

BOARD DIVERSITY AND FINANCIAL PERFORMANCE:
EVIDENCE FROM MALAYSIA

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Malaysia

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DECLARATION

I hereby declare that:

- (1) This Research Project is the end result of my own work and that due acknowledgement has been given in the references to all sources of information be they printed, electronic, or personal.
- (2) No portion of this research project has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.
- (3) The word count of this research report is 17,680.

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LIST OF ABBREVIATION

MCCG	Malaysian Code of Corporate Governance
CG	Corporate Governance
SC	Securities Commission
PLC	Public Listed Companies
ROA	Return on Assets
ROE	Return on Equity
AD	Age Diversity
GD	Gender Diversity
ED	Educational Diversity
TD	Tenure Diversity
BI	Board Independence
BS	Board Size
FL	Financial Leverage
FP	Financial Performance
p-value	Probability Value
EViews	Econometrics Views

ABSTRACT

This research project unit MKMB25106 Research Project is completed by Nishanthi A/P P. Muthu Chalvan from Master of Business Administration (Corporate Governance) in order to complete my master program. The title of the thesis is “Board Diversity and Financial Performance: Evidence from Malaysia”. The main focus of this research is to identify and synthesize the relationship between board diversity factors and Financial performance. It is also a project that assembles the intellectual interest and critical thinking in solving problems among the postgraduates besides their regular responsibilities. This research project enhances the integration of capabilities and abilities of the postgraduates in the application of theoretical elements into research study.

Board diversity is seen as an important element in corporate governance practices as it enhances board performance and productivity level. Increasing board diversity practices at the top level allows to strengthen shareholder’s confidence and provides investors with greater returns. However, studies on board diversity practices appear to be scarce in the Malaysian context; hence, this research is being conducted. The emerging number of studies in various parts of the world has given a chance for the researcher to conduct this study in order to comprehend domestic context.

Furthermore, multiple approaches are used to produce the results of this research, and the best technique is chosen to describe the study findings. This will give readers a thorough grasp of the different techniques and applications. On the other hand, the study offers useful recommendations that help future researchers to improve their research quality.

This study concludes by providing policymakers, the government, the securities commission, and other relevant parties with recommendations on how to improve board diversity at the board level by enforcing regulations that improve the country's overall image.

CHAPTER 1

INTRODUCTION

1. Overview of the Research

This chapter provides a comprehensive analysis of board diversity factors. This proposed research intends to examine the impact of board diversity on financial performance. This chapter provides a brief overview of the background of board diversity, problem statements, the significance of conducting the research, the research question, and the research objective.

1.1. Background

Corporate governance is critical in shaping a corporation and making it competitive with global companies (Bhatt and Bhatt., 2017). When organisations adhere to the corporate governance standards and principles set by government authorities, firms and nations are able to attract international investments (Bhatt and Bhatt., 2017). According to Khatib et al. (2022), stated that the Securities Commission (SC) of Malaysia defines Corporate Governance as the method and framework used to monitor and handle the activities and affairs in order to increase long-term financial value and business success.. Therefore, "Why is it necessary for corporations to engage in Corporate Governance?". According to Karim et al. (2022), many businesses devote more

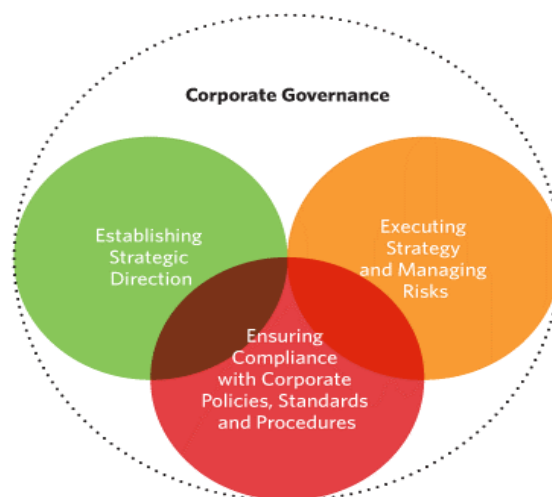
time and effort into developing appropriate corporate governance since it encourages ethical business practices, which in turn supports financial sustainability. Significantly, it is becoming more apparent that there is no one-size-fits-all method for attaining good governance (Bhatt and Bhatt., 2017).

