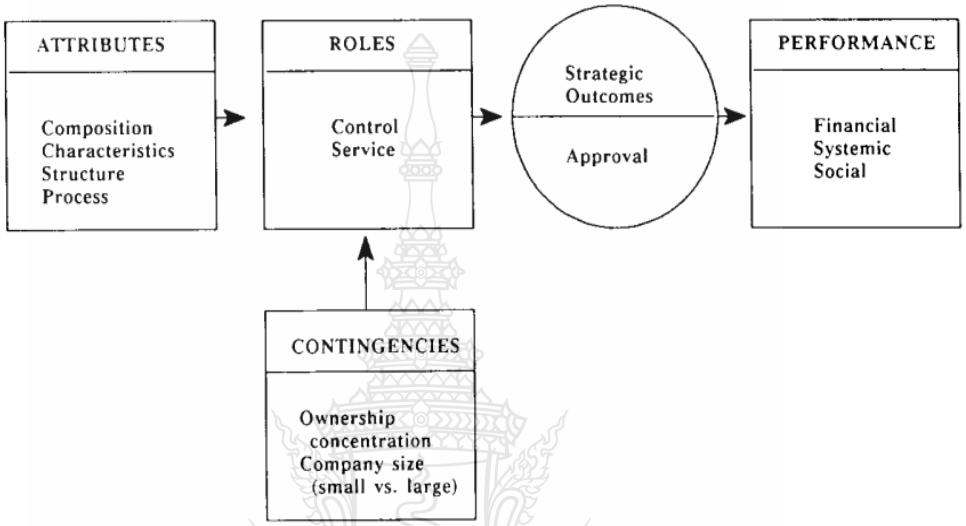


Figure 2.9 The links between board of directors and firm performance (Zahra and Pearce (1989)

The study of Enric Ricart, Ángel Rodríguez, and Sánchez (2005) on the board of directors' qualifications in relation to the organization sustainability with the goal of developing models for enhancing the corporate governance system and serving as a guideline for sustainability was carried out with the help of questionnaires from 18 leading sustainability companies, as determined by the Dow Jones Sustainability World Index Leaders (DJSC). The findings of the model revealed that a board of directors with a background in sustainability development training and concerns in resource, service, control, and strategy had an impact on long-term corporate performance.

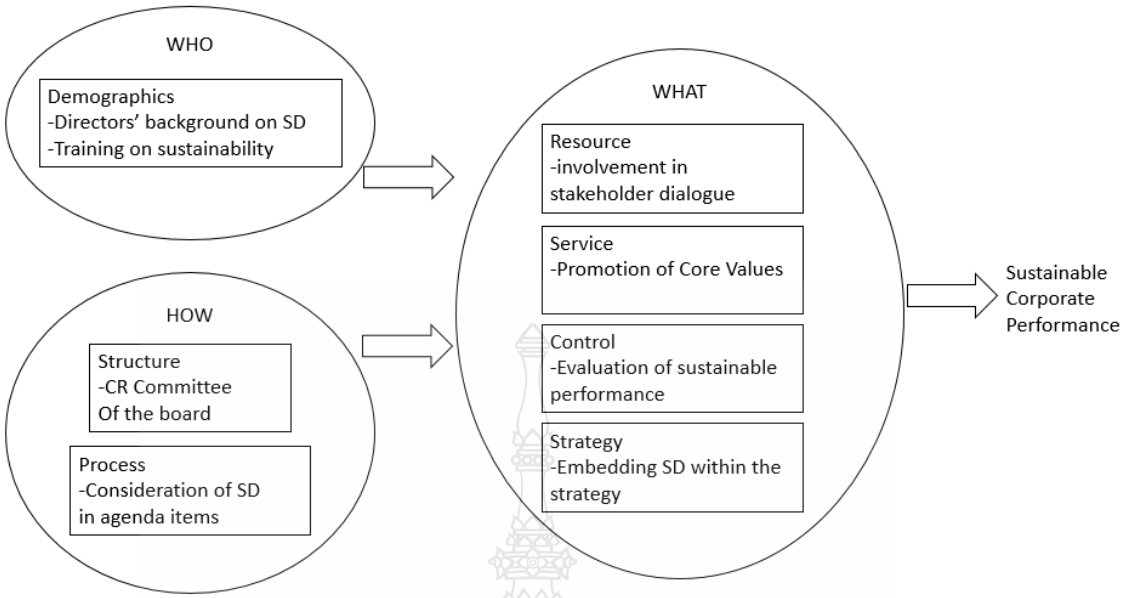


Figure 2.10 The sustainable corporate governance model (Enric Ricart et al., 2005)

Duc and Thuy (2013) studied corporate governance in Vietnam with the goal of determining the relationship between corporate governance and company performance. The variables in this study included (1) board size, (2) female board members, (3) CEO duality, (4) education level of board members, (5) experience of the board, (6) independent directors, (7) board compensation, (8) board ownership, (9) block holders. The findings showed that female board members, CEO duality, working experience, and board compensation had positive effects on firm performance as measured by return on assets (ROA). However, this study did not take foreign board members or political board members into account. Furthermore, indirect factors such as corporate governance and firm sustainability were not examined.

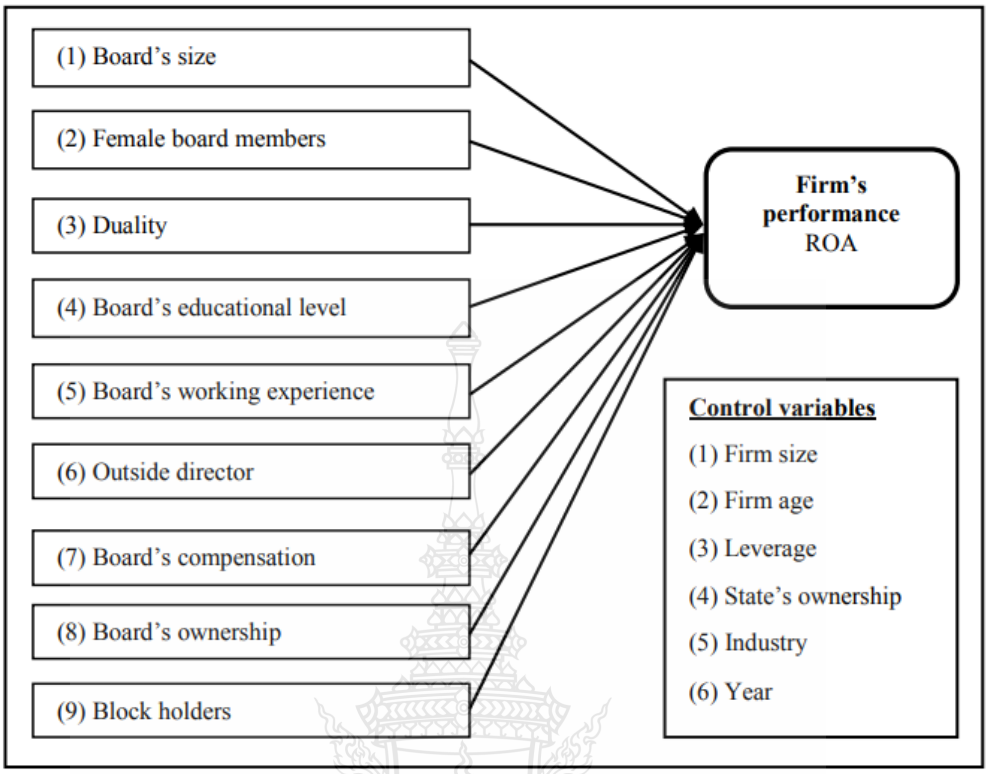


Figure 2.11 Corporate governance and firm performance: empirical evidence from Vietnam (Duc & Thuy, 2013)

Darweesh (2015) studied the relationship between corporate governance and financial performance and market capitalization in Saudi Arabian companies. Financial performance was calculated by using ROA and ROE, while market value was calculated by using Tobin's Q, board size, board independence, board committees, ownership structure, and executive compensation. The study revealed that corporate governance had a significant impact on financial performance and market value.

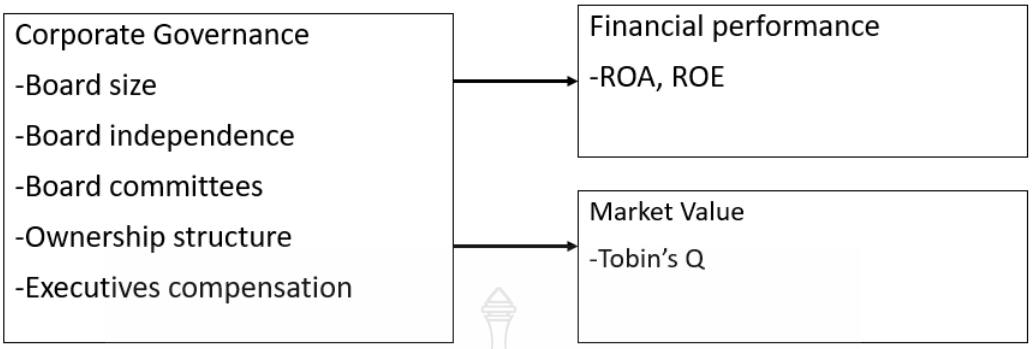


Figure 2.12 The relationship between corporate governance and financial performance and market value (Darweesh, 2015)

Kriengkrai Boonlert-U-Thai and Anuwat Phakdee (2018) conducted research on the characteristics and performance of listed companies on the Stock Exchange of Thailand in order to investigate the relationship between director characteristics and measurement using the Basu (1997) and A. S. Ahmed and Duellman (2007) models, and to examine the relationship between the characteristics of the board of directors and the performance of companies listed on the Stock Exchange of Thailand. Their findings indicated that board size and the proportion of board members with financial accounting knowledge increased accounting conservatives based on the Basu (1997) model. Moreover, the proportion of board members with completed master's degrees from both the country and foreign countries contribute to the level of accounting conservatism based on the model A. S. Ahmed and Duellman (2007). In addition, the proportion of female directors on the board of directors and board duality improved operational results on ROA, and A larger board size improved the timeliness of profit loss recognition. On the other hand, the proportion of the board who completed doctoral degrees in the country reduced the accounting conservative, and the proportion of foreign directors reduced accounting conservations based on the model (A. S. Ahmed & Duellman, 2007). However, this current study focuses on board characteristics only in the educational aspect as shown in Figure 2.13.

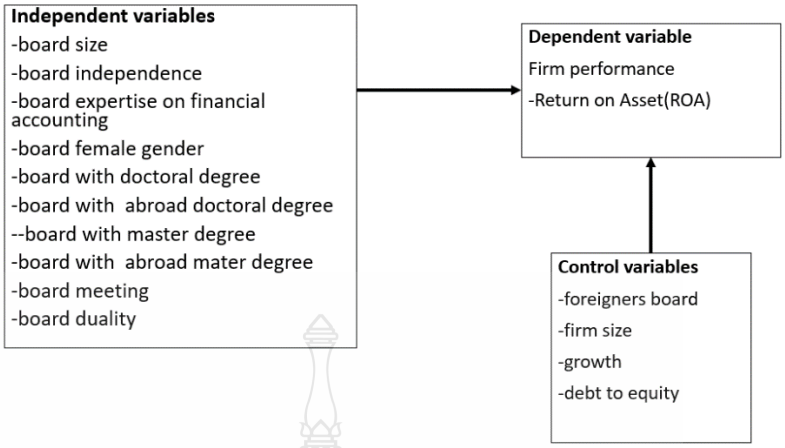


Figure 2.13 The research framework of board characteristics, accounting conservatism, and firm performance of Thai listed companies (Kriengkrai Boonlert-U-Thai & Anuwat Phakdee, 2018)

A study of Anuwat Phakdee and Sillapaporn Srijunpetch (2018) was aimed to test the structural model of board characteristics and firm performance of a listed company on the Stock Exchange of Thailand. Their findings revealed that basic and additional board characteristics had a negative direct influence on firm performance. On the other hand, basic and additional board characteristics had a positive direct effect on firm performance.

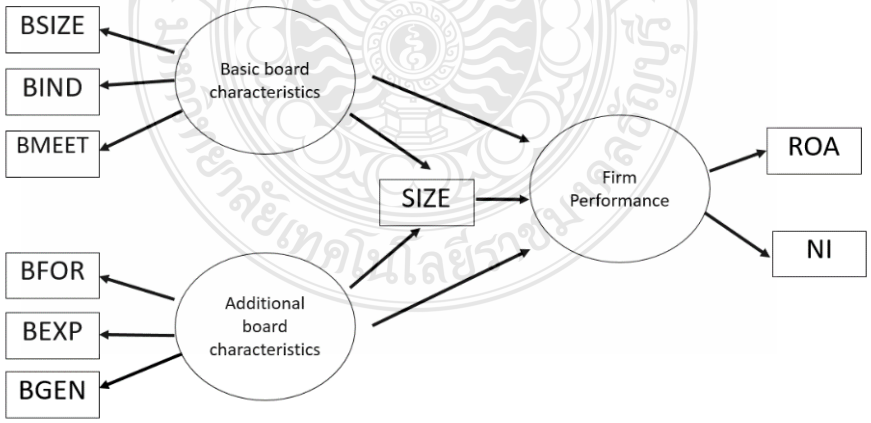


Figure 2.14 Structural equation modeling of board characteristics and firm performance of Thai listed companies (Anuwat Phakdee & Sillapaporn Srijunpetch, 2018)

From the literature review, the research model of this study was developed and is presented in Figure 2.15.

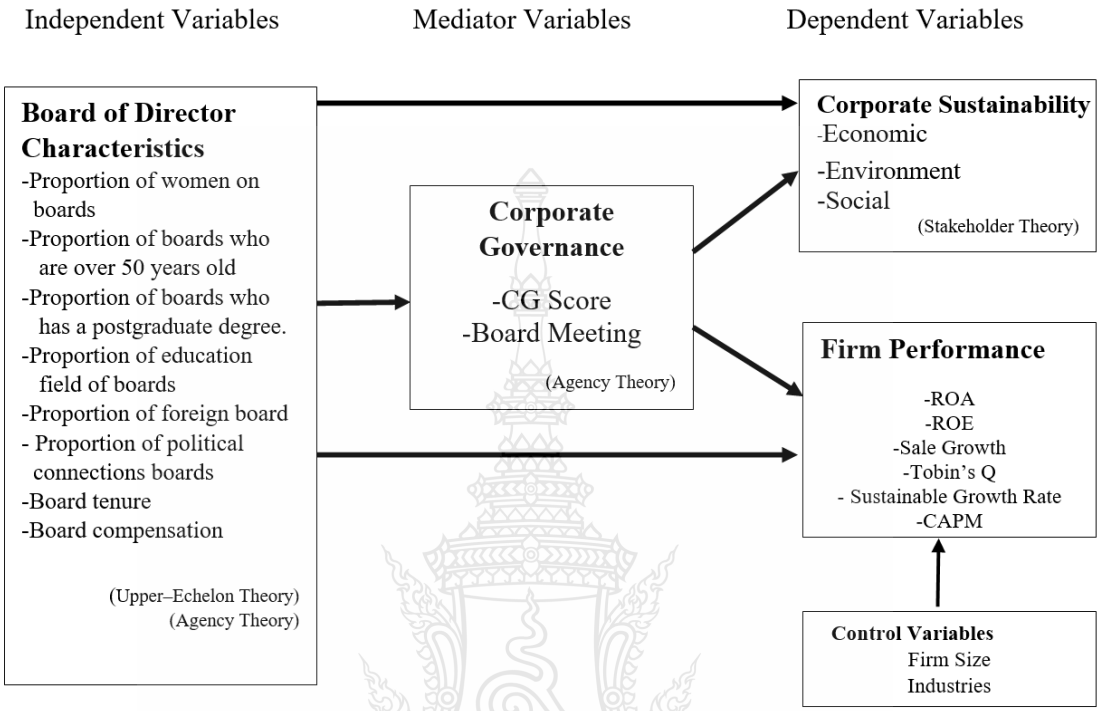


Figure 2.15 Research model

CHAPTER 3
RESEARCH METHODOLOGY

3.1 Introduction

The purpose of this study is to examine the effect of the board of directors' characteristics on corporate sustainability and firm performance using corporate governance that uses the CG Score and board meeting as metrics. To obtain accurate results, the research methods include the following: research design, population and sample groups, data collection techniques, variable definitions and metrics, and data analysis sequence. The statistical research model was developed in conjunction with the conceptual framework and hypotheses for the proposed research. Multiple regression and mediator analysis techniques were used to analyze the data.

3.2 Research Design

This study investigates the impact of the board of directors' characteristics on the company sustainability and performance. The subject of this research is listed companies in Thailand , which established a board of directors to manage the company on behalf of shareholders. The information about the board of directors was disclosed in each company annual report. As a result, the data that must be collected for analysis are secondary data in the annual report, form 56-1, and data from financial statements disclosed on the Stock Exchange of Thailand website and using the data to analyze in inferential statistics.

The research was designed and analyzed using a mixed methodology that included both quantitative and qualitative research. According to the quantitative research, data was gathered from the annual report and Form 56-1, as well as corporate governance ratings from IODs and financial statements, which were included as variables in the research framework. In terms of qualitative research, an in-depth interview with the board of directors was conducted. The interview data would be used to confirm the findings of the quantitative research.

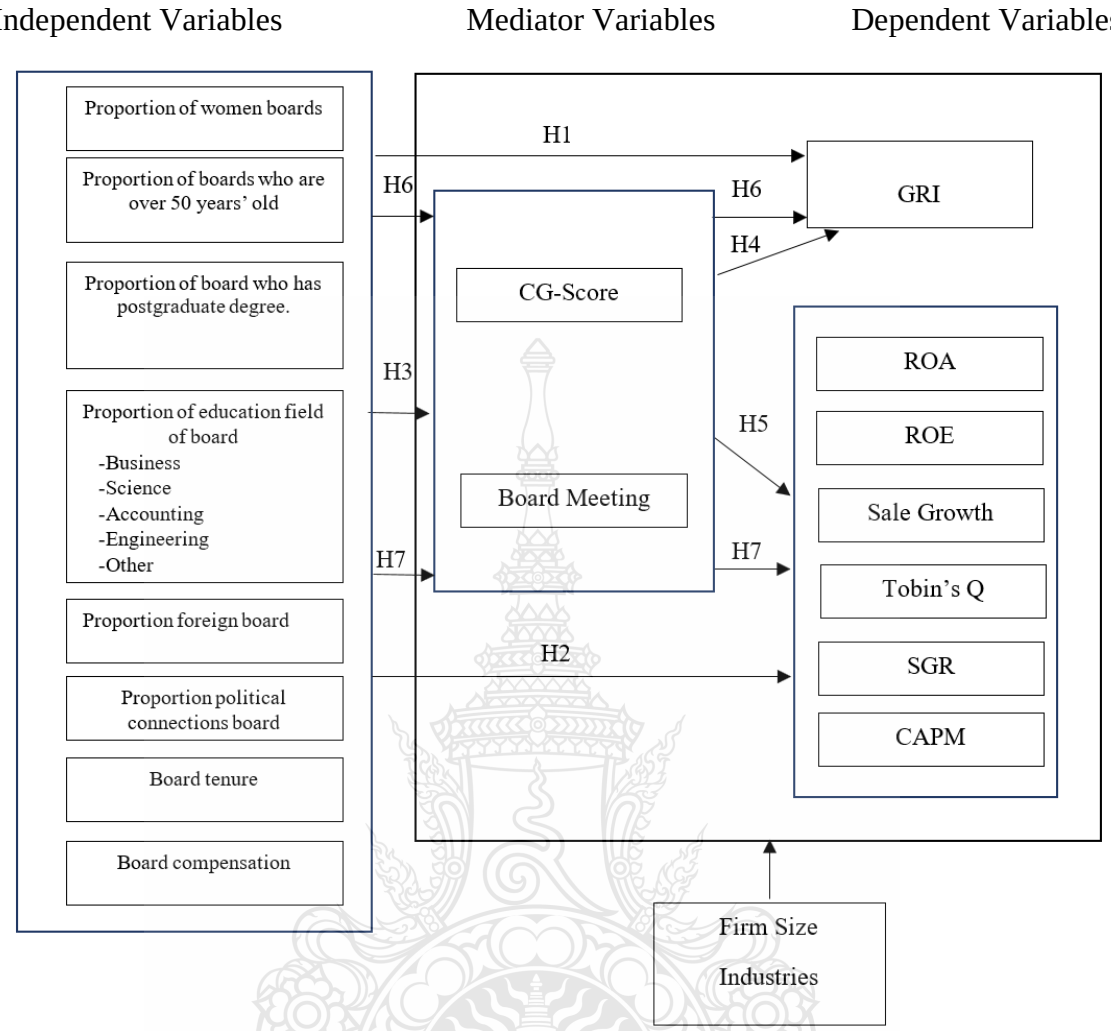


Figure 3.1 The statistic research model.

3.2.1 Quantitative Methodology

1) Population and Sampling

The target group consists of companies listed on the Stock Exchange of Thailand. The research population consists of 688 companies from eight industries: agriculture and food, consumer products, finance, industrials, property and construction, resources, services, and technology. The data will be gathered from the secondary annual report and Form 56-1 for the year 2018.

The 508 companies were chosen as research samples, 175 companies did not have enough complete data to represent all variables, and 5 companies were removed due to outlier problems.

2) Data Collection Techniques

The collection of financial statements, corporate governance factors, and GRI for each sample company is a public document, including an annual report from the 2018 fiscal year. The financial reports, corporate governance, and GRI were compiled in the 2018 annual report of the Stock Exchange of Thailand public document. To analyze available data from research variables, the study employs Multiple Regression and Path Analysis techniques. A data collection sheet is required to create a score index data to a spreadsheet file for calculation and analysis. The variable name, measurement type and scale, and reference sources are all listed in the table below.

Table 3.1 Variables, scale types, and measurement scale.

Variable Name	**Scale**	**Measurement Scale**
Proportion of women on boards	Ratio	The amount of women board members divided by the total number of boards.
Proportion of board who are over 50 years' old.	Ratio	The amount of board who are over 50 years old divided by the total number of boards.
Proportion of board who has postgraduate degree.	Ratio	The amount of board who has postgraduate degree divided by the total number of boards.

Table 3.1 Variables, scale types, and measurement scale (Cont.)

Variable Name	Scale	Measurement Scale
Proportion of education field of board	Ratio	A dummy variable that is coded 1 if the board of director education field is present and 0 otherwise. Classify various knowledge in five areas of study: 1. Business and related knowledge 2. Science 3. Accounting 4. Engineering 5. Other The number of majors held by all directors in each study area divided by the total number of boards.
Proportion foreign board	Ratio	- A dummy variable that is coded 1 when there is a foreign outside director present and 0 otherwise. - The proportion of foreign independent directors on boards.
Proportion political connections board	Ratio	1 = board with politic experience; 0 = no politic experience. Number of board with political experience / total number of boards.
Board tenure	Ratio	Average of the board of directors tenure.
Board compensation	Ratio	Sum of board of director compensation / total number of board of directors.
Corporate governance rating	Ratio	Corporate governance rating are 4 levels including 4(excellent), 3(very good), 2(good), and 1(satisfy and other)
Board meeting	Ratio	The number of meetings held by the board of directors in a given year.
ROA	Ratio	Earnings before taxes divided by the company total assets.
ROE	Ratio	Net income divided by book equity
Sale Growth	Ratio	Current period net sale - Prior period net sales time 100 and divided by Prior period net sales.
Sustainable Growth Rate	Ratio	Maximum rate of growth that can be achieved with no external equity financing and a constant debt-equity ratio.
Tobin's Q	Ratio	Market value of equity + book value of debt /book value of assets.
Security Return	Ratio	Expected rate of return of an individual security.

Table 3.1 Variables, scale types, and measurement scale (Cont.)

Variable Name	Scale	Measurement Scale
Corporate Sustainable	Ratio	Measure the level of disclosure using a binary scale with a value of 1 if an item is disclosed and 0 otherwise. The cumulative score of each dimension is the computed using the following formula: Sustainable ratio = No. of items disclosed on an indicator/Total item on an indicator.
Firm size	Ratio	The logarithm of the book value of total assets at the end of the fiscal year.

3) Variable type and abbreviation

Table 3.2 Variable definition.

Variable Type	Abbreviation	Description
Independent Variable	WOMEN	Proportion of women on the board of directors
	AGE>50	Proportion of board of directors who are over 50 years' old.
	POSTGRADUATE	Proportion of board of directors who have education on postgraduate degree
	BUSINESS	Proportion of board of directors who have education in the business field
	SCIENCE	Proportion of board of directors who have education in the science field
	ACCOUNTING	Proportion of board of directors who have education in the accounting field
	ENGINEERING	Proportion of board of directors who have education in the engineering field
	OTHER	Proportion of board of directors who have education in the other field
	FOREIGN	Proportion of board of directors who are foreigner
	TENURE	The average of working years of board of directors
	POLITIC	Proportion of board of directors who have political connection
	COMPENSATION	The average compensation of all board of directors
Mediator Variable	CGSCORE	The CG-Score from IOD in the year 2018
	BOARDMEETING	The number of meetings in year 2018

Table 3.2 Variable definition (Cont.)

Variable Name	Scale	Measurement Scale
Dependent Variable	GRI	GRI Standard
	ROA	Return on Assets
	ROE	Return on Equity
	SALEGROWTH	The ratio of sale in year 2018 with year 2017
	TOBIN'S Q	Market value measured by Tobin's Q
	SGR	Sustainable Growth Rate
	CAPM	Security return measured by Capital Asset Pricing Model
Control Variable	TOTALASSET	The total assets value of company
Dummy Control Variable	AGRO	Define to 1 or 0 to dummy variable of each company they are part of industries group
	CONSUMER	
	FINANCIAL	
	INDRUSTIAL	
	PROPCON	
	SERVICES	
	RESOURCES	
	TECHNOLOGY	

4) Variable Measurement

4.1) Independent Variable

4.1.1) The proportion of women on the board of directors.

$$\text{WOMEN} = \frac{\text{Number of women on the boards}}{\text{Total numbers of the member of the board}}$$

4.1.2) The proportion of the board who are over 50 years old.

$$\text{AGE>50} = \frac{\text{Number of board age are over 50 years old}}{\text{The total numbers of boards}}$$

4.1.3) Proportion of board who has postgraduate degree.

$$\text{POSTGRADUATE} = \frac{\text{Number of board with higher than bachelor degree}}{\text{The total numbers of boards}}$$

4.1.4) Proportion of education field of board is the ratio of education field category in business administration, science, accounting, engineering, and other to the total numbers of boards.

$$\text{BUSINESS} = \frac{\text{Number of boards with business administration field}}{\text{The total numbers of boards}}$$

$$\text{SCIENCE} = \frac{\text{Number of boards with science field}}{\text{The total numbers of boards}}$$

$$\text{ACCOUNTING} = \frac{\text{Number of boards with accounting field}}{\text{The total numbers of boards}}$$

$$\text{ENGINEERING} = \frac{\text{Number of boards with engineering field}}{\text{The total numbers of boards}}$$

$$\text{OTHER} = \frac{\text{Number of boards with others field}}{\text{The total numbers of boards}}$$

4.1.5) The proportion of foreign boards is the ratio of the number of boards from other countries to the total number of directors on the board.

$$\text{FOREIGN} = \frac{\text{Number of foreign boards}}{\text{The total numbers of boards}}$$

4.1.6) The proportion of political connections on the board is the ratio of the number of boards with government and political experience to the total number of directors on the board.

$$\text{POLITIC} = \frac{\text{Number of political connections board}}{\text{The total numbers of boards}}$$

4.1.7) Board tenure is the average number of years served on the board of directors.

$$\text{TENURE} = \frac{\text{Sum of the number of years that the board of directors holds positions}}{\text{The total numbers of boards}}$$

4.1.8) Board Compensation is average compensation of the board of director

$$\text{COMPENSATION} = \frac{\text{Sum of board of director compensation}}{\text{The total numbers of boards}}$$

4.2) Mediator Variable

The mediator variables are corporate governance, which is measured by the CG SCORE obtained from IOD in 2018 and board meeting frequency obtained from form 56-1.

CGSCORE = 4 when company has score range between 90-100

CGSCORE = 3 when company has score range between 80-89

CGSCORE = 2 when company has score range between 70-79

CGSCORE = 1 when company has score below 70

4.3) Dependent Variable

4.3.1) Corporate Sustainability use GRI scale measure the disclosure level on a binary scale 1(disclosed) and 0(not disclosed).

$$\text{GRI} = \frac{\text{Number of item that company disclosed on GRI standard framework}}{\text{Total item of GRI standard framework}}$$

4.3.2) Return on Assets (ROA)

$$\text{Return on Assets} = \frac{\text{Net profit}}{\text{Total assets}} \times 100$$

4.3.3) Return on Equity (ROE)

$$\text{Return on Equities} = \frac{\text{Net profit}}{\text{Shareholder equities}} \times 100$$

4.3.4) Sale Growth

$$\text{Sale Growth Percentage} = \frac{\text{Current period net sale} - \text{Prior period net sales}}{\text{Prior period net sales}} \times 100$$

4.3.5) Sustainable Growth Rate

$$\text{Sustainable growth rate} = \frac{\text{ROE x b}}{\text{(1-ROE) x b}}$$

ROE = Return on equity = Net income /Total equity

b = Plowback (retention) ratio

= Addition to retained earnings / Net income

4.3.6) Tobin's Q Ratio

$$\text{Tobin's Q ratio} = \frac{\text{Market value of assets}}{\text{Replacement value of assets in place}}$$

4.3.7) Security Return

$R_a = R_{rt} + B_a (R_m - R_{rf})$

R_a is the required rate of return on the assets.

R_{rf} is the rate of return of risk-free security.

R_m is the broad market expected rate of return.