Malaysia is a developing nation populated by people of different religious and ethnic backgrounds (Nasir et al., 2019). However, the Malaysian Code of Corporate Governance (MCCG) is built using the context of industrialised nations (Nasir et al., 2019). Therefore, it is suggested that emulating corporate governance practices from nations with distinct organisational structures is incompatible with the Malaysian framework (Nasir et al., 2019). According to Aggarwal et al. (2008), a country's corporate governance is reliant on its laws, culture, norms, and regulatory authorities, which are responsible for enforcing corporate governance legislation and firm-level processes. As a result, the Securities Commission of Malaysia has release stringent corporate governance guidelines to ensure proper compliance of corporate governance practices (Bhatt and Bhatt., 2017). The Securities Commission has made significant changes to board composition aspects in the most recent Malaysian Code of Corporate Governance 2021 in order to improve board policies and procedures, promote meaningful engagement between companies and stakeholders, and enhance the adoption of best practises (Bhatt and Bhatt., 2017).

Corporate governance is strongly associated with the acceptance of an adequate team or group, which results in improved leadership and more efficient board. According to the Department of Statistics Malaysia (2022), the current population of the country is 32.6 million, out of which 16.60 million individuals are employed. This indicates a 69.6% growth in the labour force (Department of Statistics Malaysia, 2022). However, 76.0% of the population is expected to be employed, which implies that the rate of employment growth has altered dramatically (Department of Statistics Malaysia, 2022). This demonstrates that employment prospects are widely dispersed, yet it has minimal impact at the board level (Department of Statistics Malaysia, 2022).

In the 21st century, diversity has been the key topic of discussion in boardrooms to guarantee that every organisation has the talent, expertise, and skills needed to attain its ultimate objective (Karim et al., 2022). Since the 2008-2009 Global Financial Crisis (GFC), corporate governance has been the subject of several research on company failures (Kachkar and Yilmaz 2022). Since the late 1990s, many financial crises have highlighted the essential need for enterprises of both developing and developed countries to re-formulate existing corporate governance frameworks and reclaim investors' confidence in the corporations' compliance (Kachkar and Yilmaz 2022). In Malaysia, the SC of Malaysia has urged shareholders, especially institutional investors, to take more proactive measures to ensure that all firms, especially those listed on Bursa Malaysia to practise effective corporate governance (Jubilee et al., 2018). The main objective of corporate governance compliance among public-listed companies is to ensure that there are transparency and integrity of information (Jubilee et al., 2018). The SC urged investors to be more vocal about corporate practices and raise governance issues periodically focusing on board diversity aspects (Jubilee et al., 2018). As a result, the concept that shareholders will actively hold boards responsible serves as a deterrent for businesses to avoid engaging in unsavoury actions (Huong, 2022).

Figure 1.1: Corporate Governance importance



Source: Karim et al. (2022)

Significantly, the Malaysian Code of Corporate Governance (2021) provides best practises for corporations to adopt in order to build long-term shareholder value and produce above-average returns. Despite the fact that these practises are non-mandatory laws, appropriate compliance enables businesses to achieve substantial benefits that lead to growth and enhanced performance (MCCG, 2021). Practice 5.5 of the MCCG (2021) stresses the importance of making board and management appointments based on skill and diversity in terms of age, expertise, cultural background, and gender. According to Practice 5.9 of the MCCG (2021), also stated that the board should comprise at least 30% of women directors which promotes better decision-making and board discussions. Through effective implementation of MCCG practices, it allows companies to eliminate groupthink and blind spots in the decision-making process of the company (MCCG, 2021).

Diverse perspectives on the meaning and characteristics of boardroom diversity have led to a limited understanding on board diversity (Lim et al., 2019). In a broader context, board diversity refers to the various characteristics of the board of directors that might influence decision making (Jabari and Muhamad, 2020). In terms of board diversity, the more obvious qualities include gender, ethnicity, and age, while the less obvious include religion, occupation, and level of education (Jabari and Muhamad, 2020). In governance, a diverse board is crucial for two reasons (Jabari and Muhamad, 2020). First, it provides a better grasp of the marketplace, boosts creative thinking, and facilitates effective problem solving (Jabari and Muhamad, 2020). Second, it encourages more effective global interactions and board independence since individuals with different gender, race, or cultural backgrounds may raise questions in which typical directors may not ask (Jabari and Muhamad, 2020). As a result, a company's board of directors performs a critical part in upholding corporate governance (Karim et al., 2022).

In additional, boards are charged with a number of duties, including the formulation of long-term strategies (Karim et al., 2022). They serve as intermediaries between shareholders, stakeholders, and management in

resolving agency issues (Karim et al., 2022). However, the effectiveness of corporate boards relies on a number of aspects, such as their independence, size, and diversity (Karim et al., 2022). Among them, board diversity has been touted as one of the most effective approaches to improve company performance (Karim et al., 2022). Nonetheless, researchers found limited studies on board diversity and financial performance among Malaysia's top 100 companies (Nasir et al., 2019). According to Salin et al. (2019), corporate scandals are caused by weak ethical commitment and practises of a company's top management including directors. As a consequence, ineffective board management has drawn the attention of many experts to the need of maintaining proper diversity as a means of improving board effectiveness and control (Salin et al., 2019). Thus, this study examines how board diversity factors affects top 100 Malaysian companies' performance.