B_a is beta of the particular assets.

5) Control Variables

5.1) Firm size

Firm size refers to the size of the business, which can have an effect on profit in various performance scenarios. To examine firms of varying sizes, this research incorporates a control variable into the research model through the use of the book value of the assets.

TOTALASSET = amount of company asset value

5.2) Industries

Industries are a group of companies classified by the Stock Exchange of Thailand into eight categories: Agro & Food Industry, Consumer Products, Industrials, Financial, Property & Construction, Resources, Services, and Technology. Each of these categories can affect the results of the entity operation, so this study is defined as the control variables.

AGRO = 1

if company is part of agro and food industry

CONSUMER = 1

if company is part of consumer products industry

FINANCIAL = 1

if company is part of financials industry

INDRUSTIAL = 1

if company is part of industrials industry

PROPCON = 1

if company is part of property and construction industry

SERVICES = 1

if company is part of service industry

RESOURCES = 1

if company is part of resources industry

TECHNOLOGY = 1

if company is part of technology industry

3.2.2 Qualitative Methodology

The process of confirming the results of quantitative methodology is referred to as qualitative methodology. This study was an in-depth interview with the board of directors, and the populations for qualitative research are the same as for quantitative research, but the number of samples tested is limited to five. The interview took the form of a face-to-face meeting with the board of directors. The questions are open-ended, in which case the answer is explained without being checked. The answer will respond to the conclusion answer. Qualitative analysis does not use the complete method, it is only used for the analysis of answers in order to ensure that the results of the quantitative analysis are trustworthy.

3.2.3 Qualitative Research

1) Interview

-Description content analysis

-Propose working hypothesis

2) Iteration Interview

-Description content analysis

3) Mapping the findings of qualitative research with hypotheses

3.3 Data Collection

The data collection process for this study begins with the acquisition of raw data and its transformation into information suitable for statistical analysis. This research utilizes secondary data from an annual report, form 56-1, and financial statements for each company, which include an income statement and a statement of financial position. The characteristics of the board of directors will be gathered from the annual report, as listed companies on the Stock Exchange of Thailand are required to disclose board members' names, education and experience, board ownership, and job position in 2018. While IOD will collect the CG rating score in 2018, the score will be classified into four categories: excellent, very good, good, satisfy and other. Additionally, the GRI scale, which is used to assess corporate sustainability, will be gathered from the annual or sustainable report.

Table 3.3 the company that was measured CG rating score from year 2018

Level	Number of Company
excellent	130
very good	214
good	161
satisfy and other	83
Total	588

The company chosen for the research sample must not have any of the following characteristics:

1) A company that registers in the year of assessment, except for companies that reconstruct shareholders' and do not change business infrastructure.

2) The company registers through a backdoor listing.

3) A company that is about to be delisted or a company that is being rehabilitated.

4) Voluntary delisting of a company

5) A company that distributes or holds shares with fewer than 150 minority shareholders or holds less than 15% of the paid-up capital.

6) Company that the auditor does not comment on the financial statements or that the financial statements are incorrect, or the SEC ordered to amend the financial statements in essence or check in special cases in the year and previous year with sustainability assessment.

7) The company that has been suspended from trading because the delivery of financial statements is taking longer than in previous years due to sustainability assessments.

3.4 Data Preparation

After collecting data from the Stock Exchange of Thailand, the data on each variable was reviewed to ensure that it met the statistical techniques' assumptions. The examination of the normal distribution by checking the abnormal point is the first step in data preparation (outlier). Data will be omitted if it is not normally distributed. Following that, the data was checked for normal distribution testing again and again until it was approved. However, due to a data skew issue, some data must be transformed into a dummy variable.

3.4.1 Normality Testing, Outlier Cleaning and Data Transformation

Each variable data was evaluated for normal distribution using technical QQ plot that the graph approves will be approximately parallel to the diagonal line. The box plot that was considered by the median is located in the box center. When viewed as a graph, the histogram is approximately bell-shaped and symmetrical. The considered skewness and kurtosis indexes were determined by comparing them to a skewness value of no more than 3.0 and a kurtosis index of no more than 8.0 (Kline, 2015).

The results of normality testing and outliner cleaning for the WOMEN variable are shown in Figure 3.2, and the remainder of the results for the other variables are included in Appendix A.

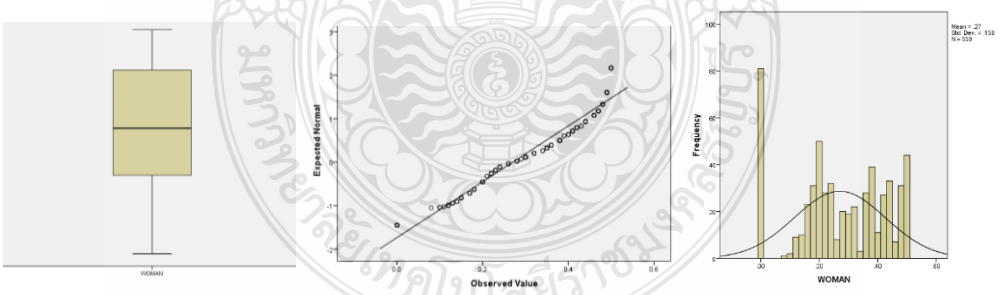


Figure 3.2 Box plot, QQ plot, and histogram of WOMEN variable

Table 3.4 Skewness and kurtosis after remove outlier and data transform

						Skewness		Kurtosis	
	N	Min	Max	Mean	Std. D	Statistic	Std. Error	Statistic	Std. Error
WOMEN	508	0.000	0.500	0.273	0.155	-0.309	0.108	-0.919	0.216
AGE>50	508	0.000	1.000	0.795	0.170	-0.170	0.108	1.845	0.216
POSTGRADUATE	508	0.000	1.000	0.647	0.206	-0.464	0.108	-0.146	0.216
BUSINESS	508	0.000	1.000	0.543	0.196	-0.120	0.108	-0.476	0.216
SCIENCE	508	0.000	0.750	0.096	0.120	1.768	0.108	4.054	0.216
ACCOUNTING	508	0.000	0.570	0.137	0.118	0.884	0.108	0.688	0.216
ENGINEERING	508	0.000	0.860	0.197	0.175	0.894	0.108	0.402	0.216
OTHER	508	0.000	0.700	0.207	0.146	0.647	0.108	0.205	0.216
FOREIGN	508	0.000	0.780	0.056	0.136	2.867	0.108	8.137	0.216
POLITIC	508	0.000	1.000	0.173	0.174	1.351	0.108	2.170	0.216
TENURE	508	1.080	26.810	9.659	5.095	0.707	0.108	0.080	0.216
COMPENSATION(MTHB)	508	0.030	12.220	0.725	1.136	5.232	0.108	38.847	0.216
LogCOMPENSATION	508	-1.500	1.090	-0.389	0.442	0.286	0.108	0.260	0.216
CGSCORE	508	1.000	4.000	2.726	0.943	-0.308	0.108	-0.786	0.216
BOARDMEETING	508	4.000	38.000	7.429	3.602	2.551	0.108	13.113	0.216
LogBOARDMEETING	508	0.000	1.580	0.815	0.208	-0.617	0.108	3.460	0.216
ROA	508	-21.060	31.980	6.254	6.806	0.225	0.108	1.917	0.216
ROE	508	-52.420	53.150	7.627	12.122	-0.821	0.108	4.857	0.216
SALEGROWTH	508	-99.600	141.630	7.860	24.792	1.123	0.108	5.512	0.216
TOBIN'SQ	508	-0.360	5.060	0.967	0.881	1.995	0.108	4.651	0.216
SGR	508	-52.420	46.500	1.925	10.426	-1.355	0.108	6.359	0.216
CAPM	508	-6.310	21.400	6.203	3.333	0.592	0.108	1.508	0.216
GRI	508	0.050	0.620	0.169	0.101	2.009	0.108	4.633	0.216
TOTALASSET(MTHB)	508	162.240	3,187,339.630	58,652.845	31,4718.763	8.382	0.108	73.576	0.216
LogTOTALASSET	508	2.210	6.500	3.749	0.742	1.009	0.108	1.409	0.216

From table 3.3, data were transformed with logarithm function, including LogCompensation, LogBOARDMEETING and LogTOTALASSET.

However, FOREIGH was removed from the research model because the number of boards with these characteristics is too small, the majority of the data items have a ratio of zero, and they cannot remove outliers or choose an appropriate method for data transformation.

3.5 Data Analysis

3.5.1 Descriptive Statistical

Descriptive statistics include minimum, maximum, mean, percentage, and standard deviation.

3.5.2 Inferential Statistic

Inferential statistics uses linear multiple regression analysis to test hypotheses between independent and dependent variables, and Path Analysis to test hypotheses involving a mediator variable.

1) Linear Multiple Regression

Regression analysis is a statistical technique that is used to investigate the relationship between an independent variable or predictor and a dependent variable or outcome. When there is only one predictor, simple regression is used as a statistical technique. Multiple regression was used by the static technique when there were two or more predictors.

The following are the statistical criteria for linear regression.

1.1) Independent and dependent variables must be quantitative data.

1.2) Data should be a normal distribution, this research test by QQ plot, Box Plot, Histogram, and Skewness and Kurtosis, it could be transformed if data is not a normal distribution.

1.3) e was normal distribution and mean of e equaled to zero

1.4) V(e) (=σ2) is constant if not, there are the heteroscedastic problem

1.5) There is no error term with error in the previous or et and et-n were independent, this research test by Durbin-Watson value should be between 1.5-2.5

1.6) There are no multicollinearity problem, this research test by Variance Inflation Factor should be less than 10.

2) Mediator Analysis

The mediator variable is one that explains the relationship between a predictor and an outcome, and it can explain how or why something works. The Baron and Kenny (1986) method is a method for testing mediation hypotheses. They looked at how an independent variable (grade) predicted a dependent variable (happiness), using self-esteem as a mediator.

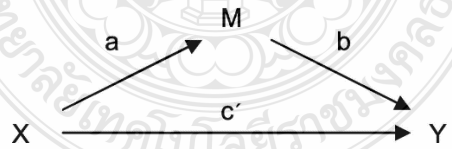
At the moment, there is more research being conducted on the application of mediator analysis in social sciences studies. The results of the mediator analysis method allow us to comprehend the actual effects of the variables in the model based on the findings of the study. The regression analyses used by Baron and Kenny (1986) were divided into three categories.

1) Independent variable predicting the dependent variable

$$Y = \text{constant} + cX \quad (1)$$

2) Independent variable predicting the mediator

3) Independent variable and mediator predicting the dependent variable



$$M = \text{constant} + aX \quad (2)$$

$$Y = \text{constant} + c'X + bM \quad (3)$$

After testing the hypothesis with the mediator, the regression weight between independent and dependent variables will be reduced from c to c'. The following is the formula for calculating regression weights between variables.

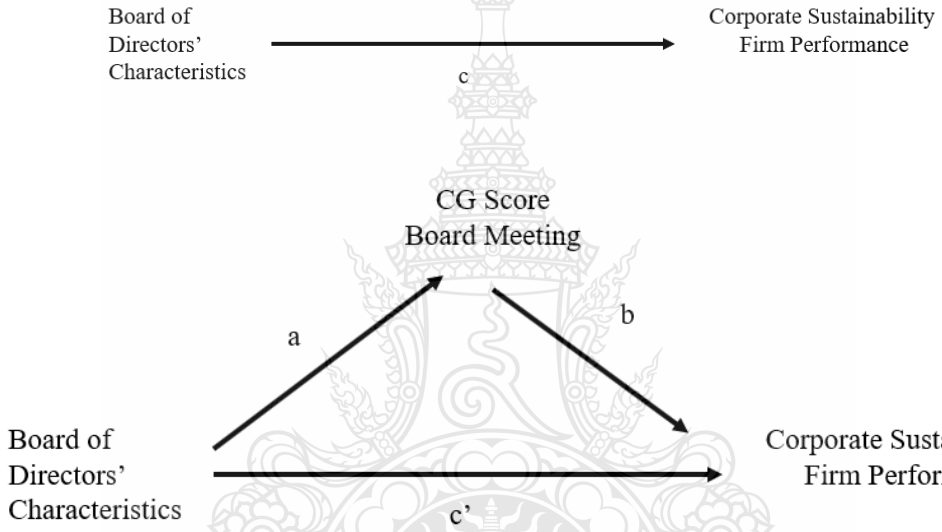
c = (a * b) + c'

a*b is indirect effect from X to Y

c' is direct effect from X to Y

c is total effect from X to Y

When the Baron and Kenny method is used to test the mediation hypotheses in this research framework, the following model and method for calculating the effect are discovered.



c = Total effect from board of directors' characteristics on corporate sustainability or firm performance

a = The direct effect from board of directors' characteristics on CG score or board meeting

b = The direct effect from cg score or board meeting on corporate governance or firm performance

a*b = The indirect effect from board of directors' characteristics on corporate sustainability or firm performance

c' = The direct effect from board of directors' characteristics on corporate sustainability or firm performance

3.6 Hypothesis

Hypothesis 1. The board of directors' characteristics have a positive effect on corporate sustainability.

Hypothesis 1.1 Women on boards have a positive effect on corporate sustainability.

H1.1.1 WOMEN have a positive effect on GRI.

Hypothesis 1.2 Boards over 50 years old have a positive effect on corporate sustainability.

H1.2.1 AGE>50 have a positive effect on GRI

Hypothesis 1.3 Education level of the boards of directors higher than the bachelor's degree has a positive impact on corporate sustainability.

H1.3.1 POSTGRADUATE have a positive effect on GRI

Hypothesis 1.4 Education field of boards have a positive effect on corporate sustainability.

H1.4.1 BUSINESS have a positive effect on GRI.

H1.4.2 SCIENCE have a positive effect on GRI.

H1.4.3 ACCOUNTING have a positive effect on GRI.

H1.4.4 ENGINEERING have a positive effect on GRI.

H1.4.5 OTHER have a positive effect on GRI.

Hypothesis 1.5 Political connection boards have a positive effect on corporate sustainability.

H 1.5.1 POLITIC have a positive effect on GRI.

Hypothesis 1.6 Board tenure have a positive effect on corporate sustainability.

H1.6.1 TENURE have a positive effect on GRI.

Hypothesis 1.7 Board compensation have a positive effect on corporate sustainability.

H1.7.1 COMPENSATION have a positive effect on GRI.

Hypothesis 2. The board of directors' characteristics have a positive effect on firm performance.

Hypothesis 2.1 Women on boards have a positive effect on return on asset.

H2.1.1 Women on boards have a positive effect on ROA.

Hypothesis 2.2 Women on boards have a positive effect on return on equity.

H2.2.2 Women on boards have a positive effect on ROE.

Hypothesis 2.3 Women on boards have a positive effect on sale growth.

H2.2.3 Women on boards have a positive effect on SALEGROWTH.

Hypothesis 2.4 Women on boards have a positive effect on Tobin's Q.

H2.4.1 Women on boards have a positive effect on TOBIN'SQ.

Hypothesis 2.5 Women on boards have a positive effect on sustainable growth rate.

H2.5.1 Women on boards have a positive effect on SGR.

Hypothesis 2.6 Women on boards have a positive effect on capital asset pricing model.

H2.6.1 Women on boards have a positive effect on CAPM.

Hypothesis 2.7 Boards over 50 years old have a positive effect on return on asset.

H2.7.1 AGE>50 have a positive effect on ROA

Hypothesis 2.8 Boards over 50 years old have a positive effect on return on equity.

H2.8.1 AGE>50 have a positive effect on ROE

Hypothesis 2.9 Boards over 50 years old have a positive effect on sale growth.

H2.9.1 AGE>50 have a positive effect on SALEGROWTH

Hypothesis 2.10 Boards over 50 years old have a positive effect on Tobin's Q.

H2.10.1 AGE>50 have a positive effect on TOBIN'SQ

Hypothesis 2.11 Boards over 50 years old have a positive effect on sustainable growth rate.

H2.11.1 AGE>50 have a positive effect on SGR.

Hypothesis 2.12 Boards over 50 years old have a positive effect on capital asset pricing model.

H2.12.1 AGE>50 have a positive effect on CAPM.

Hypothesis 2.13 Education level of the boards of directors higher than the bachelor's degree have a positive effect on return on asset.

H2.13.1 POSTGRADUATE have a positive effect on ROA.

Hypothesis2.14 Education level of the boards of directors higher than the bachelor's degree have a positive effect on return on equity.

H2.14.1 POSTGRADUATE have a positive effect on ROE.

Hypothesis 2.15 Education level of the boards of directors higher than the bachelor's degree have a positive effect on sale growth.

H2.15.1 POSTGRADUATE have a positive effect on SALEGROWTH.

Hypothesis 2.16 Education level of the boards of directors higher than the bachelor's degree have a positive effect on Tobin’s Q.

H2.16.1 POSTGRADUATE have a positive effect on TOBIN’SQ.

Hypothesis 2.17 Education level of the boards of directors higher than the bachelor's degree have a positive effect on sustainable growth rate.

H2.17.1 POSTGRADUATE have a positive effect on SGR.

Hypothesis 2.18 Education level of the boards of directors higher than the bachelor's degree have a positive effect on capital asset pricing model.

H2.18.1 POSTGRADUATE have a positive effect on CAPM.

Hypothesis 2.19 Education field of boards have a positive on return on asset.

H2.19.1 BUSINESS have a positive effect on ROA.

H2.19.2 SCIENCE have a positive effect on ROA.

H2.19.3 ACCOUNTING have a positive effect on ROA.

H2.19.4 ENGINEERING have a positive effect on ROA.

H2.19.5 OTHER have a positive effect on ROA.

Hypothesis 2.20 Education field of boards have a positive on return on equity.

H2.20.1 BUSINESS have a positive effect on ROE.

H2.20.2 SCIENCE have a positive effect on ROE.

H2.20.3 ACCOUNTING have a positive effect on ROE.

H2.20.4 ENGINEERING have a positive effect on ROE.

H2.20.5.10 OTHER have a positive effect on ROE.

Hypothesis 2.21 Education field of boards have a positive on sale growth.

H2.21.1 BUSINESS have a positive effect on SALEGROWTH.

H2.21.2 SCIENCE have a positive effect on SALEGROWTH.

H2.21.3 ACCOUNTING have a positive effect on SALEGROWTH.

H2.21.4 ENGINEERING have a positive effect on SALEGROWTH.

H2.21.5 OTHER have a positive effect on SALEGROWTH.

Hypothesis 2.22 Education field of boards have a positive on Tobin's Q.

H2.22.1 BUSINESS have a positive effect on TOBIN'SQ.

H2.22.2 SCIENCE have a positive effect on TOBIN'SQ.

H2.22.3 ACCOUNTING have a positive effect on TOBIN'SQ.

H2.22.4 ENGINEERING have a positive effect on TOBIN'SQ.

H2.22.5 OTHER have a positive effect on TOBIN'SQ.

Hypothesis 2.23 Education field of boards have a positive on sustainable growth rate.

H2.23.1 BUSINESS have a positive effect on SGR.

H2.23.2 SCIENCE have a positive effect on SGR.

H2.23.3 ACCOUNTING have a positive effect on SGR.

H2.23.4 ENGINEERING have a positive effect on SGR.

H2.23.5 OTHER have a positive effect on SGR.

Hypothesis 2.24 Education field of boards have a positive on capital asset pricing model.

H2.24.1 BUSINESS have a positive effect on CAPM.

H2.24.2 SCIENCE have a positive effect on CAPM.

H2.24.3 ACCOUNTING have a positive effect on CAPM.

H2.24.4 ENGINEERING have a positive effect on CAPM.

H2.24.5 OTHER have a positive effect on CAPM.

Hypothesis 2.25 Political connection boards have a positive effect on return on asset.

H2.25.1 POLITIC have a positive effect on ROA.

Hypothesis 2.26 Political connection boards have a positive effect on return on equity.

H2.26.1 POLITIC have a positive effect on ROE.

Hypothesis 2.27 Political connection boards have a positive effect on sale growth.

H2.27.1 POLITIC have a positive effect on SALEGROWTH.

Hypothesis 2.28 Political connection boards have a positive effect on Tobin's Q.

H2.28.1 POLITIC have a positive effect on TOBIN'SQ.

Hypothesis 2.29 Political connection boards have a positive effect on sustainable growth rate.

H2.29.1 POLITIC have a positive effect on SGR.

Hypothesis 2.30 Political connection boards have a positive effect on capital asset pricing model.

H2.30.1 POLITIC have a positive effect on CAPM.

Hypothesis 2.31 Board tenure have a positive effect on return on asset.

H2.31.1 TENURE have a positive effect on ROA.

Hypothesis 2.32 Board tenure have a positive effect on return on equity.

H2.32.1 TENURE have a positive effect on ROE.

Hypothesis 2.33 Board tenure have a positive effect on return on sale growth.

H2.33.1 TENURE have a positive effect on SALEGROWTH.

Hypothesis 2.34 Board tenure have a positive effect on return on Tobin's q.

H2.34.1 TENURE have a positive effect on TOBIN'SQ.

Hypothesis 2.35 Board tenure have a positive effect on return on sustainable growth rate.

H2.35.1 TENURE have a positive effect on SGR.

Hypothesis 2.36 Board tenure have a positive effect on return on capital asset pricing model.

H2.36.1 TENURE have a positive effect on CAPM.

Hypothesis 2.37 Board compensation have a positive effect on return on assets.

H2.37.1 LogCOMPENSATION have a positive effect on ROA.

Hypothesis 2.38 Board compensation have a positive effect on return on equity.

H2.38.1 LogCOMPENSATION have a positive effect on ROE.

Hypothesis 2.39 Board compensation have a positive effect on return on sale growth.

H2.39.1 LogCOMPENSATION have a positive effect on SALEGROWTH.

Hypothesis 2.40 Board compensation have a positive effect on Tobin's q.

H2.40.1 LogCOMPENSATION have a positive effect on TOBIN'SQ.

Hypothesis 2.41 Board compensation have a positive effect on sustainable growth rate.

H2.41.1 LogCOMPENSATION have a positive effect on SGR.

Hypothesis 2.42 Board compensation have a positive effect on capital asset pricing model.

H2.42.1 LogCOMPENSATION have a positive effect on CAPM.

Hypothesis 3. The board of directors' characteristics have a positive effect on corporate governance.

Hypothesis 3.1 Women on boards have a positive effect on corporate governance.

H3.1.1 WOMEN have a positive effect on CGSCORE.

H3.1.2 WOMEN have a positive effect on LogBOARDMEETING.

Hypothesis 3.2 Boards over 50 years old have a positive effect on corporate governance.

H3.2.1 AGE>50 have a positive effect on CGSCORE.

H3.2.2 AGE>50 have a positive effect on LogBOARDMEETING

Hypothesis 3.3 Education level of the boards of directors higher than the bachelor's degree has a positive impact on corporate governance.

H3.3.1 POSTGRADUATE have a positive effect on CGSCORE.

H3.3.2 POSTGRADUATE have a positive effect on LogBOARDMEETING.

Hypothesis 3.4 Education field of boards have a positive effect on corporate governance.

H3.4.1 BUSINESS have a positive effect on CGSCORE.

H3.4.2 SCIENCE have a positive effect on CGSCORE.

H3.4.3 ACCOUNTING have a positive effect on CGSCORE.

H3.4.4 ENGINEERING have a positive effect on CGSCORE.

H3.4.5 OTHER have a positive effect on CGSCORE.

H3.4.6 BUSINESS have a positive effect on LogBOARDMEETING.

H3.4.7 SCIENCE have a positive effect on LogBOARDMEETING.

H3.4.8 ACCOUNTING have a positive effect on LogBOARDMEETING.

H3.4.9 ENGINEERING have a positive effect on LogBOARDMEETING.

H3.4.10 OTHER have a positive effect on LogBOARDMEETING.

Hypothesis 3.5 Political connection boards have a positive effect on corporate governance.

H3.5.1 POLITIC have a positive effect on CGSCORE.

H3.5.2 POLITIC have a positive effect on LogBOARDMEETING.

Hypothesis 3.6 Board tenure have a positive effect on corporate governance.

H3.6.1 TENURE have a positive effect on CGSCORE.

H3.6.2 TENURE have a positive effect on LogBOARDMEETING.

Hypothesis 3.7 Board compensation have a positive effect on corporate governance.

H3.7.1 LogCOMPENSATION have a positive effect on CGSCORE.

H3.7.2 LogCOMPENSATION have a positive effect on LogBOARDMEETING.

Hypothesis 4. Corporate governances have a positive effect on corporate sustainability.

Hypothesis 4.1 Corporate governance has a positive effect on global reporting initiative.

H4.1.1 CGSCORE has a positive effect on GRI.

H4.1.2 LogBOARDMEETING has a positive effect on GRI.

Hypothesis 5. Corporate governance has a positive effect on firm performance.

Hypothesis 5.1 Corporate governance has a positive effect on return on asset.

H5.1.1 CGSCORE has a positive effect on ROA.

H5.1.2 LogBOARDMEETING has a positive effect on ROA.

Hypothesis 5.2 Corporate governance ha has ve a positive effect on return on equity.

H5.2.1 CGSCORE has a positive effect on ROE.

H5.2.2 LogBOARDMEETING has a positive effect on ROE.

Hypothesis 5.3 Corporate governance has a positive effect on sale growth.

H5.3.1 CGSCORE has a positive effect on SALEGROWTH.

H5.3.2 LogBOARDMEETING has a positive effect on SALEGROWTH.

Hypothesis 5.4 Corporate governance has a positive effect on Tobin's q.

H5.4.1 CGSCORE has a positive effect on TOBIN'S Q.

H5.4.2 LogBOARDMEETING has a positive effect on TOBIN'S Q.

Hypothesis 5.5 Corporate governance has a positive effect on sustainable growth rate.

H5.5.1 CGSCORE has a positive effect on SGR.

H5.5.2 LogBOARDMEETING has a positive effect on SGR.

Hypothesis 5.6 Corporate governance has a positive effect on capital asset pricing model.

H5.6.1 CGSCORE has a positive effect on CAPM.

H5.6.2 LogBOARDMEETING has a positive effect on CAPM.

Hypothesis 6. The board of directors' characteristics have a positive effect on corporate sustainability through corporate governance

Hypothesis 7. The board of directors' characteristics have a positive effect on firm performance through corporate governance.

CHAPTER 4
RESEARCH RESULT

This chapter summarizes the statistical results and empirical findings into two sections. The first section included descriptive statistics such as frequency, percentage, mean, maximum, and minimum values, as well as standard deviation. The second section goes over hypothesis testing statistically using linear multiple regression. The final section contains the results of an in-depth interview with five members of the board of directors.

4.1 Descriptive Statistics

The variables that were studied in this research show as follows. Independent variables included the proportion of women on boards, age, education level, educational field, and political connection, as well as the average board tenure and compensation. The global reporting initiative, return on assets, return on equity, sales growth, Tobin's Q, sustainable growth rate, and capital asset pricing model were all dependent variables. The CG-Score and the number of board meetings served as mediator variables. The final research sample consisted of 508 individuals and used logarithm dummies for three variables: LogCOMPENSATION, LogBOARDMEETING, and LogTOTALASSET, and used 1/0 dummy for eight variables: AGRO, CONSUMER, FINANCIAL, INDUSTRIAL, PROPERTY, RESOURCES, SERVICES, and TECHNOLOGY.

4.1.1 Research Sample

The research sample for this study was gathered from the annual report and form 56-1 of companies listed on the Stock Exchange of Thailand, which were divided into the following 8 industries: agro and food industry, consumer products, financials, industry, property and construction industry, resources industry, services industry, and technology industry. Table 4.1 shows the percentage of research samples in each industry.

Table 4.1 The percentage of research samples

Industries	N	Percentage
Agro and Food	52	10.24
Consumer Products	34	6.69
Financials	48	9.45
Industrials	95	18.70
Property & Construction	91	17.91
Resources	43	8.46
Services	108	21.26
Technology	37	7.28
Total	508	100.00

The percentage of research samples is shown in descending order as follows: Services (N=108,21.26%), Industrials (N=95,18.70%), Agro and Food industry (N=52,10.24%), Financials (N=48,9.45%), Resource (N=43,8.46%), Technology (N=37,7.28%), and Consumer Products (N=34,6.69%).

4.1.2 Board of Directors' Characteristics

The descriptive statistics for the board of directors' characteristics included minimum, maximum, mean, and standard deviation, which were investigated in terms of independent variables.

Table 4.2 Descriptive statistic of the proportion women on boards

	N	Minimum	Maximum	Mean	Std.
Total	508	0.000	0.500	0.273	0.155
Agro and Food	52	0.000	0.500	0.300	0.149
Consumer Products	34	0.000	0.500	0.351	0.182
Financials	48	0.000	0.500	0.296	0.142
Industrials	95	0.000	0.500	0.255	0.150
Property & Construction	91	0.000	0.500	0.241	0.149
Resources	43	0.000	0.500	0.250	0.144
Services	108	0.000	0.500	0.276	0.157
Technology	37	0.000	0.500	0.275	0.167

Table 4.2 showed the descriptive statistic of the proportion of women on boards, which had a value with a mean of 0.273, a maximum of 0.500, and a minimum of 0.000. The consumer products industry had the greatest mean value of 0.351, while the property & construction business had the lowest mean value of 0.241. It meant that the majority of the firm had just a small proportion of women on the board of directors.

Table 4.3 Descriptive statistic of the proportion of board members over 50 years old

	N	Minimum	Maximum	Mean	Std.
Total	508	0.000	1.000	0.795	0.170
Agro and Food	52	0.300	1.000	0.805	0.157
Consumer Products	34	0.330	1.000	0.813	0.185
Financials	48	0.540	1.000	0.849	0.111
Industrials	95	0.000	1.000	0.744	0.219
Property & Construction	91	0.022	1.000	0.703	0.201
Resources	43	0.330	1.000	0.824	0.151
Services	108	0.430	1.000	0.803	0.138
Technology	37	0.140	1.000	0.795	0.189

Table 4.3 showed that the proportion of boards over 50 years old had a value with a mean of 0.795, a maximum of 1.000, and a minimum of 0.000. The financials industry had the highest mean value of 0.849, while the property and construction industry had the lowest mean value of 0.703.

According to descriptive statistics, the majority of the board of directors were over the age of 50, and each industry group had some companies with all boards of directors who were over the age of 50. It represented the importance of the board of directors' experience in supporting their decisions and managing the business.

Table 4.4 Descriptive statistic of the proportion of education level of the board of directors higher than the bachelor's degree

	N	Minimum	Maximum	Mean	Std.
Total	508	0.000	1.000	0.647	0.206
Agro and Food	52	0.140	1.000	0.593	0.199
Consumer Products	34	0.000	1.000	0.576	0.241
Financials	48	0.220	1.000	0.747	0.160
Industrials	95	0.000	1.000	0.587	0.213
Property & Construction	91	0.022	1.000	0.703	0.201
Resources	43	0.043	1.000	0.708	0.149
Services	108	0.170	1.000	0.631	0.212
Technology	37	0.170	1.000	0.653	0.174

Table 4.4 showed that the education level of the board of directors higher than a bachelor's degree had a value with a mean of 0.647, a maximum of 1.000, and a minimum of 0.000. The financial industry had the highest mean value, 0.747, while the consumer and product had the lowest, 0.576.

Table 4.5 showed education field diversity, with the proportion of boards who graduated in the business field having a value with a mean of 0.543, a maximum of 1.000, and a minimum of 0.000. The financial industry had the highest mean value, 0.645, while the resources industry had the lowest, 0.490. The proportion of board members who graduated in the sciences had a mean of 0.096, a maximum of 0.750, and a minimum of 0.000. The service industry had the highest mean value of 0.155, while the resource industry had the lowest value of 0.057. The proportion of boards with accounting degrees had a mean of 0.137, a maximum of 0.570, and a minimum of 0.000. The financial and agro and food industries had the highest mean value of 0.155, while the industrial industry had the lowest mean value of 0.119. The proportion of boards that graduated in the engineering field had a mean of 0.197, a maximum of 0.860, and a minimum of 0.000. The resource industry had the highest mean value of 0.358, while the financial industry had the lowest value of 0.104. The proportion of boards that graduated in other fields had a mean of 0.207, a maximum of 0.700, and a minimum of 0.000. The property and construction industry had the highest mean value, 0.250, while the industrial industry had the lowest, 0.171.

Table 4.5 Descriptive statistic of education field diversity of board

	N	Minimum	Maximum	Mean	Std. Deviation
Proportion business field					
Total	508	0.000	1.000	0.543	0.196
Agro and Food	52	0.110	1.000	0.539	0.197
Consumer Products	34	0.110	1.000	0.494	0.218
Financials	48	0.110	0.920	0.645	0.198
Industrials	95	0.000	1.000	0.533	0.204
Property & Construction	91	0.130	0.890	0.567	0.189
Resources	43	0.110	0.780	0.490	0.148
Services	108	0.110	1.000	0.536	0.197
Technology	37	0.100	0.780	0.507	0.170
Proportion science field					
Total	508	0.000	0.750	0.096	0.120
Agro and Food	52	0.000	0.380	0.082	0.086
Consumer Products	34	0.000	0.440	0.086	0.130
Financials	48	0.000	0.500	0.090	0.105
Industrials	95	0.000	0.440	0.083	0.092
Property & Construction	91	0.000	0.330	0.074	0.088
Resources	43	0.000	0.220	0.057	0.068
Services	108	0.000	0.750	0.155	0.173
Technology	37	0.000	0.330	0.095	0.104
Proportion accounting field					
Total	508	0.000	0.570	0.137	0.118
Agro and Food	52	0.000	0.440	0.155	0.124
Consumer Products	34	0.000	0.500	0.122	0.121
Financials	48	0.000	0.560	0.155	0.151
Industrials	95	0.000	0.560	0.119	0.109
Property & Construction	91	0.000	0.500	0.150	0.118
Resources	43	0.000	0.440	0.146	0.112
Services	108	0.000	0.570	0.124	0.108
Technology	37	0.000	0.330	0.146	0.105
Proportion engineering field					
Total	508	0.000	0.860	0.197	0.175
Agro and Food	52	0.000	0.570	0.129	0.123
Consumer Products	34	0.000	0.670	0.153	0.178
Financials	48	0.000	0.400	0.104	0.108
Industrials	95	0.000	0.710	0.230	0.172
Property & Construction	91	0.000	0.860	0.219	0.187
Resources	43	0.000	0.710	0.358	0.177
Services	108	0.000	0.860	0.155	0.163
Technology	37	0.000	0.500	0.251	0.143
Proportion other education field	508	0.000	0.700	0.207	0.146
Agro and Food	52	0.000	0.560	0.177	0.128
Consumer Products	34	0.000	0.500	0.183	0.124
Financials	48	0.000	0.700	0.202	0.160
Industrials	95	0.000	0.670	0.171	0.136
Property & Construction	91	0.000	0.670	0.250	0.149
Resources	43	0.000	0.600	0.246	0.155
Services	108	0.000	0.670	0.214	0.158
Technology	37	0.000	0.630	0.192	0.117

According to the descriptive statistics, the majority of the board of directors have a high proportion of education in the business field because studying business was a field of study that involved the use of ideas to create or add value or profit to a product or service. They needed to be skilled in quantitative analysis, research methodology, and communication because they had to interact with stakeholders such as merchants, customers, and employees.

Table 4.6 Descriptive statistic of proportion of foreign board

	N	Minimum	Maximum	Mean	Std.
Total	508	0.000	0.780	0.056	0.136
Agro and Food	52	0.000	0.600	0.035	0.095
Consumer Products	34	0.000	0.440	0.038	0.100
Financials	48	0.000	0.420	0.069	0.119
Industrials	95	0.000	0.750	0.104	0.191
Property & Construction	91	0.000	0.560	0.041	0.113
Resources	43	0.000	0.540	0.041	0.101
Services	108	0.000	0.580	0.030	0.098
Technology	37	0.000	0.780	0.091	0.204

Table 4.6 showed that the proportion of the foreign board had a mean of 0.056, a maximum of 0.780, and a minimum of 0.000. The industrial industry had the highest mean value of 0.104, while the service industry had the lowest mean value of 0.030.

According to the data, there was a small proportion of foreigners on the board of directors because the company in Thailand did not have many foreign companies or institutions investing. However, the company with the highest proportion was in the technology industry, because high technology or skill usually requires investment and knowledge from foreigners to become board members.

Table 4.7 Descriptive statistic of proportion of politic board

	N	Minimum	Maximum	Mean	Std.
Total	508	0.000	1.000	0.173	0.174
Agro and Food	52	0.000	0.500	0.124	0.130
Consumer Products	34	0.000	0.500	0.126	0.137
Financials	48	0.000	0.760	0.199	0.179
Industrials	95	0.000	0.540	0.139	0.152
Property & Construction	91	0.000	0.730	0.180	0.156
Resources	43	0.000	1.000	0.268	0.256
Services	108	0.000	0.870	0.191	0.178
Technology	37	0.000	0.630	0.156	0.173

Table 4.7 showed the proportion of the political connection board, which had a mean of 0.173, a maximum of 1.00, and a minimum of 0.000. The resource industry had the highest mean value of 0.268, while the agro and food industry had the lowest mean value of 0.124.

According to the data presented, a proportion of political boards were present in a small proportion of companies. The resource, service, and finance industries had the political board in the top three industries because they had to work with many public and private agencies or institutes.

Table 4.8 Descriptive statistic of proportion of board tenure

	N	Minimum	Maximum	Mean	Std.
Total	508	1.080	26.810	9.659	5.095
Agro and Food	52	2.570	23.890	11.258	5.689
Consumer Products	34	2.750	26.810	12.386	5.784
Financials	48	2.670	17.690	8.956	4.067
Industrials	95	1.750	22.710	9.884	4.934
Property & Construction	91	1.400	20.290	9.137	4.818
Resources	43	1.080	16.090	6.455	3.381
Services	108	2.080	24.550	9.801	5.230
Technology	37	2.130	24.220	9.836	5.159

Table 4.8 showed the board tenure, which had a mean of 9.659 years, a maximum of 26.810 years, and a minimum of 1.080 years. The consumer product industry had the highest mean value of 12.386 years, while the resource industry had the

lowest value of 6.455 years. According to the data, the majority of the board of directors had work experience ranging from 6 to 12 years.

Table 4.9 Descriptive statistic of compensation board

	N	Minimum	Maximum	Mean	Std.
Total (MTHB)	508	0.030	12.220	0.725	1.136
Agro and Food	52	0.060	5.660	0.748	1.076
Consumer Products	34	0.040	4.850	0.511	0.823
Financials	48	0.050	6.480	1.116	1.425
Industrials	95	0.030	3.020	0.410	0.457
Property & Construction	91	0.070	11.230	0.778	1.261
Resources	43	0.100	3.610	0.928	0.941
Services	108	0.060	6.090	0.675	0.967
Technology	37	0.100	12.220	0.967	2.065

Table 4.9 displayed board compensation with a mean value of 0.725 million baht, a maximum of 12.220 million baht, and a minimum of 0.030 million baht. The financial industry had the highest mean value of board compensation at 1.116 million baht, while the industrial industry had the lowest at 0.410 million baht, indicating that the majority of the boards were paid well.

4.1.3 Corporate Governance

The descriptive statistics for corporate governance included minimum, maximum, mean, and standard deviation, which were studied in terms of the mediator variable.

Table 4.10 Descriptive statistic of cg score

	N	Minimum	Maximum	Mean	Std.
Total	508	1.000	4.000	2.726	0.943
Agro and Food	52	1.000	4.000	2.769	0.921
Consumer Products	34	1.000	4.000	2.588	0.857
Financials	48	1.000	4.000	2.958	0.849
Industrials	95	1.000	4.000	2.421	0.952
Property & Construction	91	1.000	4.000	2.736	0.976
Resources	43	1.000	4.000	3.070	0.828
Services	108	1.000	4.000	2.741	0.951
Technology	37	1.000	4.000	2.811	0.995

Table 4.10 presented the CG Score, which had a mean of 2.726, a maximum of 4.000, and a minimum of 1.000. The resources industry had the highest mean CG Score value of 3.070, while the industrial industry had the lowest value of 2.421.

Table 4.11 Descriptive statistic of board meeting

	N	Minimum	Maximum	Mean	Std.
Total	508	4	38	7.429	3.602
Agro and Food	52	4	13	6.500	2.380
Consumer Products	34	4	18	7.529	3.518
Financials	48	4	24	8.917	4.212
Industrials	95	4	16	6.484	2.649
Property & Construction	91	4	38	7.758	4.564
Resources	43	4	18	8.302	3.549
Services	108	4	29	7.481	3.644
Technology	37	4	16	7.162	2.794

Table 4.11 shows the frequency of board meetings, with a mean of 7.429, a maximum of 38, and a minimum of 4 times per year. The financial industry had the highest mean value of board meetings with 8.917, while the industrial industry had the lowest mean value with 6.484 times per year.

4.1.4 Firm Performance

The descriptive statistics for firm performance included minimum, maximum, mean, and standard deviation, which were studied in terms of the dependent variable.

Table 4.12 Descriptive statistic of ROA

	N	Minimum	Maximum	Mean	Std.
Total	508	-21.060	31.980	6.254	6.806
Agro and Food	52	-7.180	30.370	7.734	7.656
Consumer Products	34	-4.800	19.510	7.480	5.435
Financials	48	-7.050	14.270	3.463	4.274
Industrials	95	-8.400	27.550	5.917	7.237
Property & Construction	91	-21.060	18.430	5.317	6.537
Resources	43	-11.060	16.520	5.470	6.109
Services	108	-17.740	31.980	7.844	7.360
Technology	37	-7.660	24.710	6.107	6.658

Table 4.12 displayed the descriptive statistic of ROA, which had a mean of 6.254, a maximum of 31.98, and a minimum of -21.060. When the group of industries was considered, the service industry had the highest mean value of ROA with 7.844, while the financial industry had the lowest value with 3.463.

Table 4.13 Descriptive statistic of ROE

	N	Minimum	Maximum	Mean	Std.
Total	508	-52.420	53.150	7.627	12.122
Agro and Food	52	-19.750	34.310	7.936	9.837
Consumer Products	34	-5.400	21.360	8.166	6.131
Financials	48	-41.130	26.010	8.049	11.122
Industrials	95	-31.940	33.940	5.942	10.365
Property & Construction	91	-52.420	53.150	7.247	13.583
Resources	43	-24.160	30.330	8.147	10.533
Services	108	-48.690	52.220	8.544	15.074
Technology	37	-17.220	42.530	8.125	13.345

Table 4.13 displayed the descriptive statistic of ROE, which had a mean of 7.627, a maximum of 53.150, and a minimum of -52.420. When the group of industries was considered, the service industry had the highest mean value of ROE with 8.544, while the industrial industry had the lowest value with 5.942.

Table 4.14 Descriptive statistic of sale growth

	N	Minimum	Maximum	Mean	Std.
Total	508	-99.600	141.630	7.860	24.792
Agro and Food	52	-32.320	58.000	2.196	15.907
Consumer Products	34	-27.730	48.710	1.147	13.752
Financials	48	-83.740	78.970	1.386	23.928
Industrials	95	-26.320	109.960	8.406	21.251
Property &	91	-73.140	141.630	11.787	34.899
Resources	43	-26.690	119.080	15.807	28.908
Services	108	-28.060	86.080	8.585	18.279
Technology	37	-99.600	79.230	7.980	30.391

Table 4.14 presented a descriptive statistic of sales growth with a mean of 7.860, a maximum of 141.630, and a minimum of -99.600. When the group of industries was considered, the resources industry had the highest mean value of sales growth with 15.807, while the consumer products industry had the lowest value with 1.147.

Table 4.15 Descriptive statistic of Tobin's Q

	N	Minimum	Maximum	Mean	Std.
Total	508	-0.360	5.060	0.967	0.881
Agro and Food	52	-0.360	4.690	1.192	1.065
Consumer Products	34	-0.170	3.690	0.727	0.813
Financials	48	-0.120	1.920	0.656	0.469
Industrials	95	-0.310	3.410	0.739	0.604
Property & Construction	91	-0.270	4.220	0.810	0.773
Resources	43	0.080	3.220	0.927	0.555
Services	108	-0.020	5.060	1.470	1.086
Technology	37	-0.060	5.060	0.826	0.935

Table 4.15 showed the descriptive statistic of Tobin's Q, which had a mean of 0.967, a maximum of 5.060, and a minimum of -0.360. When considering the group of industries, the services industry had the highest mean value of Tobin's Q at 1.470, while the financials group had the lowest at 0.656.

Table 4.16 Descriptive statistic of sustainable growth rate

	N	Minimum	Maximum	Mean	Std.
Total	508	-52.420	46.500	1.925	10.426
Agro and Food	52	-24.740	23.420	1.202	7.326
Consumer Products	34	-10.300	14.410	3.305	5.676
Financials	48	-41.130	25.930	2.439	10.434
Industrials	95	-35.070	16.450	0.073	8.315
Property & Construction	91	-52.420	39.240	2.615	12.514
Resources	43	-29.450	30.330	3.435	10.795
Services	108	-48.690	23.740	1.916	11.729
Technology	37	-30.930	46.500	2.334	12.256

Table 4.16 showed the descriptive statistic of sustainable growth rate, which had a mean value of 1.925, a maximum value of 46.500, and a minimum value of -52.420. When the group of industries was considered, the resource industry had the highest mean value of sustainable growth rate with 3.435, while the industrial industry had the lowest value with 0.073.

Table 4.17 Descriptive statistic of CAPM

	N	Minimum	Maximum	Mean	Std.
Total	508	-6.310	21.400	6.203	3.333
Agro and Food	52	-0.070	21.400	6.255	3.547
Consumer Products	34	-0.140	14.790	5.018	2.873
Financials	48	-2.310	16.740	5.682	3.417
Industrials	95	0.350	15.550	5.608	2.904
Property &	91	-1.410	13.670	6.704	2.829
Resources	43	-6.310	16.220	6.875	4.469
Services	108	0.140	16.630	6.210	3.317
Technology	37	1.800	15.790	7.384	3.547

Table 4.17 showed the descriptive statistic of CAPM, which had a mean of 6.203, a maximum of 21.400, and a minimum of -6.310. When the group of industries was considered, the technology industry had the highest mean CAPM value of 7.384, while the consumer products industry had the lowest value of 5.018.

4.1.5 Corporate Sustainability

The GRI, or global reporting initiative, was chosen to represent corporate sustainability, and the statistical descriptive data, which included minimum, maximum, mean, and standard deviation, are shown below.

Table 4.18 Descriptive statistic of GRI standard

	N	Minimum	Maximum	Mean	Std.
Total	508	0.050	0.620	0.169	0.101
Agro and Food	52	0.060	0.620	0.182	0.118
Consumer Products	34	0.050	0.510	0.178	0.103
Financials	48	0.060	0.410	0.153	0.096
Industrials	95	0.050	0.590	0.160	0.099
Property &	91	0.060	0.590	0.173	0.094
Resources	43	0.060	0.600	0.214	0.143
Services	108	0.050	0.590	0.158	0.086
Technology	37	0.070	0.310	0.161	0.059

Table 4.18 showed the GRI ratio; the average GRI value is 0.169, the maximum value is 0.620, and the minimum value is 0.050. When the group of industries is considered, the average GRI of the resources group is the highest at 0.214, while the average GRI of the financials group is the lowest at 0.153.

4.1.6 Total Asset

In the research model, the total asset is the control variable, and descriptive statistics including minimum, maximum, mean, and standard deviation are shown as follows.

Table 4.19 Descriptive statistic of total asset

	N	Minimum	Maximum	Mean	Std.
Total	508	162.240	3,187,339.630	58,652.845	314,718.763
Agro and Food	52	737.250	628,090.850	22,715.921	88,215.074
Consumer Products	34	280.620	25,891.540	2,948.527	4,495.055
Financials	48	288.710	3,187,339.630	367,752.556	896,641.391
Industrials	95	383.700	469,255.350	13,175.358	61,150.589
Property &	91	162.240	161,707.830	23,990.551	31,672.861
Resources	43	978.150	2,355,483.870	96,878.138	366,816.570
Services	108	232.720	373,741.620	21,029.622	58,859.127
Technology	37	518.070	495,568.690	26,764.493	83,622.863

Table 4.19 presented descriptive statistics data for total assets with a value of 58,652.845 million baht, a maximum of 3,187,339.630 million baht, and a minimum of 162.240 million baht. When the group of industries was considered, the financials industry had the highest mean value of total assets with 367,752.556 million baht, while the consumer products industry had the lowest value with 2,948.527 million baht.

4.2 Hypothesis Testing

The research model developed in chapters two and three had board of directors' characteristics as independent variables, corporate sustainability and firm performance as dependent variables, and cg-score and board meetings as mediator variables. There were eight hypotheses that used linear multiple regression to determine the effect of independent and dependent variables and mediator analysis to identify intermediaries to explain how independent variables affected the outcome via the mediator variable.

Before testing each hypothesis, the multicollinearity problem of independent variables, the linear regression analysis criteria, must be tested by determining a VIF value less than 10. Table 4.20 displays the results of the testing. If a VIF and the research conditions did not meet the criteria, the variable should be dropped from the model.

Table 4.20 Multicollinearity statistic testing with GRI as dependent variable

	Collinearity Statistics	
Variable	**Tolerance**	**VIF**
WOMAN	.898	1.114
AGE>50	.802	1.246
POSTGRADUATE	.548	1.825
BUSINESS	.520	1.924
SCIENCE	.867	1.154
ACCOUNTING	.892	1.122
ENGINEERING	.733	1.365
OTHER	.693	1.442
POLITIC	.804	1.244
TENURE	.777	1.287
LogCOMPENSATION	.877	1.140

The results of the testing, as shown in Table 4.20, indicated that they did not have a multicollinearity problem. However, to avoid multicollinearity issues, this study also used the Pearson Correlation statistic by considering variables that, if there were no problems, would have a low correlation coefficient between them. Table 4.21 shows the result of the correlation testing.

Table 4.21 Pearson correlation matrix among independent variables

	1	2	3	4	5	6	7	8	9	10	11
1.WOMAN	1.000										
2.AGE>50	-0.127	1.000									
3.POSTGRADUATE	0.032	-0.009	1.000								
4.BUSINESS	0.037	-0.107	0.497	1.000							
5.SCIENCE	0.000	0.023	-0.049	-0.124	1.000						
6.ACCOUNTING	0.146	0.056	-0.046	-0.128	-0.106	1.000					
7.ENGINEERING	-0.218	0.009	0.140	-0.131	-0.157	-0.123	1.000				
8.OTHER	0.019	0.060	0.148	-0.232	-0.082	-0.043	-0.128	1.000			
9.POLITIC	-0.029	0.115	0.173	-0.155	0.118	-0.033	0.067	0.315	1.000		
10.TENURE	-0.065	0.270	-0.282	-0.042	0.064	-0.028	-0.135	-0.193	-0.190	1.000	
11.LogCOMPENSATION	-0.148	0.284	0.114	0.045	-0.033	0.000	0.013	0.057	0.135	-0.018	1.000

Hypothesis 1. The board of directors' characteristics have a positive effect on corporate sustainability.

Hypothesis 1 was composed of 11 sub hypotheses that were tested using linear multiple regression. Table 4.22 displays the results of the statistical analysis.

Hypothesis 1.1 Women on boards have a positive effect on corporate sustainability.

H1.1.1 WOMEN have a positive effect on GRI.

Hypothesis 1.2 Boards over 50 years old have a positive effect on corporate sustainability.

H1.2.1 AGE>50 have a positive effect on GRI.

Hypothesis 1.3 Education level of the board of directors higher than the bachelor's degree has a positive impact on corporate sustainability.

H1.3.1 POSTGRADUATE have a positive effect on GRI.

Hypothesis 1.4 Education field of boards have a positive effect on corporate sustainability.

H1.4.1 BUSINESS have a positive effect on GRI.

H1.4.2 SCIENCE have a positive effect on GRI.

H1.4.3 ACCOUNTING have a positive effect on GRI.

H1.4.4 ENGINEERING have a positive effect on GRI.

H1.4.5 OTHER have a positive effect on GRI.

Hypothesis 1.5 Political connection boards have a positive effect on corporate sustainability.

H 1.5.1 POLITIC have a positive effect on GRI.

Hypothesis 1.6 Board tenure have a positive effect on corporate sustainability.

H1.6.1 TENURE have a positive effect on GRI.

Hypothesis 1.7 Board compensation have a positive effect on corporate sustainability.

H1.7.1 COMPENSATION have a positive effect on GRI.

Table 4.22 The effect of board of directors' characteristics on corporate sustainability.

	Unstandardized Coefficients		Standardized Coefficients	t	sig	Collinearity Statistics	
	B	**Std. Error**	**Beta**			**Tolerance**	**VIF**
(Constant)	-0.026	0.045		-0.570	0.569		
WOMEN	0.031	0.027	0.047	1.132	0.258	0.869	1.151
AGE>50	**0.055**	**0.026**	**0.094**	**2.120**	**0.035**	0.784	1.275
POSTGRADUATE	-0.024	0.026	-0.050	-0.933	0.351	0.533	1.878
BUSINESS	0.025	0.028	0.049	0.896	0.371	0.505	1.980
SCIENCE	0.005	0.036	0.006	0.131	0.896	0.818	1.222
ACCOUNTING	-0.031	0.036	-0.036	-0.859	0.391	0.869	1.151
ENGINEERING	**0.067**	**0.028**	**0.117**	**2.412**	**0.016**	0.653	1.532
OTHER	-0.034	0.033	-0.050	-1.047	0.296	0.669	1.494
POLITIC	**0.060**	**0.026**	**0.104**	**2.323**	**0.021**	0.758	1.319
TENURE	**-0.002**	**0.001**	**-0.093**	**-2.054**	**0.040**	0.746	1.340
LogCOMPENSATION	**0.027**	**0.012**	**0.120**	**2.229**	**0.026**	0.531	1.884
LogTOTALASSET	0.048	0.008	0.354	6.281	0.000	0.482	2.076
CONSUMER	0.025	0.020	0.062	1.257	0.209	0.623	1.606
FINANCIAL	-0.063	0.018	-0.185	-3.451	0.001	0.533	1.878
INDUSTRAIL	-0.010	0.016	-0.040	-0.647	0.518	0.409	2.445
PROPERTY	-0.026	0.016	-0.099	-1.619	0.106	0.409	2.443
RESOURCES	-0.017	0.020	-0.046	-0.844	0.399	0.509	1.966
SERVICES	-0.024	0.015	-0.097	-1.545	0.123	0.390	2.563
TECHNOLOGY	-0.031	0.019	-0.081	-1.617	0.107	0.610	1.639
Adjusted R^2 = 0.226							
F = 8.784 (p-value = .000)							
Durbin-Watson = 1.963							

Dependent Variable: GRI

The regression weights of AGE>50, ENGINEERING, POLITIC, TENURE, and LogCOMPENSATION influenced corporate sustainability significantly (Beta = 0.094, 0.117, 0.104, -0.093, and 0.120, p-value < .05) indicate that hypotheses were accepted as following H1.2.1 AGE>50 had a positive effect on GRI, H1.4.4 ENGINEERING had a positive effect on GRI. H1.5.1 POLITIC had a positive effect on GRI. H1.7.1 LogCOMPENSATION had a positive effect on GRI.

According to the findings, if the board of directors had a proportion of members over 50 years old, graduated in an engineering field, had a political connection, and the compensation was high, the corporation would become highly sustainable.

Although a long-term board of directors can result in efficiency due to knowledge and experience, they may have a close relationship with the management team, which may reduce the management monitoring of environmental management and social responsibility.

Hypothesis 2. The board of directors' characteristics have a positive effect on firm performance. Hypothesis 2 was divided into 66 sub hypotheses, each of which was tested using linear multiple regression. The results of the statistical analysis are presented in Tables 4.23 to 4.28.

Hypothesis 2.1 Women on boards have a positive effect on return on assets.

H2.1.1 WOMEN have a positive effect on ROA.

Hypothesis 2.2 Women on boards have a positive effect on return on equity.

H2.2.2 Women on boards have a positive effect on ROE.

Hypothesis 2.3 Women on boards have a positive effect on sale growth.

H2.2.3 Women on boards have a positive effect on SALEGROWTH.

Hypothesis 2.4 Women on boards have a positive effect on Tobin's Q.

H2.4.1 Women on boards have a positive effect on TOBIN'SQ.

Hypothesis 2.5 Women on boards have a positive effect on sustainable growth rate.

H2.5.1 Women on boards have a positive effect on SGR.

Hypothesis 2.6 Women on boards have a positive effect on capital asset pricing model.

H2.6.1 Women on boards have a positive effect on CAPM.

Hypothesis 2.7 Boards over 50 years old have a positive effect on asset.

H2.7.1 AGE>50 have a positive effect on ROA.

Hypothesis 2.8 Boards over 50 years old have a positive effect on equity.

H2.8.1 AGE>50 have a positive effect on ROE.

Hypothesis 2.9 Boards over 50 years old have a positive effect on sale growth.

H2.9.1 AGE>50 have a positive effect on SALEGROWTH.

Hypothesis 2.10 Boards over 50 years old have a positive effect on Tobin's Q.

H2.10.1 AGE>50 have a positive effect on TOBIN'SQ.

Hypothesis 2.11 Boards over 50 years old have a positive effect on sustainable growth rate.

H2.11.1 AGE>50 have a positive effect on SGR.

Hypothesis 2.12 Boards over 50 years old have a positive effect on capital asset pricing model.

H2.12.1 AGE>50 have a positive effect on CAPM.

Hypothesis 2.13 Education level of the board of directors higher than the bachelor's degree has a positive impact on return on assets.

H2.13.1 POSTGRADUATE have a positive effect on ROA.

Hypothesis2.14 Education level of the board of directors higher than the bachelor's degree has a positive impact on return on equity.

H2.14.1 POSTGRADUATE have a positive effect on ROE.

Hypothesis 2.15 Education level of the board of directors higher than the bachelor's degree has a positive impact on sale growth.

H2.15.1 POSTGRADUATE have a positive effect on SALEGROWTH.

Hypothesis 2.16 Education level of the board of directors higher than the bachelor's degree has a positive impact on Tobin’s Q.

H2.16.1 POSTGRADUATE have a positive effect on TOBIN’SQ.

Hypothesis 2.17 Education level of the board of directors higher than the bachelor's degree has a positive impact on sustainable growth rate.

H2.17.1 POSTGRADUATE have a positive effect on SGR.

Hypothesis 2.18 Education level of the board of directors higher than the bachelor's degree has a positive impact on capital asset pricing model.

H2.18.1 POSTGRADUATE have a positive effect on CAPM.

Hypothesis 2.19 Education field of boards have a positive on return on asset.

H2.19.1 BUSINESS have a positive effect on ROA.

H2.19.2 SCIENCE have a positive effect on ROA.

H2.19.3 ACCOUNTING have a positive effect on ROA.

H2.19.4 ENGINEERING have a positive effect on ROA.

H2.19.5 OTHER have a positive effect on ROA.

Hypothesis 2.20 Education field of boards have a positive on return on equity.

H2.20.1 BUSINESS have a positive effect on ROE.

H2.20.2 SCIENCE have a positive effect on ROE.

H2.20.3 ACCOUNTING have a positive effect on ROE.

H2.20.4 ENGINEERING have a positive effect on ROE.

H2.20.5.10 OTHER have a positive effect on ROE.

Hypothesis 2.21 Education field of boards have a positive on sale growth.

H2.21.1 BUSINESS have a positive effect on SALEGROWTH.

H2.21.2 SCIENCE have a positive effect on SALEGROWTH.

H2.21.3 ACCOUNTING have a positive effect on SALEGROWTH.

H2.21.4 ENGINEERING have a positive effect on SALEGROWTH.

H2.21.5 OTHER have a positive effect on SALEGROWTH.

Hypothesis 2.22 Education field of boards have a positive on Tobin's Q.

H2.22.1 BUSINESS have a positive effect on TOBIN'SQ.

H2.22.2 SCIENCE have a positive effect on TOBIN'SQ.

H2.22.3 ACCOUNTING have a positive effect on TOBIN'SQ.

H2.22.4 ENGINEERING have a positive effect on TOBIN'SQ.

H2.22.5 OTHER have a positive effect on TOBIN'SQ.

Hypothesis 2.23 Education field of boards have a positive on sustainable growth rate.

H2.23.1 BUSINESS have a positive effect on SGR.

H2.23.2 SCIENCE have a positive effect on SGR.

H2.23.3 ACCOUNTING have a positive effect on SGR.

H2.23.4 ENGINEERING have a positive effect on SGR.

H2.23.5 OTHER have a positive effect on SGR.

Hypothesis 2.24 Education field of boards have a positive on capital asset pricing model.

H2.24.1 BUSINESS have a positive effect on CAPM.

H2.24.2 SCIENCE have a positive effect on CAPM.

H2.24.3 ACCOUNTING have a positive effect on CAPM.

H2.24.4 ENGINEERING have a positive effect on CAPM.

H2.24.5 OTHER have a positive effect on CAPM.

Hypothesis 2.25 Political connection boards have a positive effect on return on assets.

H2.25.1 POLITIC have a positive effect on ROA.

Hypothesis 2.26 Political connection boards have a positive effect on return on equity.

H2.26.1 POLITIC have a positive effect on ROE.

Hypothesis 2.27 Political connection boards have a positive effect on sale growth.

H2.27.1 POLITIC have a positive effect on SALEGROWTH.

Hypothesis 2.28 Political connection boards have a positive effect on Tobin's Q.

H2.28.1 POLITIC have a positive effect on TOBIN'SQ.

Hypothesis 2.29 Political connection boards have a positive effect on sustainable growth rate.

H2.29.1 POLITIC have a positive effect on SGR.

Hypothesis 2.30 Political connection boards have a positive effect on capital asset pricing model.

H2.30.1 POLITIC have a positive effect on CAPM.

Hypothesis 2.31 Board tenure have a positive effect on return on assets.

H2.31.1 TENURE have a positive effect on ROA.

Hypothesis 2.32 Board tenure have a positive effect on return on equity.

H2.32.1 TENURE have a positive effect on ROE.

Hypothesis 2.33 Board tenure have a positive effect on return on sale growth.

H2.33.1 TENURE have a positive effect on SALEGROWTH.

Hypothesis 2.34 Board tenure have a positive effect on return on Tobin's q.

H2.34.1 TENURE have a positive effect on TOBIN'SQ.

Hypothesis 2.35 Board tenure have a positive effect on return on sustainable growth rate.

H2.35.1 TENURE have a positive effect on SGR.

Hypothesis 2.36 Board tenure have a positive effect on return on capital asset pricing model.

H2.36.1 TENURE have a positive effect on CAPM.

Hypothesis 2.37 Board compensation have a positive effect on return on assets.

H2.37.1 LogCOMPENSATION have a positive effect on ROA.

Hypothesis 2.38 Board compensation have a positive effect on return on equity.

H2.38.1 LogCOMPENSATION have a positive effect on ROE.

Hypothesis 2.39 Board compensation have a positive effect on return on sale growth.

H2.39.1 LogCOMPENSATION have a positive effect on SALEGROWTH.

Hypothesis 2.40 Board compensation have a positive effect on Tobin's Q.

H2.40.1 LogCOMPENSATION have a positive effect on TOBIN'SQ.

Hypothesis 2.41 Board compensation have a positive effect on sustainable growth rate.

H2.41.1 LogCOMPENSATION have a positive effect on SGR.

Hypothesis 2.42 Board compensation have a positive effect on capital asset pricing model.

H2.42.1 LogCOMPENSATION have a positive effect on CAPM.

Table 4.23 The effect of board of directors' characteristics on ROA.

	Unstandardized Coefficients		Standardized Coefficients	t	sig	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	4.358	3.355		1.299	0.195		
WOMEN	1.285	2.040	0.029	0.630	0.529	0.869	1.151
AGE>50	3.004	1.955	0.075	1.537	0.125	0.784	1.275
POSTGRADUATE	-0.492	1.961	-0.015	-0.251	0.802	0.533	1.878
BUSINESS	-1.321	2.121	-0.038	-0.623	0.534	0.505	1.980
SCIENCE	3.883	2.728	0.068	1.423	0.155	0.818	1.222
ACCOUNTING	4.455	2.693	0.077	1.654	0.099	0.869	1.151
ENGINEERING	0.038	2.088	0.001	0.018	0.986	0.653	1.532
OTHER	-0.818	2.463	-0.018	-0.332	0.740	0.669	1.494
POLITIC	-4.650	1.948	-0.119	-2.387	0.017	0.758	1.319
TENURE	-0.074	0.067	-0.055	-1.106	0.269	0.746	1.340
LogCOMPENSATION	1.298	0.916	0.084	1.417	0.157	0.531	1.884
LogTOTALASSET	0.686	0.572	0.075	1.198	0.231	0.482	2.076
CONSUMER	0.457	1.494	0.017	0.306	0.760	0.623	1.606
FINANCIAL	-4.492	1.380	-0.193	-3.254	0.001	0.533	1.878
INDUSTRAIL	-0.995	1.182	-0.057	-0.842	0.400	0.409	2.445
PROPERTY	-2.130	1.201	-0.120	-1.773	0.077	0.409	2.443
RESOURCES	-2.204	1.484	-0.090	-1.485	0.138	0.509	1.966
SERVICES	0.381	1.153	0.023	0.330	0.741	0.390	2.563
TECHNOLOGY	-1.538	1.452	-0.059	-1.060	0.290	0.610	1.639
Adjusted R^2 = 0.048							
F = 2.335 (p-value = .01)							
Durbin-Watson = 2.020							

Dependent Variable: ROA

Table 4.23 showed that the model was accepted with F=2.335 (p-value < .05), Durbin-Watson = 2.020, and AdjustR^2=0.048, but POLITIC had a negative effect on ROA (Beta= -0.119, p-value < .05).

Table 4.24 The effect of board of directors' characteristics on ROE.

	Unstandardized Coefficients		Standardized Coefficients	t	sig	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-2.720	6.011		-0.453	0.651		
WOMEN	3.485	3.655	0.045	0.954	0.341	0.869	1.151
AGE>50	4.745	3.501	0.067	1.355	0.176	0.784	1.275
POSTGRADUATE	-0.628	3.514	-0.011	-0.179	0.858	0.533	1.878
BUSINESS	-2.138	3.799	-0.035	-0.563	0.574	0.505	1.980
SCIENCE	8.236	4.887	0.081	1.685	0.093	0.818	1.222
ACCOUNTING	8.284	4.825	0.080	1.717	0.087	0.869	1.151
ENGINEERING	0.384	3.741	0.006	0.103	0.918	0.653	1.532
OTHER	-4.227	4.412	-0.051	-0.958	0.339	0.669	1.494
POLITIC	-9.963	3.490	-0.143	-2.854	0.004	0.758	1.319
TENURE	-0.137	0.120	-0.057	-1.138	0.256	0.746	1.340
LogCOMPENSATION	2.020	1.641	0.074	1.231	0.219	0.531	1.884
LogTOTALASSET	2.547	1.026	0.156	2.484	0.013	0.482	2.076
CONSUMER	2.104	2.677	0.043	0.786	0.432	0.623	1.606
FINANCIAL	-0.758	2.473	-0.018	-0.306	0.759	0.533	1.878
INDUSTRAIL	-0.234	2.117	-0.008	-0.111	0.912	0.409	2.445
PROPERTY	-0.168	2.152	-0.005	-0.078	0.938	0.409	2.443
RESOURCES	0.247	2.659	0.006	0.093	0.926	0.509	1.966
SERVICES	1.384	2.066	0.047	0.670	0.503	0.390	2.563
TECHNOLOGY	0.351	2.601	0.008	0.135	0.893	0.610	1.639
Adjusted R^2 = 0.037							
F = 2.013 (p-value = .007)							
Durbin-Watson = 2.016							

Dependent Variable: ROE

Table 4.24 showed that the model was accepted with F=2.013 (p-value= .037), Durbin-Watson = 2. 016, and AdjustR^2=0. 037, but POLITIC had a negative effect on ROE (Beta= -0.143 p-value = .004).

Table 4.25 The effect of board of directors' characteristics on salegrowth

	Unstandardized Coefficients		Standardized Coefficients	t	sig	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-13.358	12.420		-1.076	0.283		
WOMEN	4.054	7.551	0.025	0.537	0.592	0.869	1.151
AGE>50	5.715	7.235	0.039	0.790	0.430	0.784	1.275
POSTGRADUATE	1.577	7.260	0.013	0.217	0.828	0.533	1.878
BUSINESS	4.837	7.850	0.038	0.616	0.538	0.505	1.980
SCIENCE	20.254	10.098	0.098	2.006	0.045	0.818	1.222
ACCOUNTING	-1.170	9.970	-0.006	-0.117	0.907	0.869	1.151
ENGINEERING	2.671	7.730	0.019	0.346	0.730	0.653	1.532
OTHER	4.112	9.116	0.024	0.451	0.652	0.669	1.494
POLITIC	-11.970	7.212	-0.084	-1.660	0.098	0.758	1.319
TENURE	-0.455	0.248	-0.094	-1.835	0.067	0.746	1.340
LogCOMPENSATION	-4.828	3.392	-0.086	-1.424	0.155	0.531	1.884
LogTOTALASSET	2.294	2.119	0.069	1.083	0.279	0.482	2.076
CONSUMER	-0.569	5.531	-0.006	-0.103	0.918	0.623	1.606
FINANCIAL	-2.778	5.109	-0.033	-0.544	0.587	0.533	1.878
INDUSTRAIL	5.572	4.374	0.088	1.274	0.203	0.409	2.445
PROPERTY	8.466	4.446	0.131	1.904	0.057	0.409	2.443
RESOURCES	12.585	5.494	0.141	2.291	0.022	0.509	1.966
SERVICES	5.010	4.268	0.083	1.174	0.241	0.390	2.563
TECHNOLOGY	4.925	5.374	0.052	0.917	0.360	0.610	1.639
Adjusted R^2 = 0.017							
F = 1.454 (p-value = .096)							
Durbin-Watson = 2.010							

Dependent Variable: SALEGROWTH

Table 4.25 showed that the model was rejected because F=1.454 (p-value=.096).

Table 4.26 The effect of board of directors' characteristics on TOBIN'SQ

	Unstandardized Coefficients		Standardized Coefficients	t	sig	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	2.028	0.417		4.861	0.000		
WOMEN	-0.159	0.254	-0.028	-0.625	0.532	0.869	1.151
AGE>50	-0.223	0.243	-0.043	-0.917	0.359	0.784	1.275
POSTGRADUATE	-0.150	0.244	-0.035	-0.614	0.540	0.533	1.878
BUSINESS	-0.133	0.264	-0.030	-0.504	0.615	0.505	1.980
SCIENCE	0.783	0.339	0.106	2.308	0.021	0.818	1.222
ACCOUNTING	0.605	0.335	0.081	1.806	0.072	0.869	1.151
ENGINEERING	0.225	0.260	0.045	0.866	0.387	0.653	1.532
OTHER	0.168	0.306	0.028	0.550	0.583	0.669	1.494
POLITIC	-0.284	0.242	-0.056	-1.173	0.242	0.758	1.319
TENURE	-0.018	0.008	-0.105	-2.181	0.030	0.746	1.340
LogCOMPENSATION	0.261	0.114	0.131	2.287	0.023	0.531	1.884
LogTOTALASSET	-0.090	0.071	-0.076	-1.261	0.208	0.482	2.076
CONSUMER	-0.422	0.186	-0.120	-2.272	0.024	0.623	1.606
FINANCIAL	-0.497	0.172	-0.165	-2.896	0.004	0.533	1.878
INDUSTRAIL	-0.463	0.147	-0.205	-3.149	0.002	0.409	2.445
PROPERTY	-0.403	0.149	-0.176	-2.699	0.007	0.409	2.443
RESOURCES	-0.338	0.185	-0.107	-1.831	0.068	0.509	1.966
SERVICES	0.219	0.143	0.102	1.525	0.128	0.390	2.563
TECHNOLOGY	-0.411	0.181	-0.122	-2.280	0.023	0.610	1.639
Adjusted R^2 = 0.121							
F = 4.659 (p-value = .000)							
Durbin-Watson = 2.068							

Dependent Variable: TOBIN'SQ

Table 4.26 showed that the model was accepted with F=4.659 (p-value= .000), Durbin-Watson = 2.068, and AdjustR^2=0.121, and that SCIENCE, TENURE, and LogCOMPENSATION had an effect on TOBIN'SQ (Beta= 0.106, -0.105, 0.131 with p-value < .05).

Table 4.27 The effect of board of directors' characteristics on SGR

	Unstandardized Coefficients		Standardized Coefficients	t	sig	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-11.909	5.168		-2.304	0.022		
WOMEN	2.340	3.142	0.035	0.745	0.457	0.869	1.151
AGE>50	4.001	3.011	0.065	1.329	0.184	0.784	1.275
POSTGRADUATE	-0.821	3.021	-0.016	-0.272	0.786	0.533	1.878
BUSINESS	-2.315	3.267	-0.043	-0.709	0.479	0.505	1.980
SCIENCE	9.030	4.203	0.104	2.149	0.032	0.818	1.222
ACCOUNTING	7.210	4.149	0.081	1.738	0.083	0.869	1.151
ENGINEERING	-3.777	3.217	-0.063	-1.174	0.241	0.653	1.532
OTHER	-0.154	3.794	-0.002	-0.040	0.968	0.669	1.494
POLITIC	-7.488	3.001	-0.125	-2.495	0.013	0.758	1.319
TENURE	-0.034	0.103	-0.017	-0.331	0.741	0.746	1.340
LogCOMPENSATION	-0.612	1.411	-0.026	-0.433	0.665	0.531	1.884
LogTOTALASSET	2.855	0.882	0.203	3.238	0.001	0.482	2.076
CONSUMER	3.536	2.302	0.085	1.536	0.125	0.623	1.606
FINANCIAL	0.404	2.126	0.011	0.190	0.849	0.533	1.878
INDUSTRAIL	0.539	1.820	0.020	0.296	0.767	0.409	2.445
PROPERTY	1.978	1.850	0.073	1.069	0.286	0.409	2.443
RESOURCES	3.262	2.286	0.087	1.427	0.154	0.509	1.966
SERVICES	1.275	1.776	0.050	0.718	0.473	0.390	2.563
TECHNOLOGY	1.706	2.236	0.043	0.763	0.446	0.610	1.639
Adjusted R^2 = 0.037							
F = 2.029 (p-value = 0.006)							
Durbin-Watson 2.015							

Dependent Variable: SGR

Table 4.27 showed that the model was accepted with F=2.029 (p-value=.006), Durbin-Watson = 2.015, and AdjustR^2=0.037 and there were SCIENCE had positive effect to SGR (Beta=0.104 p-value < .05), and POLITIC had negative effect to SGR (Beta= -0.125 p-value< .05).

Table 4.28 The effect of board of directors' characteristics on CAPM

	Unstandardized Coefficients		Standardized Coefficients	t	sig	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	5.483	1.641		3.342	0.001		
WOMEN	-0.597	0.998	-0.028	-0.599	0.550	0.869	1.151
AGE>50	-0.903	0.956	-0.046	-0.944	0.345	0.784	1.275
POSTGRADUATE	1.496	0.959	0.092	1.560	0.119	0.533	1.878
BUSINESS	-0.379	1.037	-0.022	-0.365	0.715	0.505	1.980
SCIENCE	-1.868	1.334	-0.067	-1.400	0.162	0.818	1.222
ACCOUNTING	-2.055	1.317	-0.072	-1.560	0.119	0.869	1.151
ENGINEERING	-1.410	1.021	-0.074	-1.381	0.168	0.653	1.532
OTHER	-0.511	1.204	-0.022	-0.424	0.672	0.669	1.494
POLITIC	-0.643	0.953	-0.034	-0.675	0.500	0.758	1.319
TENURE	-0.091	0.033	-0.139	-2.769	0.006	0.746	1.340
LogCOMPENSATION	-0.492	0.448	-0.065	-1.097	0.273	0.531	1.884
LogTOTALASSET	0.714	0.280	0.159	2.550	0.011	0.482	2.076
CONSUMER	-0.847	0.731	-0.064	-1.160	0.247	0.623	1.606
FINANCIAL	-1.199	0.675	-0.105	-1.776	0.076	0.533	1.878
INDUSTRAIL	-0.686	0.578	-0.080	-1.188	0.236	0.409	2.445
PROPERTY	0.075	0.587	0.009	0.127	0.899	0.409	2.443
RESOURCES	0.139	0.726	0.012	0.192	0.848	0.509	1.966
SERVICES	-0.006	0.564	-0.001	-0.011	0.991	0.390	2.563
TECHNOLOGY	1.050	0.710	0.082	1.479	0.140	0.610	1.639
Adjusted R^2 = 0.050							
F = 2.432 (p-value = 0.001)							
Durbin-Watson = 1.909							

Dependent Variable: CAPM

Table 4.28 showed that the model was accepted with F=2.432 (p-value= .001), Durbin-Watson = 1.909, and AdjustR^2=0.050, but TENURE had a negative effect on CAPM (Beta=-0.139, p-value < .05).

According to tables 4.23 to 4.28, the accepted subhypothesis were H2.22.2 SCIENCE has a positive effect on TOBIN'SQ and H2.23.2 SCIENCE has a positive effect on SGR. The result meant that if the board of directors had a proportion of members who graduated in science fields, the corporation would have a highly sustainable growth rate. This could be because they understood how to use technology to make operations and an organization work easier, faster, modernize working, and cost-effective. H2.40.1 LogCOMPENSATION has a positive effect on TOBIN'SQ, implying that higher board

compensation will increase motivation to operate, resulting in increased profits and a high market price for the stock.

Even though the POLITIC variable had a negative effect on ROA, ROE, and SGR, it meant that if there were a higher proportion of board of directors with a political connection, it could reduce return on assets, return on equity, and sustainable growth rate; however, the political connection could have a positive effect on sustainable growth rate, as tested by hypothesis1.5.1. And board tenure had a negative correlation with TOBIN'SQ and CAPM, which meant that if a company had more directors on its board who had a long tenure, it would not only reduce the efficiency of management monitoring, but it would also result in a decrease in firm value (Sze, 2018).

Hypothesis 3. The board of directors' characteristics have a positive effect on corporate governance.

Hypothesis 3 consisted of 22 subhypotheses to be tested by linear multiple regression. The statistical analysis results are shown in Table 4.29 to 4.30.

Hypothesis 3.1 Women on boards have a positive effect on corporate governance.

H3.1.1 WOMEN have a positive effect on CGSCORE.

H3.1.2 WOMEN have a positive effect on LogBOARDMEETING.

Hypothesis 3.2 Boards over 50 years old have a positive effect on corporate governance.

H3.2.1 AGE>50 have a positive effect on CGSCORE.

H3.2.2 AGE>50 have a positive effect on LogBOARDMEETING.

Hypothesis 3.3 Education level of the board of directors higher than the bachelor's degree has a positive impact on corporate governance.

H3.3.1 POSTGRADUATE have a positive effect on CGSCORE.

H3.3.2 POSTGRADUATE have a positive effect on LogBOARDMEETING.

Hypothesis 3.4 Education field of boards have a positive effect on corporate governance.

H3.4.1 BUSINESS have a positive effect on CGSCORE.

H3.4.2 SCIENCE have a positive effect on CGSCORE.

H3.4.3 ACCOUNTING have a positive effect on CGSCORE.

H3.4.4 ENGINEERING have a positive effect on CGSCORE.

H3.4.5 OTHER have a positive effect on CGSCORE.

H3.4.6 BUSINESS have a positive effect on LogBOARDMEETING.

H3.4.7 SCIENCE have a positive effect on LogBOARDMEETING.

H3.4.8 ACCOUNTING have a positive effect on LogBOARDMEETING.

H3.4.9 ENGINEERING have a positive effect on LogBOARDMEETING.

H3.4.10 OTHER have a positive effect on LogBOARDMEETING.

Hypothesis 3.5 Political connection boards have a positive effect on corporate governance.

H3.5.1 POLITIC have a positive effect on CGSCORE.

H3.5.2 POLITIC have a positive effect on LogBOARDMEETING.

Hypothesis 3.6 Board tenure have a positive effect on corporate governance.

H3.6.1 TENURE have a positive effect on CGSCORE.

H3.6.2 TENURE have a positive effect on LogBOARDMEETING.

Hypothesis 3.7 Board compensation have a positive effect on corporate governance.

H3.7.1 LogCOMPENSATION have a positive effect on CGSCORE.

H3.7.2 LogCOMPENSATION have a positive effect on LogBOARDMEETING.

Table 4.29 The effect of board of directors' characteristics on corporate governance (CGSCORE).

	Unstandardized Coefficients		Standardized Coefficients	t	sig	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.321	0.436		3.031	0.003		
WOMEN	0.562	0.265	0.092	2.121	0.034	0.869	1.151
AGE>50	0.174	0.254	0.031	0.685	0.493	0.784	1.275
POSTGRADUATE	0.190	0.255	0.041	0.745	0.457	0.533	1.878
BUSINESS	0.550	0.275	0.114	1.997	0.046	0.505	1.980
SCIENCE	0.293	0.354	0.037	0.828	0.408	0.818	1.222
ACCOUNTING	0.270	0.350	0.034	0.771	0.441	0.869	1.151
ENGINEERING	0.713	0.271	0.132	2.629	0.009	0.653	1.532
OTHER	-0.162	0.320	-0.025	-0.507	0.613	0.669	1.494
POLITIC	0.090	0.253	0.017	0.357	0.721	0.758	1.319
TENURE	-0.011	0.009	-0.059	-1.262	0.208	0.746	1.340
LogCOMPENSATION	0.455	0.119	0.213	3.825	0.000	0.531	1.884
LogTOTALASSET	0.233	0.074	0.183	3.135	0.002	0.482	2.076
CONSUMER	0.041	0.194	0.011	0.212	0.832	0.623	1.606
FINANCIAL	-0.079	0.179	-0.025	-0.443	0.658	0.533	1.878
INDUSTRAIL	-0.222	0.153	-0.092	-1.449	0.148	0.409	2.445
PROPERTY	-0.161	0.156	-0.065	-1.031	0.303	0.409	2.443
RESOURCES	-0.028	0.193	-0.008	-0.145	0.885	0.509	1.966
SERVICES	-0.024	0.150	-0.011	-0.162	0.872	0.390	2.563
TECHNOLOGY	-0.041	0.188	-0.011	-0.218	0.827	0.610	1.639
Adjusted R^2 =0.164							
F =6.236 (p-value=.000)							
Durbin-Watson = 1.877							

Dependent variable: CGSCORE

Table 4.29 revealed that the model was accepted with F=6.236 (p-value=.000), Durbin-Watson = 1.877, and AdjustR^2=0.164, indicate that WOMEN, BUSINESS, ENGINEERING, and LogCOMPENSATION had a positive effect on CGSCORE (Beta=0.092, 0.114, 0.132, 0.213 p-value < .05).

According to the researcher, if corporations had a high proportion of board of directors who were women, had education in the business and engineering fields, and were paid well, they would have a high corporate governance score.

Due to result, H3.1.1 WOMEN have a positive effect on CGSCORE, H3.4.1 BUSINESS have a positive effect on CGSCORE, H3.4.4 ENGINEERING have a positive

effect on CGSCORE, and H3.7.1 LogCOMPENSATION have a positive effect on CGSCORE were accepted as a result.

Table 4.30 The effect of board of directors' characteristics on corporate governance (LogBOARDMEETING).

	Unstandardized Coefficients		Standardized Coefficients	t	sig	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	0.510	0.097		5.257	0.000		
WOMEN	0.135	0.059	0.101	2.285	0.023	0.869	1.151
AGE>50	-0.042	0.057	-0.034	-0.742	0.459	0.784	1.275
POSTGRADUATE	-0.022	0.057	-0.022	-0.394	0.694	0.533	1.878
BUSINESS	0.040	0.061	0.038	0.656	0.512	0.505	1.980
SCIENCE	0.252	0.079	0.145	3.194	0.001	0.818	1.222
ACCOUNTING	-0.032	0.078	-0.018	-0.406	0.685	0.869	1.151
ENGINEERING	0.066	0.060	0.055	1.085	0.279	0.653	1.532
OTHER	0.071	0.071	0.050	0.999	0.318	0.669	1.494
POLITIC	0.075	0.056	0.063	1.327	0.185	0.758	1.319
TENURE	-0.004	0.002	-0.096	-2.023	0.044	0.746	1.340
LogCOMPENSATION	0.040	0.027	0.084	1.496	0.135	0.531	1.884
LogTOTALASSET	0.073	0.017	0.262	4.433	0.000	0.482	2.076
CONSUMER	0.071	0.043	0.085	1.640	0.102	0.623	1.606
FINANCIAL	0.041	0.040	0.058	1.028	0.304	0.533	1.878
INDUSTRAIL	-0.023	0.034	-0.044	-0.679	0.498	0.409	2.445
PROPERTY	0.003	0.035	0.005	0.080	0.937	0.409	2.443
RESOURCES	0.031	0.043	0.042	0.730	0.466	0.509	1.966
SERVICES	0.011	0.033	0.021	0.317	0.751	0.390	2.563
TECHNOLOGY	0.022	0.042	0.027	0.514	0.607	0.610	1.639
Adjusted R^2 =0.144							
F =5.490 (p-value=.000)							
Durbin-Watson = 1.929							

Dependent variable: BOARDMEETING

Table 4.30 showed that the model was accepted with F=5.490 (p-value = .000), Durbin-Watson = 1.929, and AdjustR^2=0.144, and WOMEN had an effect on BOARDMEETING (Beta=0.101 p-value < .05), and SCIENCE had an effect on BOARDMEETING (Beta=0.145 p-value < .05).

It meant that if corporations had a higher proportion of women on their boards of directors and a higher proportion of members with education in science fields, there would be more meetings.

Due to H3.1.2 WOMEN had a positive effect on LogBOARDMEETING, and H3.4.7 SCIENCE had a positive effect on LogBOARDMEETING were accepted as a result. TENURE, on the other hand, had a negative impact on LogBOARDMEETING because an organization with a long board tenure may believe that it has no problems or crises and thus does not require frequent board meetings.

Hypothesis 4. Corporate governance has a positive effect on corporate sustainability.

Hypothesis 4.1 Corporate governance has a positive effect on global reporting initiative.

H4.1.1 CGSCORE has a positive effect on GRI.

H4.1.2 LogBOARDMEETING has a positive effect on GRI.

Table 4.31 The effect of corporate governance on corporate sustainability

	Unstandardized Coefficients		Standardized Coefficients	t	P-value	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-0.117	0.025		-4.693	0.000		
CGSCORE	0.040	0.004	0.374	9.519	0.000	0.858	1.165
LogBOARDMEETING	0.034	0.019	0.069	1.762	0.079	0.859	1.165
LogTOTALASSET	0.043	0.006	0.321	7.521	0.000	0.730	1.370
CONSUMER	0.025	0.018	0.062	1.341	0.180	0.630	1.588
FINANCIAL	-0.062	0.017	-0.180	-3.688	0.000	0.558	1.793
INDUSTRAIL	0.005	0.014	0.018	0.315	0.753	0.428	2.334
PROPERTY	-0.019	0.014	-0.071	-1.292	0.197	0.439	2.276
RESOURCES	-0.001	0.017	-0.002	-0.039	0.969	0.585	1.708
SERVICES	-0.018	0.014	-0.075	-1.317	0.189	0.411	2.436
TECHNOLOGY	-0.026	0.018	-0.066	-1.438	0.151	0.629	1.589

Adjusted R^2 =0.328

F =25.713 (p-value= .000)

Durbin-Watson = 2.008

Dependent variable: GRI

Table 4.31 showed that the model was accepted with F=25.713 (p-value= .000), Durbin-Watson = 2.008, and AdjustR^2= 0.328. There was a CGSCORE effect on corporate sustainability (Beta= 0.374 p-value < .05). According to the researcher, if a company had a higher CGSCORE, it would result in a higher level of corporate sustainability. As a result, H4.1.1 CGSCORE had a positive effect on GRI and was accepted.

Hypothesis 5. Corporate governance has a positive effect on firm performance.

Hypothesis5 was composed of 12 sub hypotheses, each of which was tested using linear multiple regression. The results of the statistical analysis are presented in Tables 4.32 to 4.37.

Hypothesis 5.1 Corporate governance has a positive effect on return on asset.

H5.1.1 CGSCORE have a positive effect on ROA.

H5.1.2 LogBOARDMEETING have a positive effect on ROA.

Hypothesis 5.2 Corporate governance has a positive effect on return on equity.

H5.2.1 CGSCORE have a positive effect on ROE.

H5.2.2 LogBOARDMEETING has a positive effect on ROE.

Hypothesis 5.3 Corporate governance has a positive effect on sale growth.

H5.3.1 CGSCORE has a positive effect on SALEGROWTH.

H5.3.2 LogBOARDMEETING has a positive effect on SALEGROWTH.

Hypothesis 5.4 Corporate governance has a positive effect on Tobin's Q.

H5.4.1 CGSCORE has a positive effect on TOBIN'S Q.

H5.4.2 LogBOARDMEETING has a positive effect on TOBIN'S Q.

Hypothesis 5.5 Corporate governance has a positive effect on sustainable growth rate.

H5.5.1 CGSCORE has a positive effect on SGR.

H5.5.2 LogBOARDMEETING has a positive effect on SGR.

Hypothesis 5.6 Corporate governance has a positive effect on capital asset pricing model.

H5.6.1 CGSCORE has a positive effect on CAPM.

H5.6.2 LogBOARDMEETING has a positive effect on CAPM.

Table 4.32 The effect of corporate governance on firm performance (ROA).

	Unstandardized Coefficients		Standardized Coefficients	t	P-value	Collinearity Statistics	
	B	Std. Error	Beta			Toleranc	VIF
(Constant)	5.148	2.022		2.546	0.011		
CGSCORE	0.308	0.340	0.043	0.906	0.366	0.858	1.165
LogBOARDMEETING	-2.721	1.542	-0.083	-1.764	0.078	0.859	1.165
LogTOTALASSET	1.037	0.468	0.113	2.217	0.027	0.730	1.370
CONSUMER	0.419	1.495	0.015	0.280	0.780	0.630	1.588
FINANCIAL	-4.583	1.357	-0.197	-3.376	0.001	0.558	1.793
INDUSTRAIL	-1.541	1.162	-0.088	-1.327	0.185	0.428	2.334
PROPERTY	-2.542	1.166	-0.143	-2.179	0.030	0.439	2.276
RESOURCES	-2.511	1.392	-0.103	-1.804	0.072	0.585	1.708
SERVICES	0.331	1.131	0.020	0.293	0.770	0.411	2.436
TECHNOLOGY	-1.569	1.438	-0.060	-1.091	0.276	0.629	1.589
Adjusted R^2 =0.036							
F =2.897 (p-value= .002)							
Durbin-Watson = 1.580							
Dependent variable: ROA							

Table 4.32 shows that the model was accepted with F=2.897 (p-value= .002), Durbin-Watson = 1.580, and AdjustR^2=0.036, but no hypotheses were accepted.

Table 4.33 The effect of corporate governance on firm performance (ROE).

	Unstandardized Coefficients		Standardized Coefficients	t	P-value	Collinearity Statistics	
	B	Std. Error	Beta			Toleranc	VIF
(Constant)	-1.128	3.626		-0.311	0.756		
CGSCORE	1.239	0.609	0.096	2.035	0.042	0.858	1.165
LogBOARDMEETING	-5.449	2.765	-0.093	-1.970	0.049	0.859	1.165
LogTOTALASSET	2.655	0.839	0.163	3.164	0.002	0.730	1.370
CONSUMER	1.989	2.681	0.041	0.742	0.458	0.630	1.588
FINANCIAL	-0.915	2.434	-0.022	-0.376	0.707	0.558	1.793
INDUSTRAIL	-1.067	2.083	-0.034	-0.513	0.609	0.428	2.334
PROPERTY	-1.043	2.091	-0.033	-0.499	0.618	0.439	2.276
RESOURCES	-0.703	2.496	-0.016	-0.282	0.778	0.585	1.708
SERVICES	1.142	2.028	0.039	0.563	0.574	0.411	2.436
TECHNOLOGY	0.262	2.579	0.006	0.101	0.919	0.629	1.589
Adjusted R^2 =0.023							
F =2.193 (p-value= .017)							
Durbin-Watson = 1.743							
Dependent variable: ROE							

According to Table 4.33, the model was accepted with F=2.193 (p-value= .017), Durbin-Watson = 1.743, and AdjustR^2=0.023. There was a positive effect of CGSCORE on return on equity (Beta = 0.096 p-value < .05), which meant that if a company had more CGSCORE, it would have a higher return on equity. The H5.2.1 CGSCORE was accepted because it had a positive effect on ROE. There was a negative effect of board meetings on ROE (Beta=-0.093 p-value < .05), which meant that if boards met more frequently, it would result in lower ROE.

Table 4.34 The effect of corporate governance on firm performance (SALEGROWTH).

	Unstandardized Coefficients		Standardized Coefficients	t	P-value	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	2.119	7.462		0.284	0.777		
CGSCORE	-0.263	1.253	-0.010	-0.210	0.834	0.858	1.165
BOARDMEETING	1.702	5.691	0.014	0.299	0.765	0.859	1.165
LogTOTALASSET	-0.143	1.727	-0.004	-0.083	0.934	0.730	1.370
CONSUMER	-1.220	5.517	-0.012	-0.221	0.825	0.630	1.588
FINANCIAL	-0.854	5.008	-0.010	-0.171	0.865	0.558	1.793
INDUSTRAIL	6.151	4.286	0.097	1.435	0.152	0.428	2.334
PROPERTY	9.559	4.303	0.148	2.221	0.027	0.439	2.276
RESOURCES	13.582	5.136	0.153	2.644	0.008	0.585	1.708
SERVICES	6.312	4.173	0.104	1.512	0.131	0.411	2.436
TECHNOLOGY	5.734	5.307	0.060	1.080	0.280	0.629	1.589
Adjusted R^2 =0.011							
F =1.561 (p-value= .115)							
Durbin-Watson = 2.034							
Dependent variable: SALEGROWTH							

The model was not accepted, as shown in Table 4.34, with F=1.561 (p-value=.115), Durbin-Watson=2.034, and AdjustR^2=0.011.

Table 4.35 The effect of corporate governance on firm performance (TOBIN'S Q).

	Unstandardized Coefficients		Standardized Coefficients	t	P-value	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.365	0.253		5.393	0.000		
CGSCORE	0.026	0.042	0.027	0.604	0.546	0.858	1.165
BOARDMEETING	-0.225	0.193	-0.053	-1.166	0.244	0.859	1.165
LogTOTALASSET	-0.018	0.059	-0.015	-0.305	0.761	0.730	1.370
CONSUMER	-0.463	0.187	-0.132	-2.475	0.014	0.630	1.588
FINANCIAL	-0.510	0.170	-0.169	-3.001	0.003	0.558	1.793
INDUSTRAIL	-0.458	0.145	-0.203	-3.151	0.002	0.428	2.334
PROPERTY	-0.370	0.146	-0.161	-2.536	0.012	0.439	2.276
RESOURCES	-0.243	0.174	-0.077	-1.397	0.163	0.585	1.708
SERVICES	0.284	0.141	0.132	2.006	0.045	0.411	2.436
TECHNOLOGY	-0.358	0.180	-0.106	-1.988	0.047	0.629	1.589

Adjusted R^2 =0.099

F =6.554 (p-value=.000)

Durbin-Watson = 0.240

Dependent variable: TOBIN'SQ

Table 4.35 revealed that the model was accepted with F=6.554 (p-value= .000), Durbin-Watson = 0.240, and AdjustR^2=.099, but independent variables had no significant effect.

Table 4.36 The effect of corporate governance on firm performance (SGR).

	Unstandardized Coefficients		Standardized Coefficients	t	P-value	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-5.753	3.129		-1.839	0.067		
CGSCORE	0.266	0.526	0.024	0.506	0.613	0.858	1.165
BOARDMEETING	-3.498	2.387	-0.070	-1.466	0.143	0.859	1.165
LogTOTALASSET	2.400	0.724	0.171	3.315	0.001	0.730	1.370
CONSUMER	3.498	2.313	0.084	1.512	0.131	0.630	1.588
FINANCIAL	0.330	2.100	0.009	0.157	0.875	0.558	1.793
INDUSTRAIL	-0.529	1.797	-0.020	-0.294	0.769	0.428	2.334
PROPERTY	1.020	1.805	0.038	0.565	0.572	0.439	2.276
RESOURCES	1.525	2.154	0.041	0.708	0.479	0.585	1.708
SERVICES	1.129	1.750	0.044	0.645	0.519	0.411	2.436
TECHNOLOGY	1.179	2.225	0.029	0.530	0.597	0.629	1.589

Adjusted R^2 =0.016

F =1.849 (p-value=.050)

Durbin-Watson = 1.911

Dependent variable: SGR

Table 4.36 showed that, model was not accepted with F=1.849(p-value=.050), Durbin-Watson = 1.911, and AdjustR^2=0.016.

Table 4.37 The effect of corporate governance on firm performance (CAPM).

	Unstandardized Coefficients		Standardized Coefficients	t	P-value	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	5.040	0.995		5.066	0.000		
CGSCORE	-0.214	0.167	-0.061	-1.284	0.200	0.858	1.165
BOARDMEETING	-0.475	0.759	-0.030	-0.627	0.531	0.859	1.165
LogTOTALASSET	0.584	0.230	0.130	2.536	0.012	0.730	1.370
CONSUMER	-0.958	0.735	-0.072	-1.303	0.193	0.630	1.588
FINANCIAL	-0.777	0.668	-0.068	-1.163	0.245	0.558	1.793
INDUSTRAIL	-0.582	0.571	-0.068	-1.019	0.309	0.428	2.334
PROPERTY	0.333	0.574	0.038	0.580	0.562	0.439	2.276
RESOURCES	0.496	0.685	0.041	0.724	0.469	0.585	1.708
SERVICES	0.037	0.556	0.005	0.067	0.947	0.411	2.436
TECHNOLOGY	1.138	0.708	0.089	1.608	0.108	0.629	1.589
Adjusted R^2 =0.027							
F =2.432 (p-value=.008)							
Durbin-Watson = 2.003							
Dependent variable: CAPM							

Table 4.37 showed that, model was accepted with F=2.432(p-value= .008), Durbin-Watson = 2.003, and AdjustR^2=0.027, but there was no significant effect from independent variables.

Hypothesis 6. The board of directors' characteristics have a positive effect on Corporate Sustainability through corporate governance.

Prior to conducting mediator testing on hypothesis 6, it is necessary to determine whether corporate governance acts as a mediator between the effect of the board of directors' characteristics on the corporation's sustainability.

1. Board of directors' characteristics have an effect on corporate sustainability.
2. Board of directors' characteristics have an effect on corporate governance.
3. Corporate governance has an effect on corporate sustainability.
4. If items 1-3 have an effect, Hypothesis 6 will be conducted.

As shown in Table 4.38, a test of the effect of board of directors' characteristics on corporate sustainability through corporate governance revealed that

the ENGINEERING and LogCOMPENSAION variables had an effect on GRI and CGSCORE, while CGSCORE has an effect on GRI that met the criteria for mediator analysis. Whereas the result in Table 4.39 is a statistician examination of the effect of board of directors' characteristics on corporate sustainability through board meeting, which found no influencing variables.

Therefore, hypothesis 6 will be tested on ENGINEERING and LogCOMPENSATION as a mediator on the following.

Hypothesis 6.1 Education field in engineering of board of directors have a positive effect on corporate sustainability through corporate governance.

H6.1.1 ENGINEERING have a positive effect on GRI through CGSCORE.

Hypothesis 6.2 Board compensation have a positive effect on corporate sustainability through corporate governance.

H6.2.1 LogCOMPENSATION have a positive effect on GRI through CGSCOREs

There were two mediators between board of directors' characteristics and GRI on CGSCORE, as ENGINEERING and LogCOMPENSATION had an effect on both GRI and CGSCORE. Thus, hypothesis 6.1 was accepted, indicating that the characteristics of the board of directors had a positive effect on corporate sustainability (GRI) via corporate governance (CGSCORE). In addition, ENGINEERING and LogCOMPENSATION were full mediators, because after testing a regression model on GRI as a dependent variable and the post-testing by adding CGSCORE, the regression weight (Beta) of ENGINEERING and LogCOMPENSATION decreased to non-significant value.

Table 4.38 The comparison the effect of board of directors' characteristics and CGSCORE on GRI for evaluate mediator

	GRI		CGSCORE		GRI		GRI	
	Standardized Coefficients Beta	**P-value**	Standardized Coefficients Beta	**P-value**	Standardized Coefficients Beta	**P-value**	Standardized Coefficients Beta	**P-value**
WOMEN	0.047	0.258	0.092	0.034	0.014	0.728		
AGE>50	0.094	0.035	0.031	0.493	0.082	0.045		
POSTGRADUATE	-0.050	0.351	0.041	0.457	-0.065	0.189		
BUSINESS	0.049	0.371	0.114	0.046	0.007	0.885		
SCIENCE	0.006	0.896	0.037	0.408	-0.008	0.842		
ACCOUNTING	-0.036	0.391	0.034	0.441	-0.048	0.214		
ENGINEERING	0.117	0.016	0.132	0.009	0.068	0.131		
OTHER	-0.050	0.296	-0.025	0.613	-0.041	0.357		
POLITIC	0.104	0.021	0.017	0.721	0.098	0.019		
TENURE	-0.093	0.040	-0.059	0.208	-0.071	0.090		
LogCOMPENSATION	0.120	0.026	0.213	0.000	0.041	0.413		
LogTOTALASSET	0.354	0.000	0.183	0.002	0.286	0.000	0.339	0.000
CONSUMER	0.062	0.209	0.011	0.832	0.058	0.204	0.068	0.141
FINANCIAL	-0.185	0.001	-0.025	0.658	-0.176	0.000	-0.175	0.000
INDUSTRAIL	-0.040	0.518	-0.092	0.148	-0.006	0.919	0.016	0.753
PROPERTY	-0.099	0.106	-0.065	0.303	-0.075	0.186	-0.069	0.212
RESOURCES	-0.046	0.399	-0.008	0.885	-0.043	0.394	-0.004	0.941
SERVICES	-0.097	0.123	-0.011	0.872	-0.093	0.110	-0.069	0.224
TECHNOLOGY	-0.081	0.107	-0.011	0.827	-0.077	0.098	-0.063	0.171
CGSCORE					0.367	0.000	0.384	0.000
	Adjusted R^2 = 0.226		Adjusted R^2 =0.164		Adjusted R^2 =0.337		Adjusted R^2 =0.325	
	F = 8.784 (p-value = .000)		F =6.236 (p-value = .000)		F =13.891 (p-value= .000)		F =28.106 (p-value = .000)	
	Durbin-Watson = 1.963		Durbin-Watson = 1.877		Durbin-Watson = 1.962		Durbin-Watson = 1.944	

Table 4.39 The comparison the effect of board of directors' characteristics and LogBOARDMEETING on GRI for evaluate mediator

	GRI		LogBOARDMEETING		GRI		GRI	
	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value
WOMEN	0.047	0.258	**0.101**	**0.023**	0.037	0.375		
AGE>50	0.094	0.035	-0.034	0.459	0.097	0.028		
POSTGRADUATE	-0.050	0.351	-0.022	0.694	-0.048	0.371		
BUSINESS	0.049	0.371	0.038	0.512	0.045	0.407		
SCIENCE	0.006	0.896	0.145	0.001	-0.009	0.834		
ACCOUNTING	-0.036	0.391	-0.018	0.685	-0.034	0.413		
ENGINEERING	0.117	0.016	0.055	0.279	0.111	0.022		
OTHER	-0.050	0.296	0.050	0.318	-0.055	0.247		
POLITIC	0.104	0.021	0.063	0.185	0.098	0.029		
TENURE	-0.093	0.040	-0.096	0.044	-0.083	0.067		
LogCOMPENSATION	0.120	0.026	0.084	0.135	0.111	0.039		
LogTOTALASSET	0.354	0.000	0.262	0.000	0.327	0.000	0.424	0.000
CONSUMER	0.062	0.209	0.085	0.102	0.054	0.279	0.060	0.230
FINANCIAL	-0.185	0.001	0.058	0.304	-0.191	0.000	-0.185	0.001
INDUSTRAIL	-0.040	0.518	-0.044	0.498	-0.035	0.564	-0.018	0.771
PROPERTY	-0.099	0.106	0.005	0.937	-0.099	0.103	-0.090	0.130
RESOURCES	-0.046	0.399	0.042	0.466	-0.051	0.355	0.009	0.860
SERVICES	-0.097	0.123	0.021	0.751	-0.099	0.113	-0.075	0.223
TECHNOLOGY	-0.081	0.107	0.027	0.607	-0.084	0.094	-0.065	0.191
LogBOARDMEETING					0.102	0.018	0.120	0.005
	Adjusted R^2 = 0.226		Adjusted R^2 =0.144		Adjusted R^2 =0.233		Adjusted R^2 =0.207	
	F = 8.784 (p-value = .000)		F =5.490 (p-value = .000)		F =8.705 (p-value= .000)		F =15.681 (p-value = .000)	
	Durbin-Watson = 1.963		Durbin-Watson = 1.929		Durbin-Watson = 1.955		Durbin-Watson = 1.944	

Table 4.40 showed the calculation results for the standardized effect of direct, indirect, and total effects of independent, dependent, and mediator variables of the effect of ENGINEEING, LogCOMPENSATION to GRI through CGSCORE.

Table 4.40 The standard direct effect, standard indirect effect, and standard total effect of mediator variable

	Standard Direct Effect			**Standard Indirect Effect**			**Standard Total Effect**		
	ENG	LogCOM	CG	ENG	LogCOM	CG	ENG	LogCOM	CG
CG	0.132	0.213					0.132	0.213	
GRI	0.068	0.041	0.367	0.048	0.078		0.117	0.120	0.367

ENG: ENGINEERING

LogCOM: LogCOMPENSATION

CG: CGSCORE5

To calculate the percentage of mediator, the effect of engineering on GRI through CGSCORE was 0.048 / 0.117 * 100 = 41.02%, and the effect of LogCOMPENSATION on GRI through CGSCORE was 0.078 / 0.120 * 100 = 65%.

Hypothesis 7. The board of directors' characteristics have a positive effect on firm performance through corporate governance.

Prior to conducting mediator testing on hypothesis 7, it is necessary to determine whether corporate governance acts as a mediator between the effect of the board of directors' characteristics on the firm performance.

1. Board of directors' characteristics have an effect on firm performance.
2. Board of directors' characteristics have an corporate governance.
3. Corporate governance has an effect on firm performance.
4. If items 1-3 have an effect, a Hypothesis 7 will be conducted.

As shown in Table 4.41, a test of the effect of board of directors' characteristics on ROA through corporate governance and Table 4.42 shows a test of the effect of board of directors' characteristics on ROA through board meetings, both of which revealed that there were no effects that met the criteria for mediator analysis.

Table 4.43 shows a test of the effect of board of directors' characteristics on ROE through corporate governance and Table 4.44 shows a test of the effect of board of

directors’ characteristics on ROE through board meetings, both of which revealed that there were no effects that met the criteria for mediator analysis.

Table 4.45 shows a test of the effect of board of directors' characteristics on sales growth through corporate governance and Table 4.46 shows a test of the effect of board of directors’ characteristics on sales growth through board meetings, both of which revealed that there were no effects that met the criteria for mediator analysis.

Table 4.47 shows a test of the effect of board of directors' characteristics on Tobin’s Q through corporate governance and Table 4.48, shows a test of the effect of board of directors’ characteristics on Tobin’s Q through board meetings, both of which revealed that there were no effects that met the criteria for mediator analysis.

Table 4.49 shows a test of the effect of board of directors' characteristics on the sustainable growth rate through corporate governance and Table 4.50 shows a test of the effect of board of directors’ characteristics on the sustainable growth rate through board meetings, both of which revealed that there were no effects that met the criteria for mediator analysis.

Table 4.51 shows a test of the effect of board of directors' characteristics on CAPM through corporate governance and Table 4.52 shows a test of the effect of board of directors’ characteristics on CAPM through board meetings, both of which revealed that there were no effects that met the criteria for mediator analysis.

Table 4.41 The comparison the effect of board of directors' characteristics and CGSCORE on ROA for evaluate mediator

	ROA		CGSCORE		ROA		ROA	
	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value
WOMEN	0.029	0.529	0.092	0.034	0.028	0.554		
AGE>50	0.075	0.125	0.031	0.493	0.075	0.128		
POSTGRADUATE	-0.015	0.802	0.041	0.457	-0.016	0.793		
BUSINESS	-0.038	0.534	0.114	0.046	-0.040	0.514		
SCIENCE	0.068	0.155	0.037	0.408	0.068	0.160		
ACCOUNTING	0.077	0.099	0.034	0.441	0.076	0.102		
ENGINEERING	0.001	0.986	0.132	0.009	-0.001	0.980		
OTHER	-0.018	0.740	-0.025	0.613	-0.017	0.747		
POLITIC	-0.119	0.017	0.017	0.721	-0.119	0.017		
TENURE	-0.055	0.269	-0.059	0.208	-0.054	0.280		
LogCOMPENSATION	0.084	0.157	0.213	0.000	0.081	0.183		
LogTOTALASSET	0.075	0.231	0.183	0.002	0.072	0.257	0.091	0.067
CONSUMER	0.017	0.760	0.011	0.832	0.017	0.763	0.008	0.883
FINANCIAL	-0.193	0.001	-0.025	0.658	-0.193	0.001	-0.203	0.001
INDUSTRAIL	-0.057	0.400	-0.092	0.148	-0.055	0.415	-0.087	0.195
PROPERTY	-0.120	0.077	-0.065	0.303	-0.119	0.080	-0.146	0.027
RESOURCES	-0.090	0.138	-0.008	0.885	-0.090	0.139	-0.109	0.056
SERVICES	0.023	0.741	-0.011	0.872	0.023	0.739	0.013	0.845
TECHNOLOGY	-0.059	0.290	-0.011	0.827	-0.059	0.292	-0.064	0.249
CGSCORE					0.018	0.716	0.031	0.504
	Adjusted R^2 = 0.048		Adjusted R^2 =0.164		Adjusted R^2 =0.046		Adjusted R^2 =0.032	
	F = 2.335 (p-value = .01)		F =6.236 (p-value = .000)		F =2.221 (p-value= .002)		F =2.860 (p-value = .003)	
	Durbin-Watson = 2.020		Durbin-Watson = 1.877		Durbin-Watson = 2.022		Durbin-Watson = 2.023	

Table 4.42 The comparison the effect of board of directors' characteristics and board meeting on ROA for evaluate mediator

	ROA		LogBOARDMEETING		ROA		ROA	
	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value
WOMEN	0.029	0.529	0.101	0.023	0.038	0.419		
AGE>50	0.075	0.125	-0.034	0.459	0.072	0.139		
POSTGRADUATE	-0.015	0.802	-0.022	0.694	-0.017	0.778		
BUSINESS	-0.038	0.534	0.038	0.512	-0.035	0.568		
SCIENCE	0.068	0.155	0.145	0.001	0.080	0.097		
ACCOUNTING	0.077	0.099	-0.018	0.685	0.075	0.105		
ENGINEERING	0.001	0.986	0.055	0.279	0.006	0.917		
OTHER	-0.018	0.740	0.050	0.318	-0.013	0.800		
POLITIC	-0.119	0.017	0.063	0.185	-0.114	0.023		
TENURE	-0.055	0.269	-0.096	0.044	-0.064	0.207		
LogCOMPENSATION	0.084	0.157	0.084	0.135	0.091	0.125		
LogTOTALASSET	0.075	0.231	0.262	0.000	0.097	0.128	0.125	0.012
CONSUMER	0.017	0.760	0.085	0.102	0.024	0.663	0.015	0.782
FINANCIAL	-0.193	0.001	0.058	0.304	-0.188	0.002	-0.198	0.001
INDUSTRAIL	-0.057	0.400	-0.044	0.498	-0.061	0.370	-0.092	0.165
PROPERTY	-0.120	0.077	0.005	0.937	-0.120	0.077	-0.146	0.027
RESOURCES	-0.090	0.138	0.042	0.466	-0.087	0.154	-0.102	0.075
SERVICES	0.023	0.741	0.021	0.751	0.025	0.722	0.020	0.770
TECHNOLOGY	-0.059	0.290	0.027	0.607	-0.057	0.308	-0.060	0.276
LogBOARDMEETING					-0.084	0.079	-0.077	0.098
	Adjusted R^2 = 0.048		Adjusted R^2 =0.144		Adjusted R^2 =0.052		Adjusted R^2 =0.036	
	F = 2.335 (p-value = .01)		F =5.490 (p-value = .000)		F =2.383 (p-value= .001)		F =3.128 (p-value = .001)	
	Durbin-Watson = 2.020		Durbin-Watson = 1.929		Durbin-Watson = 2.009		Durbin-Watson = 2.014	

Table 4.43 The comparison the effect of board of directors' characteristics and CGSCORE on ROE for evaluate mediator

	ROE		CGSCORE		ROE		ROE	
	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value
WOMEN	0.045	0.341	0.092	0.034	0.038	0.418		
AGE>50	0.067	0.176	0.031	0.493	0.064	0.191		
POSTGRADUATE	-0.011	0.858	0.041	0.457	-0.014	0.819		
BUSINESS	-0.035	0.574	0.114	0.046	-0.043	0.488		
SCIENCE	0.081	0.093	0.037	0.408	0.079	0.104		
ACCOUNTING	0.080	0.087	0.034	0.441	0.078	0.096		
ENGINEERING	0.006	0.918	0.132	0.009	-0.004	0.943		
OTHER	-0.051	0.339	-0.025	0.613	-0.049	0.355		
POLITIC	-0.143	0.004	0.017	0.721	-0.144	0.004		
TENURE	-0.057	0.256	-0.059	0.208	-0.053	0.292		
LogCOMPENSATION	0.074	0.219	0.213	0.000	0.058	0.336		
LogTOTALASSET	0.156	0.013	0.183	0.002	0.143	0.025	0.138	0.006
CONSUMER	0.043	0.432	0.011	0.832	0.043	0.440	0.033	0.553
FINANCIAL	-0.018	0.759	-0.025	0.658	-0.017	0.782	-0.029	0.620
INDUSTRAIL	-0.008	0.912	-0.092	0.148	-0.001	0.989	-0.032	0.630
PROPERTY	-0.005	0.938	-0.065	0.303	-0.001	0.992	-0.036	0.589
RESOURCES	0.006	0.926	-0.008	0.885	0.006	0.918	-0.023	0.683
SERVICES	0.047	0.503	-0.011	0.872	0.047	0.496	0.031	0.650
TECHNOLOGY	0.008	0.893	-0.011	0.827	0.008	0.881	0.002	0.977
CGSCORE					0.071	0.142	0.084	0.076
	Adjusted R^2 = 0.037		Adjusted R^2 =0.164		Adjusted R^2 =0.039		Adjusted R^2 =0.017	
	F = 2.013 (p-value = .007)		F =6.236 (p-value = .000)		F =2.025 (p-value= .006)		F =1.994 (p-value = .038)	
	Durbin-Watson = 2.016		Durbin-Watson = 1. 877		Durbin-Watson = 2.026		Durbin-Watson = 2.035	

Table 4.44 The comparison the effect of board of directors' characteristics and board meeting on ROE for evaluate mediator

	ROE		LogBOARDMEETING		ROE		ROE	
	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value
WOMEN	0.045	0.341	0.101	0.023	0.053	0.256		
AGE>50	0.067	0.176	-0.034	0.459	0.064	0.195		
POSTGRADUATE	-0.011	0.858	-0.022	0.694	-0.013	0.833		
BUSINESS	-0.035	0.574	0.038	0.512	-0.031	0.610		
SCIENCE	0.081	0.093	0.145	0.001	0.094	0.054		
ACCOUNTING	0.080	0.087	-0.018	0.685	0.079	0.092		
ENGINEERING	0.006	0.918	0.055	0.279	0.010	0.848		
OTHER	-0.051	0.339	0.050	0.318	-0.047	0.381		
POLITIC	-0.143	0.004	0.063	0.185	-0.137	0.006		
TENURE	-0.057	0.256	-0.096	0.044	-0.066	0.194		
LogCOMPENSATION	0.074	0.219	0.084	0.135	0.081	0.177		
LogTOTALASSET	0.156	0.013	0.262	0.000	0.179	0.005	0.189	0.000
CONSUMER	0.043	0.432	0.085	0.102	0.051	0.358	0.041	0.464
FINANCIAL	-0.018	0.759	0.058	0.304	-0.013	0.824	-0.023	0.691
INDUSTRAIL	-0.008	0.912	-0.044	0.498	-0.011	0.868	-0.043	0.518
PROPERTY	-0.005	0.938	0.005	0.937	-0.005	0.943	-0.038	0.567
RESOURCES	0.006	0.926	0.042	0.466	0.009	0.879	-0.013	0.817
SERVICES	0.047	0.503	0.021	0.751	0.049	0.486	0.038	0.576
TECHNOLOGY	0.008	0.893	0.027	0.607	0.010	0.860	0.006	0.917
LogBOARDMEETING					-0.086	0.072	-0.080	0.089
	Adjusted R^2 = 0.037		Adjusted R^2 =0.144		Adjusted R^2 =0.041		Adjusted R^2 =0.034	
	F = 2.013 (p-value = .007)		F =5.490 (p-value = .000)		F =2.084 (p-value= .004)		F =1.954 (p-value = .042)	
	Durbin-Watson = 2.016		Durbin-Watson = 1.929		Durbin-Watson = 2.011		Durbin-Watson = 2.031	

Table 4.45 The comparison the effect of board of directors' characteristics and CGSCORE on SALEGROWTH for evaluate mediator

	SALEGROWTH		CGSCORE		SALEGROWTH		SALEGROWTH	
	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value
WOMEN	0.025	0.592	0.092	0.034	0.027	0.574		
AGE>50	0.039	0.430	0.031	0.493	0.040	0.425		
POSTGRADUATE	0.013	0.828	0.041	0.457	0.014	0.821		
BUSINESS	0.038	0.538	0.114	0.046	0.040	0.523		
SCIENCE	0.098	0.045	0.037	0.408	0.098	0.045		
ACCOUNTING	-0.006	0.907	0.034	0.441	-0.005	0.915		
ENGINEERING	0.019	0.730	0.132	0.009	0.021	0.706		
OTHER	0.024	0.652	-0.025	0.613	0.024	0.657		
POLITIC	-0.084	0.098	0.017	0.721	-0.084	0.099		
TENURE	-0.094	0.067	-0.059	0.208	-0.094	0.065		
LogCOMPENSATION	-0.086	0.155	0.213	0.000	-0.083	0.177		
LogTOTALASSET	0.069	0.279	0.183	0.002	0.071	0.266	0.000	0.992
CONSUMER	-0.006	0.918	0.011	0.832	-0.006	0.920	-0.011	0.842
FINANCIAL	-0.033	0.587	-0.025	0.658	-0.033	0.583	-0.009	0.879
INDUSTRAIL	0.088	0.203	-0.092	0.148	0.086	0.212	0.097	0.153
PROPERTY	0.131	0.057	-0.065	0.303	0.130	0.060	0.148	0.026
RESOURCES	0.141	0.022	-0.008	0.885	0.141	0.023	0.154	0.008
SERVICES	0.083	0.241	-0.011	0.872	0.083	0.242	0.105	0.126
TECHNOLOGY	0.052	0.360	-0.011	0.827	0.052	0.362	0.061	0.275
CGSCORE					-0.015	0.767	-0.008	0.864
	Adjusted R^2 = 0.017		Adjusted R^2 =0.164		Adjusted R^2 =0.015		Adjusted R^2 =0.013	
	F = 1.454 (p-value = .096)		F =6.236 (p-value = .000)		F =1.385 (p-value= .124)		F =1.728 (p-value = .080)	
	Durbin-Watson = 2.010		Durbin-Watson = 1.877		Durbin-Watson = 2.007		Durbin-Watson = 2.020	

Table 4.46 The comparison the effect of board of directors' characteristics and board meeting on SALEGROWTH for evaluate mediator

	SALEGROWTH		LogBOARDMEETING		SALEGROWTH		SALEGROWTH	
	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value
WOMEN	0.025	0.592	0.101	0.023	0.026	0.587		
AGE>50	0.039	0.430	-0.034	0.459	0.039	0.433		
POSTGRADUATE	0.013	0.828	-0.022	0.694	0.013	0.830		
BUSINESS	0.038	0.538	0.038	0.512	0.038	0.537		
SCIENCE	0.098	0.045	0.145	0.001	0.098	0.046		
ACCOUNTING	-0.006	0.907	-0.018	0.685	-0.006	0.905		
ENGINEERING	0.019	0.730	0.055	0.279	0.019	0.727		
OTHER	0.024	0.652	0.050	0.318	0.025	0.650		
POLITIC	-0.084	0.098	0.063	0.185	-0.084	0.100		
TENURE	-0.094	0.067	-0.096	0.044	-0.094	0.067		
LogCOMPENSATION	-0.086	0.155	0.084	0.135	-0.086	0.158		
LogTOTALASSET	0.069	0.279	0.262	0.000	0.070	0.281	-0.007	0.888
CONSUMER	-0.006	0.918	0.085	0.102	-0.005	0.924	-0.012	0.825
FINANCIAL	-0.033	0.587	0.058	0.304	-0.033	0.591	-0.010	0.866
INDUSTRAIL	0.088	0.203	-0.044	0.498	0.088	0.205	0.098	0.147
PROPERTY	0.131	0.057	0.005	0.937	0.131	0.058	0.149	0.026
RESOURCES	0.141	0.022	0.042	0.466	0.142	0.022	0.152	0.008
SERVICES	0.083	0.241	0.021	0.751	0.083	0.241	0.104	0.131
TECHNOLOGY	0.052	0.360	0.027	0.607	0.052	0.359	0.060	0.280
LogBOARDMEETING					-0.005	0.925	0.013	0.785
	Adjusted R^2 = 0.017		Adjusted R^2 =0.144		Adjusted R^2 =0.015		Adjusted R^2 =0.013	
	F = 1.454 (p-value = .096)		F =5.490 (p-value = .000)		F =1.381 (p-value= .126)		F =1.733 (p-value = .079)	
	Durbin-Watson = 2.010		Durbin-Watson = 1.929		Durbin-Watson = 2.010		Durbin-Watson = 2.020	

Table 4.47 The comparison the effect of board of directors' characteristics and CGSCORE on TOBINS'Q for evaluate mediator

	TOBIN'SQ		CGSCORE		TOBIN'SQ		TOBIN'SQ	
	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value
WOMEN	-0.028	0.532	0.092	0.034	-0.028	0.533		
AGE>50	-0.043	0.359	0.031	0.493	-0.043	0.360		
POSTGRADUATE	-0.035	0.540	0.041	0.457	-0.035	0.540		
BUSINESS	-0.030	0.615	0.114	0.046	-0.030	0.615		
SCIENCE	0.106	0.021	0.037	0.408	0.106	0.022		
ACCOUNTING	0.081	0.072	0.034	0.441	0.081	0.072		
ENGINEERING	0.045	0.387	0.132	0.009	0.045	0.392		
OTHER	0.028	0.583	-0.025	0.613	0.028	0.583		
POLITIC	-0.056	0.242	0.017	0.721	-0.056	0.242		
TENURE	-0.105	0.030	-0.059	0.208	-0.105	0.030		
LogCOMPENSATION	0.131	0.023	0.213	0.000	0.131	0.025		
LogTOTALASSET	-0.076	0.208	0.183	0.002	-0.076	0.212	-0.029	0.542
CONSUMER	-0.120	0.024	0.011	0.832	-0.120	0.024	-0.136	0.010
FINANCIAL	-0.165	0.004	-0.025	0.658	-0.165	0.004	-0.173	0.002
INDUSTRAIL	-0.205	0.002	-0.092	0.148	-0.205	0.002	-0.202	0.002
PROPERTY	-0.176	0.007	-0.065	0.303	-0.176	0.007	-0.163	0.011
RESOURCES	-0.107	0.068	-0.008	0.885	-0.107	0.068	-0.081	0.141
SERVICES	0.102	0.128	-0.011	0.872	0.102	0.128	0.128	0.053
TECHNOLOGY	-0.122	0.023	-0.011	0.827	-0.122	0.023	-0.108	0.043
CGSCORE					0.001	0.985	0.020	0.654
	Adjusted R^2 = 0.121		Adjusted R^2 =0.164		Adjusted R^2 =0.154		Adjusted R^2 =0.098	
	F = 4.659 (p-value = .000)		F =6.236 (p-value = .000)		F =4.417 (p-value= .000)		F =7.127 (p-value = .000)	
	Durbin-Watson = 2.068		Durbin-Watson = 1.877		Durbin-Watson = 2.068		Durbin-Watson = 2.017	

Table 4.48 The Comparison the effect of board of directors' characteristics and board meeting on TOBIN'SQ for evaluate mediator

	TOBIN'SQ		LogBOARDMEETING		TOBIN'SQ		TOBIN'SQ	
	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value
WOMEN	-0.028	0.532	0.101	0.023	-0.020	0.656		
AGE>50	-0.043	0.359	-0.034	0.459	-0.046	0.329		
POSTGRADUATE	-0.035	0.540	-0.022	0.694	-0.037	0.519		
BUSINESS	-0.030	0.615	0.038	0.512	-0.027	0.651		
SCIENCE	0.106	0.021	0.145	0.001	0.118	0.012		
ACCOUNTING	0.081	0.072	-0.018	0.685	0.079	0.076		
ENGINEERING	0.045	0.387	0.055	0.279	0.049	0.342		
OTHER	0.028	0.583	0.050	0.318	0.032	0.530		
POLITIC	-0.056	0.242	0.063	0.185	-0.051	0.286		
TENURE	-0.105	0.030	-0.096	0.044	-0.113	0.020		
LogCOMPENSATION	0.131	0.023	0.084	0.135	0.137	0.017		
LogTOTALASSET	-0.076	0.208	0.262	0.000	-0.055	0.369	-0.007	0.876
CONSUMER	-0.120	0.024	0.085	0.102	-0.113	0.033	-0.132	0.014
FINANCIAL	-0.165	0.004	0.058	0.304	-0.161	0.005	-0.170	0.003
INDUSTRAIL	-0.205	0.002	-0.044	0.498	-0.209	0.001	-0.206	0.001
PROPERTY	-0.176	0.007	0.005	0.937	-0.175	0.007	-0.163	0.011
RESOURCES	-0.107	0.068	0.042	0.466	-0.104	0.076	-0.076	0.167
SERVICES	0.102	0.128	0.021	0.751	0.103	0.121	0.132	0.045
TECHNOLOGY	-0.122	0.023	0.027	0.607	-0.119	0.025	-0.106	0.047
LogBOARDMEETING					-0.079	0.084	-0.049	0.275
	Adjusted R^2 = 0.121		Adjusted R^2 =0.144		Adjusted R^2 =0.124		Adjusted R^2 =0.100	
	F = 4.659 (p-value = .000)		F =5.490 (p-value = .000)		F =4.593 (p-value= .000)		F =7.251 (p-value = .000)	
	Durbin-Watson = 2.068		Durbin-Watson = 1.929		Durbin-Watson = 2.060		Durbin-Watson = 2.009	

Table 4.49 The comparison the effect of board of directors' characteristics and CGSCORE on SGR for evaluate mediator

	SGR		CGSCORE		SGR		SGR	
	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value
WOMEN	0.035	0.457	0.092	0.034	0.032	0.495		
AGE>50	0.065	0.184	0.031	0.493	0.064	0.191		
POSTGRADUATE	-0.016	0.786	0.041	0.457	-0.017	0.770		
BUSINESS	-0.043	0.479	0.114	0.046	-0.047	0.447		
SCIENCE	0.104	0.032	0.037	0.408	0.102	0.034		
ACCOUNTING	0.081	0.083	0.034	0.441	0.080	0.087		
ENGINEERING	-0.063	0.241	0.132	0.009	-0.067	0.217		
OTHER	-0.002	0.968	-0.025	0.613	-0.001	0.979		
POLITIC	-0.125	0.013	0.017	0.721	-0.125	0.013		
TENURE	-0.017	0.741	-0.059	0.208	-0.015	0.768		
LogCOMPENSATION	-0.026	0.665	0.213	0.000	-0.032	0.596		
LogTOTALASSET	0.203	0.001	0.183	0.002	0.198	0.002	0.152	0.002
CONSUMER	0.085	0.125	0.011	0.832	0.085	0.127	0.078	0.161
FINANCIAL	0.011	0.849	-0.025	0.658	0.012	0.840	0.004	0.946
INDUSTRAIL	0.020	0.767	-0.092	0.148	0.023	0.737	-0.018	0.786
PROPERTY	0.073	0.286	-0.065	0.303	0.075	0.274	0.035	0.595
RESOURCES	0.087	0.154	-0.008	0.885	0.087	0.153	0.035	0.539
SERVICES	0.050	0.473	-0.011	0.872	0.050	0.471	0.039	0.573
TECHNOLOGY	0.043	0.446	-0.011	0.827	0.043	0.443	0.026	0.635
CGSCORE					0.030	0.541	0.015	0.758
	Adjusted R^2 = 0.037		Adjusted R^2 =0.164		Adjusted R^2 =0.036		Adjusted R^2 =0.014	
	F = 2.029 (p-value = 0.006)		F =6.236 (p-value = .000)		F =1.944 (p-value= .009)		F =1.811 (p-value = .064)	
	Durbin-Watson 2.015		Durbin-Watson = 1.877		Durbin-Watson = 2.017		Durbin-Watson = 1.999	

Table 4.50 The comparison the effect of board of directors' characteristics and board meeting on SGR for evaluate mediator

	SGR		LogBOARDMEETING		SGR		SGR	
	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value
WOMEN	0.035	0.457	0.101	0.023	0.042	0.375		
AGE>50	0.065	0.184	-0.034	0.459	0.063	0.201		
POSTGRADUATE	-0.016	0.786	-0.022	0.694	-0.018	0.766		
BUSINESS	-0.043	0.479	0.038	0.512	-0.041	0.505		
SCIENCE	0.104	0.032	0.145	0.001	0.113	0.020		
ACCOUNTING	0.081	0.083	-0.018	0.685	0.080	0.087		
ENGINEERING	-0.063	0.241	0.055	0.279	-0.060	0.270		
OTHER	-0.002	0.968	0.050	0.318	0.001	0.981		
POLITIC	-0.125	0.013	0.063	0.185	-0.121	0.016		
TENURE	-0.017	0.741	-0.096	0.044	-0.023	0.646		
LogCOMPENSATION	-0.026	0.665	0.084	0.135	-0.020	0.737		
LogTOTALASSET	0.203	0.001	0.262	0.000	0.221	0.001	0.178	0.000
CONSUMER	0.085	0.125	0.085	0.102	0.091	0.102	0.084	0.131
FINANCIAL	0.011	0.849	0.058	0.304	0.015	0.798	0.009	0.880
INDUSTRAIL	0.020	0.767	-0.044	0.498	0.017	0.801	-0.022	0.743
PROPERTY	0.073	0.286	0.005	0.937	0.073	0.283	0.036	0.585
RESOURCES	0.087	0.154	0.042	0.466	0.090	0.141	0.041	0.471
SERVICES	0.050	0.473	0.021	0.751	0.052	0.460	0.044	0.519
TECHNOLOGY	0.043	0.446	0.027	0.607	0.044	0.426	0.029	0.596
LogBOARDMEETING					-0.068	0.154	-0.066	0.159
	Adjusted R^2 = 0.037		Adjusted R^2 =0.144		Adjusted R^2 =0.039		Adjusted R^2 =0.018	
	F = 2.029 (p-value = 0.006)		F =5.490 (p-value = .000)		F =2.036 (p-value= .005)		F =2.029 (p-value = .034)	
	Durbin-Watson 2.015		Durbin-Watson = 1.929		Durbin-Watson = 2.016		Durbin-Watson = 2.002	

Table 4.51 The comparison the effect of board of directors' characteristics and CGSCORE on CAPM for evaluate mediator

	CAPM		CGSCORE		CAPM		CAPM	
	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value
WOMEN	-0.028	0.550	0.092	0.034	-0.021	0.652		
AGE>50	-0.046	0.345	0.031	0.493	-0.044	0.370		
POSTGRADUATE	0.092	0.119	0.041	0.457	0.096	0.107		
BUSINESS	-0.022	0.715	0.114	0.046	-0.014	0.821		
SCIENCE	-0.067	0.162	0.037	0.408	-0.064	0.180		
ACCOUNTING	-0.072	0.119	0.034	0.441	-0.070	0.132		
ENGINEERING	-0.074	0.168	0.132	0.009	-0.064	0.234		
OTHER	-0.022	0.672	-0.025	0.613	-0.024	0.646		
POLITIC	-0.034	0.500	0.017	0.721	-0.032	0.515		
TENURE	-0.139	0.006	-0.059	0.208	-0.143	0.004		
LogCOMPENSATION	-0.065	0.273	0.213	0.000	-0.049	0.412		
LogTOTALASSET	0.159	0.011	0.183	0.002	0.173	0.006	0.122	0.014
CONSUMER	-0.064	0.247	0.011	0.832	-0.063	0.252	-0.075	0.176
FINANCIAL	-0.105	0.076	-0.025	0.658	-0.107	0.071	-0.070	0.229
INDUSTRAIL	-0.080	0.236	-0.092	0.148	-0.087	0.199	-0.068	0.313
PROPERTY	0.009	0.899	-0.065	0.303	0.004	0.955	0.037	0.571
RESOURCES	0.012	0.848	-0.008	0.885	0.011	0.856	0.039	0.493
SERVICES	-0.001	0.991	-0.011	0.872	-0.002	0.982	0.002	0.974
TECHNOLOGY	0.082	0.140	-0.011	0.827	0.081	0.143	0.088	0.113
CGSCORE					-0.074	0.127	-0.065	0.167
	Adjusted R^2 = 0.050		Adjusted R^2 =0.164		Adjusted R^2 =0.053		Adjusted R^2 =0.029	
	F = 2.432 (p-value = 0.001)		F =6.236 (p-value = .000)		F =2.425 (p-value= .001)		F =2.662 (p-value = .005)	
	Durbin-Watson = 1.909		Durbin-Watson = 1.877		Durbin-Watson = 1.913		Durbin-Watson = 1.906	

Table 4.52 The comparison the effect of board of directors' characteristics and board meeting on CAPM for evaluate mediator

	CAPM		LogBOARDMEETING		CAPM		CAPM	
	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value	Standardized Coefficients Beta	P-value
WOMEN	-0.028	0.550	0.101	0.023	-0.023	0.626		
AGE>50	-0.046	0.345	-0.034	0.459	-0.048	0.328		
POSTGRADUATE	0.092	0.119	-0.022	0.694	0.091	0.124		
BUSINESS	-0.022	0.715	0.038	0.512	-0.020	0.738		
SCIENCE	-0.067	0.162	0.145	0.001	-0.060	0.217		
ACCOUNTING	-0.072	0.119	-0.018	0.685	-0.073	0.115		
ENGINEERING	-0.074	0.168	0.055	0.279	-0.071	0.185		
OTHER	-0.022	0.672	0.050	0.318	-0.020	0.707		
POLITIC	-0.034	0.500	0.063	0.185	-0.030	0.541		
TENURE	-0.139	0.006	-0.096	0.044	-0.144	0.005		
LogCOMPENSATION	-0.065	0.273	0.084	0.135	-0.061	0.306		
LogTOTALASSET	0.159	0.011	0.262	0.000	0.172	0.007	0.113	0.023
CONSUMER	-0.064	0.247	0.085	0.102	-0.059	0.281	-0.072	0.195
FINANCIAL	-0.105	0.076	0.058	0.304	-0.102	0.085	-0.067	0.252
INDUSTRAIL	-0.080	0.236	-0.044	0.498	-0.083	0.223	-0.062	0.350
PROPERTY	0.009	0.899	0.005	0.937	0.009	0.896	0.041	0.531
RESOURCES	0.012	0.848	0.042	0.466	0.014	0.821	0.040	0.489
SERVICES	-0.001	0.991	0.021	0.751	0.000	0.997	0.005	0.946
TECHNOLOGY	0.082	0.140	0.027	0.607	0.083	0.133	0.089	0.109
LogBOARDMEETING					-0.050	0.297	-0.038	0.419
	Adjusted R^2 = 0.050		Adjusted R^2 =0.144		Adjusted R^2 =0.051		Adjusted R^2 =0.026	
	F = 2.432 (p-value = 0.001)		F =5.490 (p-value = .000)		F =2.357 (p-value= .001)		F =2.516 (p-value = .008)	
	Durbin-Watson = 1.909		Durbin-Watson = 1.929		Durbin-Watson = 1.906		Durbin-Watson = 1.902	

Table 4.53 The summary of hypothesis testing

Hypothesis	Result
Hypothesis 1. Board of director characteristics have a positive effect on corporate sustainability.	
Hypothesis 1.1 Women boards have a positive effect on corporate sustainability.	
H1.1.1 WOMEN have a positive effect on GRI.	Not Supported
Hypothesis 1.2 Boards over 50 years old have a positive effect on corporate sustainability.	
H1.2.1 AGE>50 have a positive effect on GRI.	Supported
Hypothesis 1.3 Education level of the board of directors higher than the bachelor's degree has a positive impact on corporate sustainability.	
H1.3.1 MASTER&PHD have a positive effect on GRI.	Not Supported
Hypothesis 1.4 Education field of boards have a positive effect on corporate sustainability.	
H1.4.1 BUSINESS have a positive effect on GRI.	Not Supported
H1.4.2 SCIENCE have a positive effect on GRI.	Not Supported
H1.4.3 ACCOUNTING have a positive effect on GRI.	Not Supported
H1.4.4 ENGINEERING have a positive effect on GRI.	Supported
H1.4.5 OTHER have a positive effect on GRI.	Not Supported
Hypothesis 1.5 Political connection boards have a positive effect on corporate sustainability.	
H 1.5.1 POLITIC have a positive effect on GRI.	Supported
Hypothesis 1.6 Board tenure have a positive effect on corporate sustainability.	
H1.6.1 TENURE have a positive effect on GRI.	Not Supported
Hypothesis 1.7 Board compensation have a positive effect on corporate sustainability.	
H1.7.1 COMPENSATION have a positive effect on GRI.	Supported
Hypothesis 2. Board of director characteristics have a positive effect on firm performance.	
Hypothesis 2.1 Women boards have a positive effect on return on asset.	
H2.1.1 WOMEN have a positive effect on ROA.	Not Supported
Hypothesis 2.2 Women boards have a positive effect on return on equity.	
H2.2.2 WOMEN boards have a positive effect on ROE.	Not Supported
Hypothesis 2.3 Women boards have a positive effect on sale growth.	
H2.2.3 WOMEN boards have a positive effect on SALEGROWTH.	Not Supported
Hypothesis 2.4 Women boards have a positive effect on Tobin's Q.	
H2.4.1 WOMEN boards have a positive effect on TOBIN'SQ.	Not Supported
Hypothesis 2.5 Women boards have a positive effect on sustainable growth rate.	
H2.5.1 WOMEN boards have a positive effect on SGR.	Not Supported
Hypothesis 2.6 Women boards have a positive effect on capital asset pricing model.	
H2.6.1 WOMEN boards have a positive effect on CAPM.	Not Supported
Hypothesis 2.7 Boards over 50 years old have a positive effect on asset.	
H2.7.1 AGE>50 have a positive effect on ROA.	Not Supported
Hypothesis 2.8 Boards over 50 years old have a positive effect on equity.	
H2.8.1 AGE>50 have a positive effect on ROE.	Not Supported
Hypothesis 2.9 Boards over 50 years old have a positive effect on sale growth.	
H2.9.1 AGE>50 have a positive effect on SALEGROWTH.	Not Supported
Hypothesis 2.10 Boards over 50 years old have a positive effect on Tobin's Q.	
H2.10.1 AGE>50 have a positive effect on TOBIN'SQ.	Not Supported
Hypothesis 2.11 Boards over 50 years old have a positive effect on sustainable growth rate.	
H2.11.1 AGE>50 have a positive effect on SGR.	Not Supported

Table 4.53 The summary of hypothesis testing (Cont.)

Hypothesis	Result
Hypothesis 2.12 Boards over 50 years old have a positive effect on capital asset pricing model.	
H2.12.1 AGE>50 have a positive effect on CAPM.	Not Supported
Hypothesis 2.13 Education level of the board of directors higher than the bachelor's degree has a positive impact on return on assets.	
H2.13.1 MASTER&PHD have a positive effect on ROA.	Not Supported
Hypothesis2.14 Education level of the board of directors higher than the bachelor's degree has a positive impact on return on equity.	
H2.14.1 MASTER&PHD have a positive effect on ROE.	Not Supported
Hypothesis 2.15 Education level of the board of directors higher than the bachelor's degree has a positive impact on sale growth.	
H2.15.1 MASTER&PHD have a positive effect on SALEGROWTH.	Not Supported
Hypothesis 2.16 Education level of the board of directors higher than the bachelor's degree has a positive impact on Tobin's Q.	
H2.16.1 MASTER&PHD have a positive effect on TOBIN'SQ.	Not Supported
Hypothesis 2.17 Education level of the board of directors higher than the bachelor's degree has a positive impact on sustainable growth rate.	
H2.17.1 MASTER&PHD have a positive effect on SGR.	Not Supported
Hypothesis 2.18 Education level of the board of directors higher than the bachelor's degree has a positive impact on capital asset pricing model.	
H2.18.1 MASTER&PHD have a positive effect on CAPM.	Not Supported
Hypothesis 2.19 Education field of boards have a positive on return on assets.	
H2.19.1 BUSINESS have a positive effect on ROA.	Not Supported
H2.19.2 SCIENCE have a positive effect on ROA.	Not Supported
H2.19.3 ACCOUNTING have a positive effect on ROA.	Not Supported
H2.19.4 ENGINEERING have a positive effect on ROA.	Not Supported
H2.19.5 OTHER have a positive effect on ROA.	Not Supported
Hypothesis 2.20 Education field of boards have a positive on return on equity.	
H2.20.1 BUSINESS have a positive effect on ROE.	Not Supported
H2.20.2 SCIENCE have a positive effect on ROE.	Not Supported
H2.20.3 ACCOUNTING have a positive effect on ROE.	Not Supported
H2.20.4 ENGINEERING have a positive effect on ROE.	Not Supported
H2.20.5.10 OTHER have a positive effect on ROE.	Not Supported
Hypothesis 2.21 Education field of boards have a positive on sale growth.	
H2.21.1 BUSINESS have a positive effect on SALEGROWTH.	Not Supported
H2.21.2 SCIENCE have a positive effect on SALEGROWTH.	Not Supported
H2.21.3 ACCOUNTING have a positive effect on SALEGROWTH.	Not Supported
H2.21.4 ENGINEERING have a positive effect on SALEGROWTH.	Not Supported
H2.21.5 OTHER have a positive effect on SALEGROWTH.	Not Supported

Table 4.53 The summary of hypothesis testing (Cont.)

Hypothesis	Result
Hypothesis 2.22 Education field of boards have a positive on Tobin's Q.	
H2.22.1 BUSINESS have a positive effect on TOBIN'SQ.	Not Supported
H2.22.2 SCIENCE have a positive effect on TOBIN'SQ.	Supported
H2.22.3 ACCOUNTING have a positive effect on TOBIN'SQ.	Not Supported
H2.22.4 ENGINEERING have a positive effect on TOBIN'SQ.	Not Supported
H2.22.5 OTHER have a positive effect on TOBIN'SQ.	Not Supported
Hypothesis 2.23 Education field of boards have a positive on sustainable growth rate.	
H2.23.1 BUSINESS have a positive effect on SGR.	Not Supported
H2.23.2 SCIENCE have a positive effect on SGR.	Supported
H2.23.3 ACCOUNTING have a positive effect on SGR.	Not Supported
H2.23.4 ENGINEERING have a positive effect on SGR.	Not Supported
H2.23.5 OTHER have a positive effect on SGR.	Not Supported
Hypothesis 2.24 Education field of boards have a positive on capital asset pricing model.	
H2.24.1 BUSINESS have a positive effect on CAPM.	Not Supported
H2.24.2 SCIENCE have a positive effect on CAPM.	Not Supported
H2.24.3 ACCOUNTING have a positive effect on CAPM.	Not Supported
H2.24.4 ENGINEERING have a positive effect on CAPM.	Not Supported
H2.24.5 OTHER have a positive effect on CAPM.	Not Supported
Hypothesis 2.25 Political connection boards have a positive effect on return on assets.	
H2.25.1 POLITIC have a positive effect on ROA.	Not Supported
Hypothesis 2.26 Political connection boards have a positive effect on return on equity.	
H2.26.1 POLITIC have a positive effect on ROE.	Not Supported
Hypothesis 2.27 Political connection boards have a positive effect on sale growth.	
H2.27.1 POLITIC have a positive effect on SALEGROWTH.	Not Supported
Hypothesis 2.28 Political connection boards have a positive effect on Tobin's Q.	
H2.28.1 POLITIC have a positive effect on TOBIN'SQ.	Not Supported
Hypothesis 2.29 Political connection boards have a positive effect on sustainable growth rate.	
H2.29.1 POLITIC have a positive effect on SGR.	Not Supported
Hypothesis 2.30 Political connection boards have a positive effect on capital asset pricing model.	
H2.30.1 POLITIC have a positive effect on CAPM.	Not Supported
Hypothesis 2.31 Board tenure have a positive effect on return on asset.	
H2.31.1 TENURE have a positive effect on ROA.	Not Supported
Hypothesis 2.32 Board tenure have a positive effect on return on equity.	
H2.32.1 TENURE have a positive effect on ROE.	Not Supported
Hypothesis 2.33 Board tenure have a positive effect on return on sale growth.	
H2.33.1 TENURE have a positive effect on SALEGROWTH.	Not Supported
Hypothesis 2.34 Board tenure have a positive effect on return on Tobin's Q.	
H2.34.1 TENURE have a positive effect on TOBIN'SQ.	Not Supported
Hypothesis 2.35 Board tenure have a positive effect on return on sustainable growth rate.	
H2.35.1 TENURE have a positive effect on SGR.	Not Supported

Table 4.53 The summary of hypothesis testing (Cont.)

Hypothesis	Result
Hypothesis 2.36 Board tenure have a positive effect on return on capital asset pricing model.	
H2.36.1 TENURE have a positive effect on CAPM.	Not Supported
Hypothesis 2.37 Board compensation have a positive effect on return on assets.	
H2.37.1 LogCOMPENSATION have a positive effect on ROA.	Not Supported
Hypothesis 2.38 Board compensation have a positive effect on return on equity.	
H2.38.1 LogCOMPENSATION have a positive effect on ROE.	Not Supported
Hypothesis 2.39 Board compensation have a positive effect on return on sale growth.	
H2.39.1 LogCOMPENSATION have a positive effect on SALEGROWTH.	Not Supported
Hypothesis 2.40 Board compensation have a positive effect on Tobin's Q.	
H2.40.1 LogCOMPENSATION have a positive effect on TOBIN'SQ.	Not Supported
Hypothesis 2.41 Board compensation have a positive effect on sustainable growth rate.	
H2.41.1 LogCOMPENSATION have a positive effect on SGR.	Not Supported
Hypothesis 2.42 Board compensation have a positive effect on capital asset pricing model.	
H2.42.1 LogCOMPENSATION have a positive effect on CAPM.	Not Supported
Hypothesis 3. Board of director characteristics have a positive effect on corporate governance.	
Hypothesis 3.1 Women boards have a positive effect on corporate governance.	
H3.1.1 WOMEN have a positive effect on CGSCORE.	Supported
H3.1.2 WOMEN have a positive effect on LogBOARDMEETING.	Supported
Hypothesis 3.2 Boards over 50 years old have a positive effect on corporate governance.	
H3.2.1 AGE>50 have a positive effect on CGSCORE.	Not Supported
H3.2.2 AGE>50 have a positive effect on LogBOARDMEETING.	Not Supported
Hypothesis 3.3 Education level of the board of directors higher than the bachelor's degree has a positive impact on corporate governance.	
H3.3.1 MASTER&PHD have a positive effect on CGSCORE.	Not Supported
H3.3.2 MASTER&PHD have a positive effect on LogBOARDMEETING.	Not Supported
Hypothesis 3.4 Education field of boards have a positive effect on corporate governance.	
H3.4.1 BUSINESS have a positive effect on CGSCORE.	Supported
H3.4.2 SCIENCE have a positive effect on CGSCORE.	Not Supported
H3.4.3 ACCOUNTING have a positive effect on CGSCORE.	Not Supported
H3.4.4 ENGINEERING have a positive effect on CGSCORE.	Supported
H3.4.5 OTHER have a positive effect on CGSCORE.	Not Supported
H3.4.6 BUSINESS have a positive effect on LogBOARDMEETING.	Not Supported
H3.4.7 SCIENCE have a positive effect on LogBOARDMEETING.	Supported
H3.4.8 ACCOUNTING have a positive effect on LogBOARDMEETING.	Not Supported
H3.4.9 ENGINEERING have a positive effect on LogBOARDMEETING.	Not Supported
H3.4.10 OTHER have a positive effect on LogBOARDMEETING.	Not Supported
Hypothesis 3.5 Political connection boards have a positive effect on corporate governance.	
H3.5.1 POLITIC have a positive effect on CGSCORE.	Not Supported
H3.5.2 POLITIC have a positive effect on LogBOARDMEETING.	Not Supported
Hypothesis 3.6 Board tenure have a positive effect on corporate governance.	
H3.6.1 TENURE have a positive effect on CGSCORE.	Not Supported
H3.6.2 TENURE have a positive effect on LogBOARDMEETING.	Not Supported

Table 4.53 The summary of hypothesis testing (Cont.)

Hypothesis	Result
Hypothesis 3.7 Board compensation have a positive effect on corporate governance.	
H3.7.1 LogCOMPENSATION have a positive effect on CGSCORE.	Supported
H3.7.2 LogCOMPENSATION have a positive effect on LogBOARDMEETING.	Not Supported
Hypothesis 4. Corporate governances have a positive effect on corporate sustainability.	
Hypothesis 4.1 Corporate governances have a positive effect on global reporting initiative.	
H4.1.1 CGSCORE have a positive effect on GRI.	Supported
H4.1.2 LogBOARDMEETING have a positive effect on GRI.	Not Supported
Hypothesis 5. Corporate governances have a positive effect on firm performance.	
Hypothesis 5.1 Corporate governance have a positive effect on return on assets.	
H5.1.1 CGSCORE have a positive effect on ROA.	Not Supported
H5.1.2 LogBOARDMEETING have a positive effect on ROA.	Not Supported
Hypothesis 5.2 Corporate governances have a positive effect on return on equity.	
H5.2.1 CGSCORE have a positive effect on ROE.	Supported
H5.2.2 LogBOARDMEETING have a positive effect on ROE.	Supported
Hypothesis 5.3 Corporate governances have a positive effect on sale growth.	
H5.3.1 CGSCORE have a positive effect on SALEGROWTH.	Not Supported
H5.3.2 LogBOARDMEETING have a positive effect on SALEGROWTH.	Not Supported
Hypothesis 5.4 Corporate governances have a positive effect on Tobin's Q.	
H5.4.1 CGSCORE have a positive effect on TOBIN'S Q.	Not Supported
H5.4.2 LogBOARDMEETING have a positive effect on TOBIN'S Q.	Not Supported
Hypothesis 5.5 Corporate governances have a positive effect on sustainable growth rate.	
H5.5.1 CGSCORE have a positive effect on SGR.	Not Supported
H5.5.2 LogBOARDMEETING have a positive effect on SGR.	Not Supported
Hypothesis 5.6 Corporate governances have a positive effect on capital asset pricing model.	
H5.6.1 CGSCORE have a positive effect on CAPM.	Not Supported
H5.6.2 LogBOARDMEETING have a positive effect on CAPM.	Not Supported
Hypothesis 6. Board of director characteristics have a positive effect on Corporate Sustainability through corporate governance.	
Hypothesis 6.1 Education field in engineering of board of director have a positive effect on corporate sustainability through corporate governance.	
H6.1.1 ENGINEERING have a positive effect on GRI through CGSCORE.	Supported
Hypothesis 6.2 Board compensation have a positive effect on corporate sustainability through corporate governance.	
H6.2.1 LogCOMPENSATION have a positive effect on GRI through CGSCORE	Supported
Hypothesis 7. Corporate board of characteristic have a positive effect on firm performance through corporate governance.	Not Supported

4.3 Qualitative Results

4.3.1 The Result of In-depth Interview

The qualitative analysis conducted in-depth interviews with five members of each company board of directors, with interviewees representing each company, the

results of which were used to quantitatively confirm the findings; the results of the interviews are summarized in table that shown as follow.

Question 1: Do you agree that operations must be carried out in accordance with good corporate governance and social responsibility principles? Please explain your reasoning.

Table 4.54 The result of an in-depth interview question 1

Participants	Answer for the Question	Confirm Hypothesis
Board of director company 1	I agree because corporate governance principles contribute to the organization long-term sustainability. There is a robust management audit and monitoring structure in place, which lessens the danger of becoming a board member, but social responsibility is highly abstract, difficult to understand, and unclear.	BODC → GRI BODC→Firm Performance BODC → CG ✔ CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 2	I agree that the principles of corporate governance are good and useful, but they must be implemented gradually. Corporate governance is a mechanism for monitoring the company, whereas social responsibility is concerned with giving a good return to society rather than the return on share value.	BODC → GRI BODC→Firm Performance BODC → CG ✔ CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 3	I agree because corporate governance is an important tool for management and shareholders to use to control the work of various departments to be transparent, which may reflect good business practices and responsibilities to both minority and majority shareholders, and social responsibility, because good corporate governance will provide awareness and public awareness, as well as control the quality of goods and services.	BODC → GRI BODC→Firm Performance BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 4	I agree because good corporate governance principles assist the company in being fair to all stakeholders, support the company long-term development, and there is no opposition from small shareholders.	BODC → GRI BODC→Firm Performance BODC → CG ✔ CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 5	I support both corporate governance and social responsibility. However, corporate governance is difficult to implement from the start, and it takes time to reflect. The company carries out its social responsibilities through corporate social responsibility (CSR) activities such as forest conservation, social welfare, and employee welfare.	BODC → GRI BODC→Firm Performance BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance

Question 2: How important is corporate governance and social responsibility to your organization? What is your role and contribution to good corporate governance and social care as a member of the board of directors?

Table 4.55 The result of an in-depth interview question 2

Participants	Answer for the Question	Confirm Hypothesis
Board of director company 1	We emphasize supervision by using an auditor to inspect our management by selecting external auditors from the top three auditing firms, and supervision is frequently the responsibility of an independent committee. Responsibility must have communicated the social responsibility policy that is necessary for a good company to have a good society.	BODC → GRI BODC→Firm Performance BODC → CG ✔ CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 2	Corporate governance is important to the company, and the Board of Directors requires self-evaluation. The company has expanded the Board of Directors' knowledge by sending them to corporate governance training. The board of directors' role is to drive corporate governance policies by following the guidelines outlined in the corporate governance principles. The Board of Directors will be diverse in terms of experience and knowledge to be used in management and giving back to society.	✔ BODC → GRI BODC→Firm Performance BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 3	The company places a high value on corporate governance by emphasizing the audit and executive committees as a team that will add value to the business. The company has complied with all of the CG and social responsibility statutes and requirements.	BODC → GRI BODC→Firm Performance BODC → CG ✔ CG → GRI ✔ CG → Firm Performance GRI →Firm Performance
Board of director company 4	The company emphasis on corporate governance is moderate, as measured by 3.5 points (out of 5 points). Local businesses pay less attention to corporate governance, but large corporations pay more attention.	BODC → GRI BODC→Firm Performance BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 5	The company focuses on corporate governance and the implementation of corporate social responsibility, but sustainable development in accordance with ESG (Environmental, Social, and Governance) principles is still in its early stages.	BODC → GRI BODC→Firm Performance BODC → CG ✔ CG → GRI CG → Firm Performance GRI →Firm Performance

Question 3 : What is the operation performance, in your opinion? How does your organization evaluate its performance?

Table 4.56 The result of an in-depth interview question 3

Participants	Answer for the Question	Confirm Hypothesis
Board of director company 1	Corporate governance is an important factor in operational performance, allowing for faster business recovery and improved performance. The board of directors will spend less time on supervision if the company has an effective corporate governance mechanism in place, allowing them to devote more time to the organization vision and growth. Corporate governance would have had an impact on sustainable development ten years ago, but today, corporate governance is only a factor that helps organizations develop towards sustainable development because there are other external factors that can impact sustainable development.	BODC → GRI BODC→Firm Performance BODC → CG CG → GRI ✔ CG → Firm Performance GRI →Firm Performance
Board of director company 2	Corporate governance and social responsibility contribute to the growth of an organization by gaining the confidence of investors and increasing the amount of money invested.	BODC → GRI BODC→Firm Performance BODC → CG CG → GRI ✔ CG → Firm Performance GRI →Firm Performance
Board of director company 3	The CG Score is used by businesses to assess corporate governance performance. There may have been some initial operational results that the company did not implement, but subsequent management has taken comprehensive actions and continues to strive to maintain a high level of corporate governance. There is no clear measurement from the relevant departments for measuring social responsibility performance. If there are clear criteria, the company will follow them correctly.	BODC → GRI BODC→Firm Performance BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 4	It must take into account long-term corporate governance performance, which may increase the company credibility. Investments and joint ventures with foreign shareholders contribute to the expansion of cooperation. The board of directors must sometimes weigh the opportunity to profit against good corporate governance.	BODC → GRI BODC→Firm Performance BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 5	I am still unsure how corporate governance will affect it, so the interviewee was unable to respond.	

Question 4: How does the diversity of boards in terms of education, age, and experience affect or influence organizational management recommendations? Is it beneficial to corporate governance and social responsibility?

Table 4.57 The result of an in-depth interview question 4

Participants	Answer for the Question	Confirm Hypothesis
Board of director company 1	The board's diversity has an impact on organizational management both positively and negatively. On the positive side, the board's diversity is complemented by each other, such as giving proposals, consulting in different areas, and so on, while on the negative side, there may be age gaps in the boards, which has resulted in controversy in some cases. There is also a difference between Baby Boomer or GenX and GenY committees in terms of social responsibility; GenX committees are more socially responsible than GenY committees because GenY is more concerned with company profits.	BODC → GRI BODC→Firm Performance ✔ BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 2	Diversified committees have the advantage of generating ideas, making suggestions, and expressing opinions, but they must also listen to others in order to be mutually respectful.	BODC → GRI BODC→Firm Performance ✔ BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 3	The board of directors is diverse in terms of age, experience, and professions, as required by the SEC guidelines.	BODC → GRI BODC→Firm Performance BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 4	The company board of directors is diverse, which helps to provide important opinions. The board of directors should understand finance and law because business law and IT knowledge are constantly changing in this digital age.	BODC → GRI BODC→Firm Performance ✔ BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 5	The diversity of the boards is critical, which is a good thing because it allows businesses to receive a wide range of suggestions and opinions from a wide range of experts.	BODC → GRI BODC→Firm Performance ✔ BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance

Question 5: Can political connection boards add value to the company, and in what parts do they have an impact?

Table 4.58 The result of an in-depth interview question 5

Participants	Answer for the Question	Confirm Hypothesis
Board of director company 1	Boards with political connections have no impact on CG, but they may help to foster the patron system. Because political power is constantly shifting, the benefits of political connections are short-lived, lasting no more than five years. A political connection may have a short-term positive effect on company performance.	BODC → GRI ✔ BODC→Firm Performance BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 2	Because the government is the economic driving force and decision-maker in Thai society, a board of directors with a political connection is beneficial. The company has such a board, which allows the company to access information more quickly and effectively.	BODC → GRI BODC→Firm Performance BODC → CG CG → GRI ✔ CG → Firm Performance GRI →Firm Performance
Board of director company 3	Most of the boards may have personal contacts between business leaders and fellow politicians, but they are not part of the administration; they are the outgrowth of their networks.	BODC → GRI BODC→Firm Performance BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 4	Politically connected boards have two effects on the organization: first, they improve the organization reputation and credit; second, they can also harm it. Board ties to government officials or politics can be beneficial if we are on the powerful side, but detrimental if we're on the opposing side.	BODC → GRI BODC→Firm Performance BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 5	The interviewer is unable to respond because the company board of directors is not politically affiliated.	

Question 6: What factors influence the frequency of Board of Directors meetings? What impact does the number of meetings have on corporate performance and corporate governance?

Table 4.59 The result of an in-depth interview question 6

Participants	Answer for the Question	Confirm Hypothesis
Board of director company 1	Meeting frequency will be determined by the nature of the business; for example, a Fintech (Financial Technology) firm may require frequent meetings. Depending on the situation, four meetings per year should be enough for corporate governance.	BODC → GRI BODC→Firm Performance ✔ BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 2	More board of directors' meetings are a good thing, and there should be more informal and formal meetings. Corporate governance and consulting are two of the board's responsibilities.	BODC → GRI BODC→Firm Performance ✔ BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 3	The minimum meeting frequency is usually set on a quarterly basis, which is four times a year; additional meetings will be held if there is an important or urgent agenda. The meeting of the board of directors has a direct impact on the company key policies, resulting in corporate governance and transparency.	BODC → GRI BODC→Firm Performance ✔ BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 4	Frequent board meetings assist in the achievement of set goals. Meeting frequency has an impact on good corporate governance, particularly meetings of independent board members, which can discuss what types of risks lead to poor corporate governance. The meeting of the independent committee has an impact on corporate governance, financial statement accuracy, and information in the notes to the financial statements.	BODC → GRI BODC→Firm Performance ✔ BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 5	Board meetings should not be too many or too few, because too many meetings will leave management with no time to work and will waste money. However, more meetings will have a positive effect on corporate governance because there will be monitoring and monitoring of management results.	BODC → GRI BODC→Firm Performance ✔ BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance

Question 7: What factors, in your opinion, will enable the organization to operate sustainably, “Innovation, Technology, Society, and Environment”?

Table 4.60 The result of an in-depth interview question 7

Participants	Answer for the Question	Confirm Hypothesis
Board of director company 1	The use of technology is critical to the organization long-term development. Social is an important part of the organization because it looks after what they want. In terms of innovation, Thailand is not a country that innovates, and the environmental section is still unsatisfactory.	✔ BODC → GRI BODC→Firm Performance BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 2	To begin, in order for an organization to develop in a sustainable manner, new innovations must be developed. Second, technology is critical to change management. Third, businesses must consider the society that surrounds them. Fourth, each company is responsible for its own environment. If business has an impact on the environment, we must take care of more than one company that does not have an impact on the environment.	✔ BODC → GRI BODC→Firm Performance BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 3	To develop a company toward sustainability, it must prioritize its customers, technology, innovation, the environment, and society, in that order.	✔ BODC → GRI BODC→Firm Performance BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 4	The factors influencing business sustainability are as follows: 1) new innovations, which, due to the current problem of competition, will create competitive opportunities 2) The technological factor 3) Social factors, production must not harm society, and 4) the environment.	✔ BODC → GRI BODC→Firm Performance BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 5	Innovation factors contribute to increased business profits, whereas technology factors assist in cost reduction, resulting in increased profits. Whereas environmental and social factors require a large investment in the short term and may still be of no benefit to the business.	✔ BODC → GRI BODC→Firm Performance BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance

Question 8: How much influence does the board of directors have on the organization management in the context of Thai society? And what additional requirements should be added?

Table 4.61 The result of an in-depth interview question 8

Participants	Answer for the Question	Confirm Hypothesis
Board of director company 1	The role of the board of directors in an organization has a small effect because management is typically based on the CEO. Typically, the board of directors' role is to provide feedback and advice to management.	BODC → GRI BODC→Firm Performance ✔ BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 2	Boards are responsible for providing feedback, monitoring performance, and consulting on how to grow the business.	BODC → GRI ✔ BODC→Firm Performance ✔ BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 3	Boards of directors are extremely important in Thai society, and they should include an audit and independent board, as well as a strong independent auditor and internal audit unit.	BODC → GRI BODC→Firm Performance ✔ BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 4	In large corporations, the board of directors plays an important role; however, in small corporations, the largest shareholders play an important role, which results in independent boards of directors working hard to find a balance between larger shareholders and minority shareholders.	BODC → GRI BODC→Firm Performance ✔ BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 5	The board of directors is responsible for setting the direction of the company policy and for monitoring the company business operations.	BODC → GRI BODC→Firm Performance ✔ BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance

Question 9: What role does the board of directors play in the context of Thai society, and how does this influence good corporate governance? And what additional requirements should be included?

Table 4.62 The result of an in-depth interview question 9

Participants	Answer for the Question	Confirm Hypothesis
Board of director company 1	Corporate governance is a responsibility shared by the boards of directors, but they must also consider the interests of shareholders' representatives and find a balance between corporate governance and shareholder returns.	BODC → GRI ✔ BODC→Firm Performance ✔ BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 2	The board of directors is crucially important in corporate governance. To maximize business growth, the board should take on an additional consulting role. Risk management is required for good corporate governance because it reduces the likelihood and consequence of a potential loss.	✔ BODC → GRI ✔ BODC→Firm Performance ✔ BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 3	The board of directors plays a critical role in corporate governance and should have additional requirements for 1) internal auditing. 2) Auditor selection 3) appoint an independent committee with industry expertise; and 4) establish a clear policy for related transactions. 5) a standard charter; and 6) ongoing education and development.	✔ BODC → GRI BODC→Firm Performance ✔ BODC → CG ✔ CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 4	Because of good corporate governance, the board of directors play a smaller role in large corporations. However, the governance mechanism in small businesses is still imperfect, and the board of directors plays a critical role in corporate governance.	BODC → GRI BODC→Firm Performance ✔ BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 5	The board of directors is responsible for corporate governance in accordance with the criteria established by the Stock Exchange of Thailand.	BODC → GRI BODC→Firm Performance ✔ BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance

Question 10: How much does the committee role in Thai society affect the organization long-term viability? And what aspects of the organization long-term viability should be considered?

Table 4.63 The result of an in-depth interview question 10

Participants	Answer for the Question	Confirm Hypothesis
Board of director company 1	Because it is dependent on the CEO, the board of directors plays a minor role in a company long-term development. The board of directors should have the following characteristics: adaptability, adaptive attitude, positive mindset, not stuck in the past, must use artificial intelligence and e-commerce in management, as these are the factors that move the organization towards sustainable development.	✔ BODC → GRI BODC→Firm Performance BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 2	The listed companies on the stock exchange have good corporate governance and power transfer mechanisms in place, allowing for the recruitment of capable people and the organization long-term development.	BODC → GRI BODC→Firm Performance BODC → CG ✔ CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 3	It is very important and should be reflected in the sincerity of the customer product and service quality, after-sales and service, and profit distribution to help society become a learning organization, retain the number of existing customers, and increase the number of new customers, and so on.	✔ BODC → GRI ✔ BODC→Firm Performance BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 4	The board of directors is very important in providing guidance to the company. It must determine the company direction, determine the overseas method, determine the business, and follow up on the results as specified.	BODC → GRI BODC→Firm Performance ✔ BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 5	The development of an organization toward sustainability is determined by whether or not the committee has established goals. Profitability and sustainability may need to be evaluated by the board. They should do it when they have the chance, because if the company makes a lot of money, the stock price will rise. However, sustainability may reduce a company profitability. In the long run, sustainability may be beneficial. Sustainable operations may necessitate a trade-off between sustainability and corporate profit.	✔ BODC → GRI ✔ BODC→Firm Performance BODC → CG CG → GRI CG → Firm Performance ✔ GRI negative → Firm Performance

Question 11: What are your thoughts on the length of time on the board of directors?

Table 4.64 The result of an in-depth interview question 11

Participants	Answer for the Question	Confirm Hypothesis
Board of director company 1	A position on the board of directors for an extended period of time is detrimental to the organization because it will develop network relationships with senior executives and may have a negative impact on the organization corporate governance.	BODC → GRI BODC→Firm Performance BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 2	Long-term on the position of boards have a great deal of information to understand the organization and opportunities, and they are able to continue developing their work relationships.	✔ BODC → GRI BODC→Firm Performance BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 3	No answer	
Board of director company 4	The board's term has both advantages and disadvantages. If the period is too short, they may not understand the business and corporate governance well enough, but if the term is too long, they may become too familiar with the management person, reducing the effectiveness of corporate governance.	BODC → GRI BODC→Firm Performance ✔ BODC → CG CG → GRI CG → Firm Performance GRI →Firm Performance
Board of director company 5	No answer	

4.3.2 Conclusion of the In-depth Interview Results

1) Board of Directors' Characteristic

Research findings on board of directors' characteristics after extensive investigations can lead to the conclusion as following. The characteristics of the board of directors have an impact on the business in terms of making recommendations, consulting, and expressing a diverse range of opinions. The qualifications of the board of directors are based on the requirements of the SEC provides a diverse range of professional experiences, abilities, and variety age contributes to the board of directors' understanding of specialized knowledge such as finance, legal, and information technology, all of which are constantly changing. A variety of board qualifications, such

as political connection, can be beneficial in terms of reputation and in terms of defining business planning and policy in accordance with the economic driving policies imposed by political authority. Political connections, on the other hand, can be detrimental if the board of directors is in opposition to political power in the country. Having a long board tenure, especially with extensive experience, may have a positive impact on the knowledge and understanding of the organization. However, if the position is too close to the executive management, it may have an adverse effect on the corporate governance, which is not good enough. However, if your boards of directors lack any prior experience in corporate governance, they may be unable to comprehend the work process and the principles of good corporate governance. The diversity boards' age differences will complement the provision of advice and counseling, but the conflict may have negative consequences due to differences in thinking at different age levels; younger managers tend to prioritize profitability over corporate social responsibility and sustainability.

2) Corporate Governance

Research findings on corporate governance after extensive investigations can lead to the conclusion as following. Corporate governance is important as a tool for ensuring that work is transparent and reflects good business practices. Good corporate governance necessarily requires the consideration of all stakeholders, social responsibility, the development of public awareness. The board of directors holds meetings at least four times per year in accordance with the established principles. However, the frequency of board meetings depends on the type of business, such as those related to technology and finance, where meetings may be frequent, and in some entities where frequent meetings may cause time loss in executive work.

3) Corporate Sustainability

Research findings on corporate sustainability after extensive investigations can lead to the conclusion as following. Social responsibility is critical and should be incorporated into company policy. The board's role in ensuring good corporate governance is critical to the company. It should operate in accordance with the good corporate governance principles, where diversity influences the experience and knowledge that will be used to manage and give back to society. Corporate governance is an important factor that contributes to good operating results and the ability to recover

quickly in the event of a crisis. Good corporate governance contributes to increased investor confidence and investment. A company that prioritizes good corporate governance over the long term will gain the trust of foreign joint venture investors and contribute to the expansion of profitable opportunities.

4) Firm Performance

Research findings on firm performance after extensive investigations can lead to the conclusion as following. To succeed, businesses must be able to shift their attitudes and stop clinging to the past, which may necessitate the use of artificial intelligence and e-commerce to improve operations. Being able to recruit and retain competent employees reflects the learning organization commitment to product and service quality, which ultimately affects the long-term profitability of the business.

CHAPTER 5
CONCLUSION AND RECOMMENDATIONS

This chapter comprises of four parts, which include the conclusion, discussion, contributions of the study, research limitations and suggestions for future research.

5.1 Conclusion

The purpose of this research is to investigate the impact of the board of directors' characteristics on firm performance and sustainability. The study proposes that the assumption of sustainable and firm performance success can be derived from the corporate governance concept, which is studied in cg-score and board meetings as mediator factors.

The research sample consisted of 508 businesses from the following industries: Agro & Food Industry, Consumer Products, Financials, Industrials, Property & Construction, Resources, Services, and Technology. The methodology employed both quantitative and qualitative research. The secondary data were the 2018 reports of listed companies on the Stock Exchange of Thailand, which were collected to be analyzed in quantitative research using a statistical technique that included frequency, percentage, mean, minimum, and maximum value, standard deviation, linear multiple regression, and mediator analysis techniques. In addition, the qualitative research used in-depth interviews as a mechanism for data collection from the board of directors to confirm the quantitative results.

There are two study questions: 1) What characteristics of the board of directors contribute to corporate sustainability and which should be implemented through corporate governance? 2) What characteristics of the board of directors contribute to firm performance and which should be implemented through corporate governance?

There are seven hypotheses that were developed on the basis of the theoretical framework, which include:

Hypothesis 1. The board of directors' characteristics have a positive effect on corporate sustainability.

Hypothesis 2. The board of directors' characteristics have a positive effect on firm performance.

Hypothesis 3. The board of directors' characteristics have a positive effect on corporate governance.

Hypothesis 4. Corporate governance has a positive effect on corporate sustainability.

Hypothesis 5. Corporate governance has a positive effect on firm performance.

Hypothesis 6. The board of directors' characteristics have a positive effect on corporate sustainability through corporate governance.

Hypothesis 7. The board of directors' characteristics have a positive effect on firm performance through corporate governance.

Table 5.1 The results of hypothesis testing for research questions

Research Question	Hypotheses	Statistical Technique	Finding
1) What characteristics of the board of directors contribute to corporate sustainability and which should be implemented through corporate governance?	Hypothesis 1. The board of directors' characteristics have a positive effect on corporate sustainability.	Multiple Regression Analysis	The proportion of the board of directors who are over 50 years old, the proportion of the board of directors who have a degree in an engineering field, the proportion of the board of directors who have political connections, and board compensation have a positive impact on corporate sustainability.
	Hypothesis 3. The board of directors' characteristics have a positive effect on corporate governance.	Multiple Regression Analysis	The proportion of women on boards, the proportion of board directors who graduated in business and engineering fields, and board compensation had a positive effect on corporate governance. The proportion of women on the board of directors and the proportion of board directors who graduated in science fields had a positive effect on the frequency of board meetings.
	Hypothesis 4. Corporate governance has a positive effect on corporate sustainability.	Multiple Regression Analysis	Corporate governance has a positive effect on corporate sustainability.
	Hypothesis 6. The board of directors' characteristics have a positive effect on Corporate Sustainability through corporate governance.	Mediator Analysis	The proportion of board of directors who graduated in an engineering field and board compensation had a positive effect on corporate sustainability through corporate governance.

Table 5.1 The results of hypothesis testing for research questions (Cont.)

Research Question	Hypotheses	Statistic Technique	Finding
2) What characteristics of the board of directors contribute to firm performance and which should be implemented through corporate governance?	Hypothesis 2. The board of directors' characteristics have positive effect on firm performance.	Multiple Regression Analysis	The proportion of the board of directors who graduated in science fields had a positive effect on the sustainable growth rate value. The proportion of the board of directors who graduated in science fields and compensation had a positive effect on Tobin's Q.
	Hypothesis 3. The board of directors' characteristics have a positive effect on corporate governance.	Multiple Regression Analysis	The proportion of the board of directors who graduated in engineering, business, and science fields and board compensation had positive effect on corporate governance. The proportion of women on boards of directors had a positive effect on corporate governance.
	Hypothesis 5. Corporate governance has a positive effect on firm performance.	Multiple Regression Analysis	Corporate governance had a positive effect on return on equity. The board meeting had a positive effect on ROE.
	Hypothesis 7. The board of directors' characteristics have a positive effect on firm performance through corporate governance.	Mediator Analysis	There was no significant board of directors' characteristic on firm performance through corporate governance.

The results of the hypothesis study were found as follows. The proportion of the board of directors who were over 50 years old, the proportion of the board of directors who graduated in an engineering field, the proportion of the board of directors who had political connections, and board compensation, had a positive effect on corporate sustainability. The proportion of the board of directors who graduated in science fields had a positive effect on the sustainable growth rate value. The proportion of board members who graduated in science fields and compensation had a positive effect on Tobin's Q. The proportion of women on boards, the proportion of boards of directors who graduated in business and engineering fields, and board compensation, had a positive effect on corporate governance. The proportion of board women and the proportion of board members who graduated in science fields had a positive effect on the frequency of

board meetings. Corporate governance has a positive effect on corporate sustainability. Corporate governance had a positive effect on return on equity. The proportion of the board of directors who graduated in an engineering field and board compensation had a positive effect on corporate sustainability through corporate governance. There was a board meeting that had a negative effect on ROE.

The results of the in-depth interviews with five members of the board of directors are as follows. (1) The results of an interview with five board members confirm that the characteristics of the board of directors have an effect on corporate sustainability. The conclusion is that board characteristics such as board independence, knowledge, expertise, and a focus on technology and innovation issues all contribute to corporate sustainability. However, a board of directors with political connections has a short-term effect on corporate sustainability. (2) The results of an interview with four board members confirms that the characteristics of the board of directors have an effect on firm performance. Consistent interview findings indicate that the committee should possess knowledge and be responsible for promoting or advising the business on how to expand. Making the business grow and become profitable requires consideration of the shareholders' interests and the returns that will affect the firm performance. (3) The results of an interview with five board members confirm that the characteristics of the board of directors have an effect on corporate governance. Consistent opinions include a varied committee with knowledge of law, the use of technology, competence, and autonomy, all of which will contribute to the creation of corporate governance. (4) The results of an interview with five board members confirm that corporate governance has an effect on corporate sustainability. Consistent opinions, which include audits and follow-ups, the oversight of good governance audit mechanisms, the selection of auditors, the appointment of independent committees, and clear policy formulations, will assist the organization in being sustainable in its operations. (5) The results of an interview with three board members confirm that corporate governance has an effect on firm performance. The results of the interviews indicate that corporate governance, audits, and dedication to the organization will all contribute to the value of the company. (6) There is no evidence from in-depth interviews which reveals that corporate sustainability has an

effect on firm performance based on the results of interviews. Furthermore, one board opinion indicates that the firm performance is antithetical to sustainability.

5.2 Discussion

5.2.1 The Effect of the Board of Directors' Characteristics on Corporate Sustainability through Corporate Governance

According to the hypothesis result, the proportion of women in the boardroom influences corporate governance because women are the gender that can maintain better relationships with shareholders than men. They recognize that corporate governance has the responsibility to benefit shareholders, and they understand the business environment, so they can effectively control or operate the organization. The findings are consistent with the research of Srinidhi et al. (2011), who discovered that an increase in women in boards of directors resulted in higher quality profit and income as a result of good corporate governance. Moreover, the research of Smith et al. (2006), discovered that women on boards improved the understanding of the business environment.

In terms of results, the proportion of board women has a positive impact on meeting frequency because of board women's compromises in supporting meeting rooms well. According to Nielsen and Huse (2010) board women increase board development activities and decrease the level of conflict. Srinidhi et al. (2011) found that women on the board of directors resulted in higher quality profit and income as a result of good corporate governance. Women on the board of directors, according to Smith et al. (2006), have a better understanding of the business environment than men on the board of directors and having women on a company board led to greater disclosures of corporate social responsibility.

The proportion of board members over 50 years old had a significant impact on company sustainability because they have worked for more than 25 years, resulting in extensive work experience. Furthermore, boards over 50 years old are primarily in a relatively high position in the company, and there are challenges to making the organization efficient and sustainable, and they have a wide network of connections with others, because of their friends who have studied or worked in recent periods, and they are also in a high position. In addition, they are people who have direct experience of their

country's most notable business crisis, namely the financial crisis of Tom Yam Koong in 1997. Because of the financial crisis, many organizations closed, and some workers lost their jobs, making leaders in this age group more concerned with sustainability than leaders in other age groups. This finding is consistent with Hafsi and Turgut (2013), who found that senior board members are more receptive to social issues and more willing to engage in and promote sustainability reporting.

Another factor influencing an organization is the educational background of board members. This study found that the proportion of board graduates from the engineering field has a significant impact on sustainability. Due to the characteristics of the board of directors with creative thinking, working systematically, technically, and skillfully, and planning ahead of time, the ability to create useful inventions that can add value to the organization, as well as the concept of environmental preservation, ideas for working improvements, and knowledge of the solutions to reduce the organization energy consumption.

The proportion of the board of directors who are graduates of engineering fields has an impact on corporate sustainability because corporate sustainability is determined in this study by three perspectives: an economic perspective, which focuses on an economic perspective, income and employment costs are highlighted, as well as infrastructure investment and product development; a social perspective, which focuses on the production system using recycled raw materials, on reducing energy consumption, on reducing greenhouse gas emissions, on taking into account wastewater emissions, and on various waste transportation systems; and an environmental perspective that emphasizes employee care and the establishment of an occupational health and safety management system that takes precautions to ensure product safety during operations, as well as ensuring that products are not harmful to the environment nor consumers.

The board of directors is responsible for setting the direction of the business organization, formulating policies, supervising, and monitoring the organization operations, and other responsibilities that include primary activities and support activities that may differ depending on the business type. The production system, which is used to manufacture products, is the most important operating system in the industry because it is the primary activities that generates income and necessitates the continuous

development of new products. Additionally, in the current production system, it is critical to utilize the recycling processes in order to reduce production costs; there must also be a process for reducing energy consumption, greenhouse gas emissions, and wastewater emissions that are compliant with applicable laws. Another aspect of the primary activities that must be supervised under the occupational health and safety management system is the physical environment. As mentioned previously, primary activities require engineering skills. Therefore, if an organization's board of directors includes members with engineering knowledge, skills, and attributes, it can influence the direction of the socioeconomic sector and the environment by making recommendations for the control, supervision, and monitoring of new innovations, resulting in the organization operations being sustainable. Even though people who work in support activities such as accounting and business administration are not directly involved in the process of developing sustainable operations, their contributions are nonetheless significant to the business process.

However, according to the findings of the study, the proportion of the board of directors who graduated in an engineering field will result in corporate sustainability; therefore, it is necessary for them to operate on the basis of corporate governance principles, which include the following: 1) Shareholders' rights 2) Equitable treatment of shareholders 3) The value of stakeholders 4) Disclosure and transparency; and 5) The board of directors' responsibilities.

The findings of this study on the board education field are consistent with the findings of S. K. Huang (2013), who discovered that board education is related to social responsibility, which is a component of corporate sustainability. The findings are consistent with those of Koyuncu, Firfiray, Claes, and Hamori (2010), who discovered that CEOs with an engineering education outperformed those with other backgrounds, as well as Zaidi, Azouzi, and Sadraoui (2021), who discovered that board members' engineering education was associated with firm performance.

When considering the issue of the proportion of political connections, if the board of directors had a political network, or if their position was as a politician, the head of a government, or military related, the organization would support the establishment of networks with other relevant organizations. They can use the social connections to expand

organizational functions, such as increasing the financial capacity or knowing opportunities that are in line with the company's active strategy. Because the operation of an organization is usually fraught with uncertainty, which is usually the result of government policy, if a company has a political network, it can reduce uncertainty, understand the future and be better prepared to face potential problems. Organizations with politically connected boards will help the organization be more sustainable by requiring external resources such as raw materials, labor, capital, and knowledge that are necessary for the organization to survive. The organization's ability to adapt and formulate environmental strategies, such as what should be done first, what should be ignored, negotiation, and immunization, is the reason for sustainability. This is consistent with Hillman (2005), who discovered that the presence of boards with ex-political members can affect an organization's performance by reducing risks and uncertainties.

Board compensation is based on the Agency Theory whereby the company owner appoints an agent to manage the compensation on their behalf. Members of the board of directors must have knowledge, skills, and expertise in a variety of disciplines. Because the hiring board of directors must pay compensation, business owners usually consider their previous performance to be comparable to other companies in the same industry. According to the research findings, board compensation is one of the factors influencing company sustainability. This is in accordance with the study by Kartadjumena and Rodgers (2019) of Indonesian listed commercial banks who found that higher executive compensation may motivate management and promote environmental concern. Likewise, a study by Galbreath (2017) found that the board's compensation has a positive influence on society and the environment.

The board of directors' compensation has a positive effect on the organization's sustainability, as compensation serves as a motivator for the board of directors to perform their duties efficiently and effectively. Nevertheless, the compensation that the organization will receive is sustainable if the organization adheres to corporate governance principles. Corporate governance ensures that the operations of the organization are transparent, verifiable, and accountable to stakeholders. This study's finding that good corporate governance has an effect on corporate sustainability is consistent with Salvioni et al. (2016) finding that the socially responsible people are those

who work on the basis of corporate governance, as well as Jizi et al. (2014) finding that good corporate governance is a factor contributing to sustainability.

However, the findings found that the proportion of women on corporate boards of directors has no effect on corporate sustainability, which contradicts Arayssi et al. (2016) finding that women directors have a significant influence on corporate sustainability. S. K. Huang (2013) research discovered that business administration has an effect on sustainability, whereas this study discovered no such effect.

5.2.2 The Effect of Board of Directors' Characteristics on Firm Performance through Corporate Governance

The findings show that corporate governance has an impact on the return on equity because the principle of enforcement for corporate governance requires administrators to perform business operations such as faithfulness, transparency, morality, and ethics monitoring and follow-up. The corporate governance guidelines are designed to protect all stakeholders, regardless of whether they are shareholders, creditors, partners, customers, or employees, or whether they are large or small shareholders. This is consistent with Salvioni et al. (2016) findings that social responsibility and sustainability require good corporate governance focused on stakeholder engagement, equity, transparency, and accountability. According to the above-mentioned concept of corporate governance, the properties of the boards and their operations as faithfulness are important factors that lead to management as good governance in order to affect the operation of both corporate sustainability and the benefits for shareholders and return on equity (ROE) is one of the metrics used to assess the success of their operational performance. The findings are consistent with the research of Similarly, Pillai and Al-Malkawi (2018), who studied and discovered that corporate governance on the audit type had a significant impact on firm performance, Ghalib (2018), who discovered that good corporate governance was an important factor in banking profitability, and Iramani et al. (2018), who studied and discovered that good corporate governance had a positive impact on firm performance.

However, some board characteristics, such as the proportion of board women on board, age, education level, board political connection, board tenure, and compensation, have no effect on firm performance. The findings are not consistent with

the findings of García-Meca et al. (2015), Liu et al. (2014), and Shukeri et al. (2012), who studied and discovered that gender diversity on boards of directors, particularly female diversity, had a positive effect on firm performance. Cheng, Chan, and Leung (2010) conducted research and discovered that the senior board of directors has a significant impact on organizational performance. Darmadi (2011), Augustine Ujunwa (2012), and Darmadi (2013) conducted research and discovered that educational levels had a positive influence on business performance. Tejerina-Gaite and Fernández-Temprano (2021) discovered that a longer tenure on the board is associated with higher performance levels only for outside board members.

According to the findings of the mediator analysis, this study concludes that corporate governance does not act as a mediator between the characteristics of the board of directors and firm performance.

5.3 Contributions of the Study

5.3.1 Theoretical Contributions

1) Upper Echelon Theory

According to the upper echelon theory, the qualifications of the leader, whether a single leader or a team leader, are a factor that affects company performance. Previous research has found that leadership qualities influence organizational performance or sustainability, but the majority of them discovered that the result was only directly effective. The outcome cannot reveal which characteristics of a board of directors have an impact on sustainability or how they have an impact on sustainability. The data and results of this research reveal that the proportion of boards of directors that are knowledgeable in engineering fields and that adhere to best practices in terms of corporate governance principles can assist an organization in achieving sustainability. Additionally, this study also found that the qualification of the leader has a direct impact on the corporate sustainability of the organization, as well as how the company maintains good corporate governance.

2) Agency Theory

According to agency theory, the board of directors is the owner's representative and appoints people as agents to manage their business and respond to all shareholders.

Agents must be in charge of overseeing the business to ensure that it operates with efficiency, honesty, transparency, and the prevention of corruption. However, there is frequently a conflict of interest between shareholders and the board of directors.

Previous research has investigated the impact of board characteristics on various aspects of corporate governance, as well as the impact of board characteristics on aspects of corporate performance and corporate sustainability. However, because not only the board's qualities can contribute to the organization performance and sustainability, but the entity should also have a procedure that makes it possible for the board's characteristics to contribute to the organization performance and sustainability. This study has provided a better understanding of agency theory, which implies that while compensation for the board of directors is important, companies must also follow corporate governance guidelines to ensure long-term sustainability. Furthermore, this study contributes to the advancement of knowledge from the previous viewpoint, which emphasized financial performance as a component of overall sustainability. If there were agency problems, such as encountering manager's ethics issues, it would result in a failure to achieve the expected results.

This study found that compensation paid to the board of directors is another factor leading to corporate sustainability; however, compensation alone does not result in sustainability; compensation paid to the board must be an objective goal or the result of corporate governance, and then it will lead to the consequences of sustainability.

5.3.2 Practical Implications

1) Implication to Shareholders

As previously stated, shareholders must appoint an agent to supervise, control, and monitor company operations in order to ensure transparency, sustainability, and good firm performance. The research findings can be used as a guideline to select people for the board of directors by considering the following factors: Board members must be older than 50 years old and have experience or have faced previous crises, which causes them to be conscious of sustainability. Boards of directors who have the ability to work in a systematic, innovative, and often familiar manner with assessing operations with any standard indicator such as corporate governance score and sustainability on the global reporting initiative standard.

2) The Implication of the Securities and Exchange Commission

The Securities and Exchange Commission is responsible for developing regulations for listed companies that allow them to operate effectively, transparently, and sustainably, which is beneficial to the stock market and the country economy, and for using these regulations as a guide to determine board qualifications for registered listed companies to comply with.

According to the Securities and Exchange Commission guidelines, companies listed on the Stock Exchange of Thailand are required to have a board of directors' structure consisting of no fewer than five and no more than twelve members with a range of characteristics relating to their skills, experience, knowledge, and abilities, as well as their gender and age. Additionally, there must be at least one non-executive director with experience in the company's primary business or industry.

The findings of this study suggest that boards of directors should include people with systemic thinking and knowledge in a field like engineering, know how to reduce energy consumption and reduce emissions into the environment, take care of occupational health and safety at work, and work with corporate governance principles like faithfulness, transparency, morality, and ethics that will create the organization's outcomes.

Furthermore, the Securities and Exchange Commission can use it as information to encourage organizations that do not value corporate governance to conduct themselves better and maintain company transparency. As a result, domestic and foreign investors will have more confidence in the stock market and will be able to easily option funds.

5.4 Research Limitations and Suggestions for Future Research

5.4.1 Research Limitations

1) This study is based on data collected from companies listed on the Stock Exchange of Thailand for the year 2018, which may not represent the results of all companies in previous years. Because there may be limitations in the data that do not cover the life cycle of the organization because its business process was different, the researcher has gathered more data from the listed companies that expect to be represented and cover the industry in 2018.

2) Organizational sustainability was measured using information disclosed in annual and sustainability reports in accordance with the GRI Standard framework, where the company disclosures may differ. Some companies fully disclose data from the GRI framework, while others do not, which may not reflect all of the organization's actual practices. As a result, this research gathered the only organization that discloses all data on GRI standards that are expected to reflect the organization's sustainability.

3) The performance measures used in this study are based on financial, accounting, and marketing aspects such as ROA, ROE, Tobin's Q, Sales Growth Rate, SGR, and CAPM, which may not cover all aspects of performance because performance can be measured in other ways, both monetary and non-monetary results, resulting in some variables that have no influence on performance.

4) Despite the fact that the variables in this study were checked for normal distribution and there was no problem with multicollinearity, the R-squared, a statistical measure of fit that indicates how much variation in a dependent variable is explained by the independent variable(s) in a regression model, was low, ranging from 0.023 to 0.337. When compared to the findings of other studies, such as Zemzem and Ftouhi (2013), Haladu and Salim (2016), Wang (2017), Alsmady (2018), and Sekarlangit and Wardhani (2021) which examined the characteristics of boards of directors, they discovered that the R-squared value is close to that of this study, because social science research typically uses secondary data, which is the actual data disclosed in each company's annual report, and it is dependent on context and the number of predictors (Grace-Martin, 2012).

5.4.2 Suggestions for Future Research

Researchers discovered that many factors in board characteristics, such as company sustainability and performance, are influenced by factors such as the board's age, education field, political connections, board compensation, and board composition. However, the issue of corporate sustainability continues to attract the interest of both investors and researchers, as it is unclear how an organization can be sustained, able to operate continuously, and with stability.

There are many ways to measure sustainability today, some of which may not have been used in this study and thus may not accurately reflect the organization's true sustainability. Sustainability metrics that are applicable to all aspects of an organization's

overall performance must be developed. When determining an organization's overall success, the qualitative performance of its reputation, customer royalty, and employees can all be evaluated, and this qualitative performance can also represent the organization's long-term sustainability. Other factors that influence an organization's performance and long-term sustainability include the organization's strategy and risk management, as well as the nature of the business and investments in subsidiary companies.

Future research can look into and use other factors that may also be effective, such as the following:

1) The characteristics of each board member that comprise the board of a company are critical to the organization operations and sustainability. These characteristics include a range of ages, genders, experiences, education, tenure, and knowledge in their field of study. When diverse individuals come together to form a board of directors, however, this diversity can lead to conceptual conflicts, such as the disparity between young and older boards of directors, which may include members of different generations, such as GenX, GenY, and Gen Z. This is because individuals of varying ages have varying experiences, concepts, risk perception, and social and environmental stewardship, all of which influence governance direction and have varying effects on an organization performance and sustainability.

2) The organization's personnel management committee is also critical. For the organization's long-term viability and ability to operate in accordance with corporate governance principles, it is also important to have a strong set of values and culture in place; these values and culture must place a high value on care for society and the environment, while corporate governance principles with operations place an emphasis on transparent, verifiable, and honest operations, while giving importance to all groups of stakeholders. As a result, organizations with diverse organizational values and cultures will have a wide range of effects on corporate governance operations and organizational development in the direction of long-term sustainability.

3) Because some directors have been appointed as members of multiple companies, it is interesting to consider why the shareholders have faith in and accept them to be members of multiple companies, as well as whether their capabilities, experience, or other factors will affect business performance.

4) The board of directors is responsible for determining the organization strategy and goals, thus decisions made by the board of directors in various fields affect the organization performance and sustainability; thus, future research may look into other variables in the Board's strategy for capital decisions, such as buying stock in other companies or determining whether investments in other financial institutions will affect the company's sustainability.

5) This study investigates the characteristics of the board of directors that affect performance and corporate sustainability looking at the Stock Exchange of Thailand as a whole. However, because each industry segment is different, future research could include a comparison of companies with high and low CG and GRI scores.

6) There are various approaches to considering corporate sustainability, as well as tools for measuring it. Because this study uses GRI-based disclosure tools, future studies may look into other types of sustainability measurement.

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APPENDICES

APPENDIX A

Normality Testing

Table A1 Box Plot, QQ Plot, and Histogram of WOMEN Variable

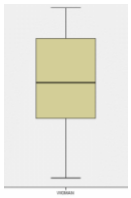
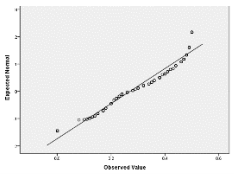
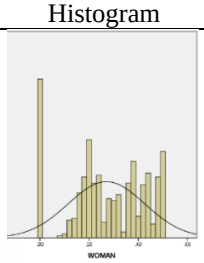
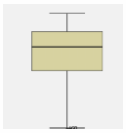
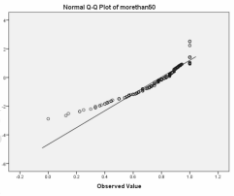
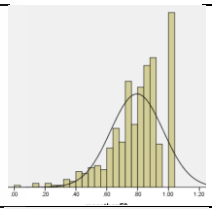
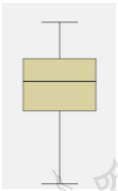
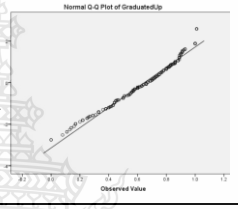
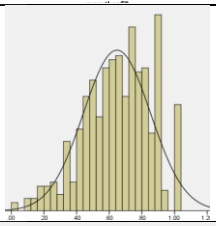
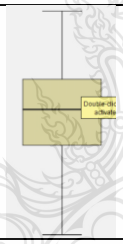
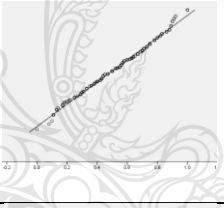
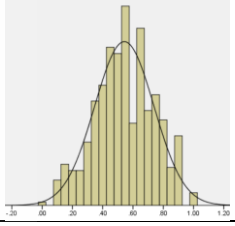
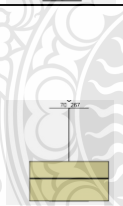
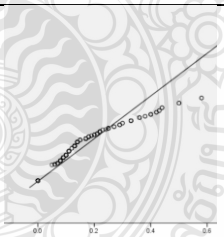
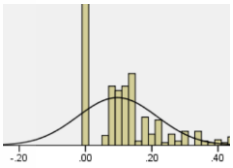
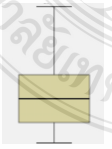
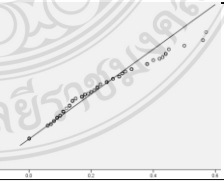
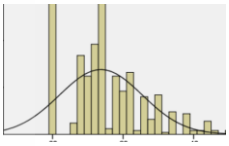
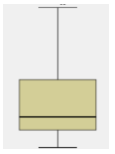
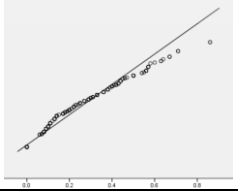
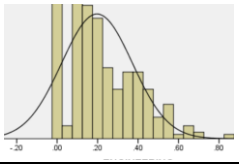
Variable	Box Plot	QQ Plot	Histogram
WOMEN			
AGE>50			
POSTGRADUATE			
BUSINESS			
SCIENCE			
ACCOUNTING			
ENGINEERING			

Table A1 Box Plot, QQ Plot, and Histogram of WOMEN Variable (Cont.)

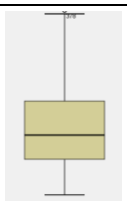
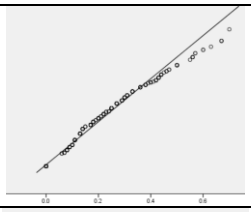
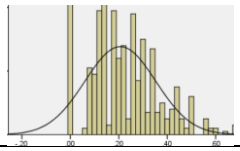
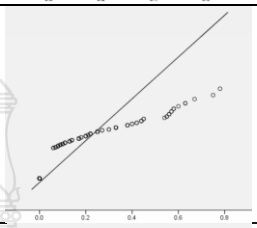
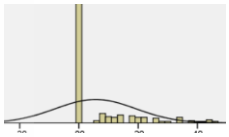
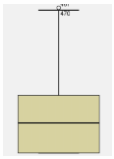
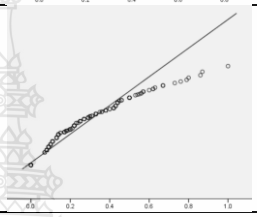
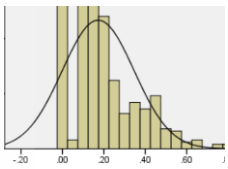
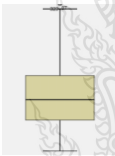
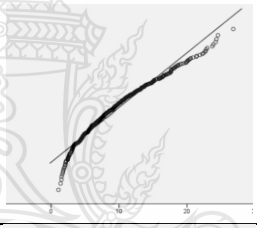
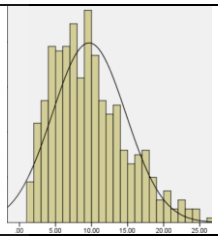
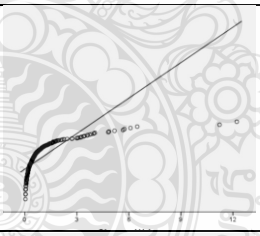
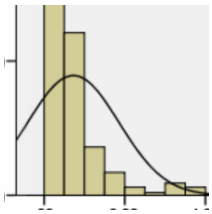
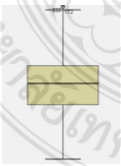
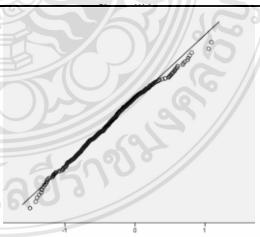
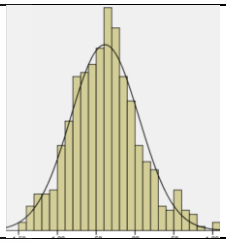
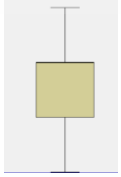
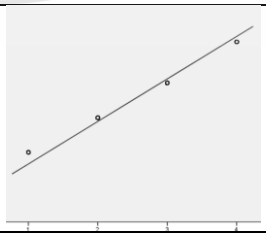
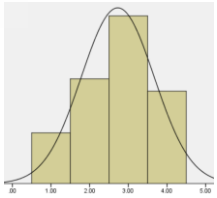
OTHER			
FOREIGN			
POLITIC			
TENURE			
COMPENSATION			
LogCOMPENSATION			
CGSCORE			

Table A1 Box Plot, QQ Plot, and Histogram of WOMEN Variable (Cont.)

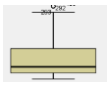
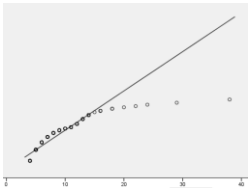
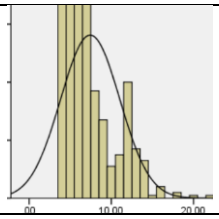
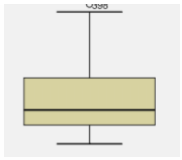
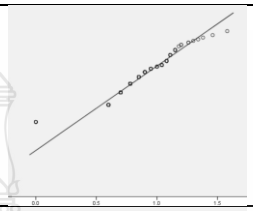
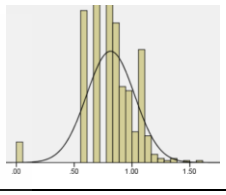
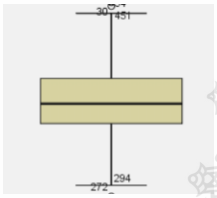
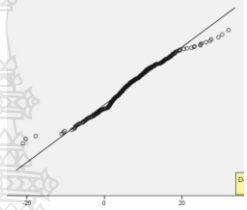
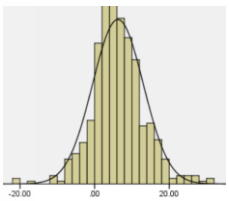
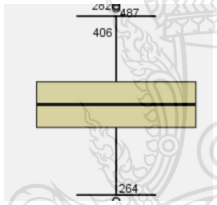
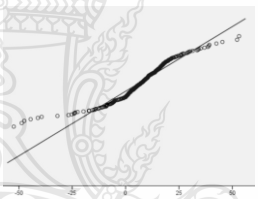
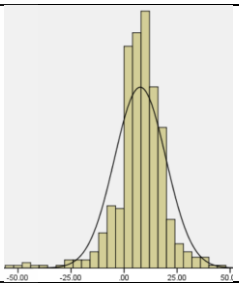
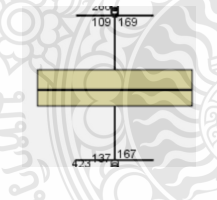
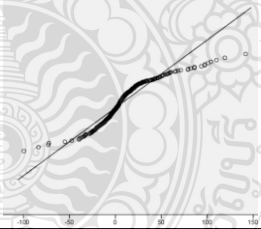
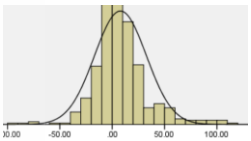
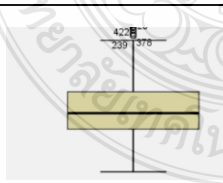
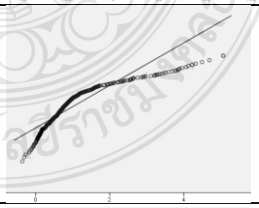
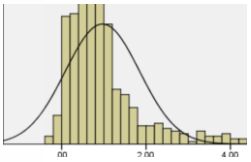
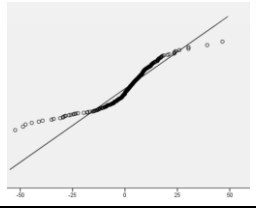
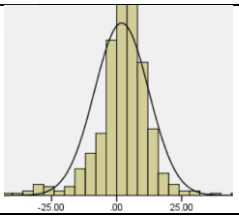
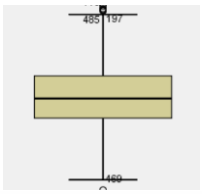
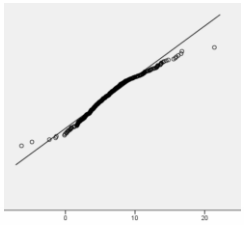
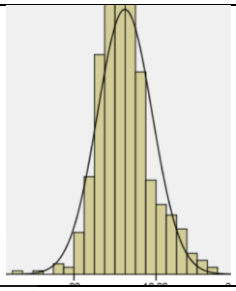
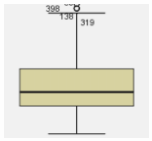
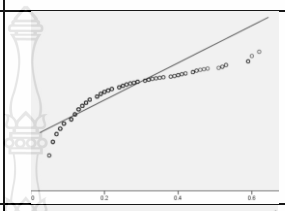
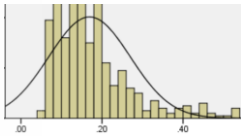
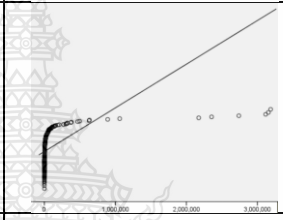
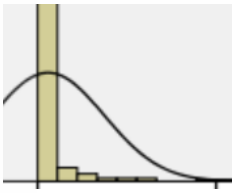
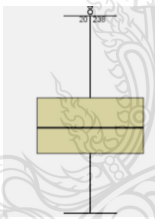
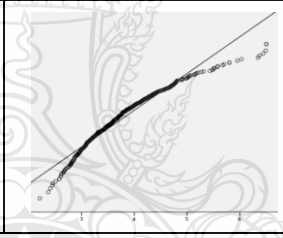
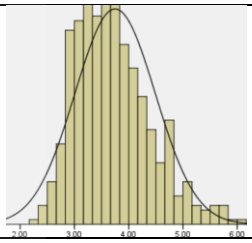
BOARDMEETING			
LogBOARDMEETING			
ROA			
ROE			
SALEGROWTH			
TOBIN'SQ			
SGR			

Table A1 Box Plot, QQ Plot, and Histogram of WOMEN Variable (Cont.)

CAPM			
GRI			
TOTALASSET			
LogTOTALASSET			

Biography

Name-Surname	Mr**s.** Malee Jaturat
Date of Birth	June 16, 1970
Address	130 / 261 M.1 T.Lumpakkood A.Thanyaburi
	PatumThani 12110
Education	Master of Accountancy, (1994-1996)
	Chulalongkorn University
Experience Work	Lecturer, Faculty of Business Administration,Rajamangala
	University of Technology Thanyaburi
	(1993-Present)
Telephone Number	**09-0992-2306**
Email Address	malee_j@rmutt.ac.th