1.2. Problem Statement

The corporate sector still faces challenges to incorporate board diversity, which may negatively impact a company's performance and profitability (Vafaei, 2020). According to the theSun (2020), the top 100 Malaysian corporate boards had large gender and age differences, with directors lacking global career exposure. Additionally, if a firm is unable to find a suitable and diverse board, company is unable to make appropriate decisions that are in its best interests. (Vafaei, 2020). This could result in a large number of employees, particularly those in higher positions, are prioritising their own personal interests above the best interests of the company (Vafaei, 2020). According to Song et al. (2020), younger workers are more likely to give inventive, fresh ideas, yet they are less concerned with job security as their desires vary time to time. Comparatively, older senior managers and board members may make better decisions due to their greater practical experience, management skills, and market knowledge (Song et al., 2020). Relatively, another research has shown that senior leaders are less likely to start changes, whereas younger board members are associated with strategic shifts (Arquisola et al., 2018). This could lead to conflicts between subgroups and delays in agreement for decision-makings due to a lack of unity among members of different generations (Song et al., 2020). As a result, heterogeneity within subgroups may seem to be relatively modest (Song et al., 2020). Therefore, combining young and senior members on the board may have an additive impact that outweighs the costs of age diversity and leads to better results (Song et al., 2020).

The global financial crisis and business failures have fuelled debate over poor corporate governance procedures, putting pressure on regulators to investigate the root causes of the situation (Saggar, 2022). The discussion was centred on the idea that, despite women being a powerhouse of potential, their knowledge is underutilised (Saggar, 2022). Significantly, it has increased the need for government and regulators to intervene by imposing quotas or mandating corporations to incorporate more diversity in boardrooms (Saggar, 2022). According to Alazzani (2016), bringing in more women helps to generate

new ideas, improve collective intelligence, and boost creativity. In addition, women's involvement also improves workplace communication and teamwork (Alazzani, 2016). This enables the board to have a more robust discussion and a broader understanding of the issues prior to implementing the proposals (Alazzani, 2016). Furthermore, strong female involvement enables board members to raise a variety of topics, including promoting environmental awareness, supporting women's growth, and strengthening the firm's values and standards (Alazzani, 2016). However, women seem to have fewer opportunities to join the firm, which might affect firm's success (Alazzani, 2016). Although both men and women understand their duties and the competences they need to be on a board, they do things differently (Khemakhem, 2022).

Board diversity also emphasises the significance of educational level, which affects board quality and decision-making if the board is comprised of unsuitable individuals, which may hinder the development of the company. According to Kagzi and Guha (2018), highlighted that educational level of board members has an effect on the cognitive abilities and decision making of a board (Kagzi and Guha, 2018). The backgrounds and experiences of board members may affect their understanding of complex economic transactions and influence their decisions, therefore omitting educational knowledge from the analysis might be risky (Wellalage and Locke, 2013). Researchers observed that companies that are undertaking strategic transition had more educated decision-makers (Tarus and Aime, 2014). It is believed that at lower educational levels, there would be less strategic change and vice versa (Tarus and Aime, 2014). This is because at higher levels of education, individuals are overly specialised in their own fields and may lack the broad knowledge necessary to engage in strategic change successfully (Tarus and Aime, 2014). Higher-level educational homogeneity may stymie strategic change since decision-makers spend time examining information and, in most cases, prefer depth over breadth when making decisions (Tarus and Aime, 2014). However, diverse educational backgrounds offer boards with diverse viewpoints on situations (Tarus and Aime, 2014). Although some research claim that such diversification would

result in conflict, researchers suggest that mild cognitive conflict improves the strategic decision-making performance of boards (Tarus and Aime, 2014).

On other hand, long-tenured board members may have a stronger awareness of the organisational structure, culture, and methods for gaining access to organisational resources for board effectiveness (Kagzi and Guha, 2018). Researchers claim that board members who have been on the job for a long time develop groupthink, a fear of change, and a preference for status quo (Kagzi and Guha, 2018). However, directors with greater board experience will also grasp the continuous management team operations and can perform their oversight duties better (Ben-Amar et al., 2013). Nevertheless, tenure diversity may have unintended implications. Longer tenure is often associated with more rigidity, greater dedication to old systems and procedures, and increased barriers to change ideas (Ben-Amar et al., 2013). According to Ben-Amar et al. (2013), long tenure may reduce intragroup communications and degrade the quality of firm decisions. On other side, short tenure has also been recognized for boosting board independence and decreasing management manipulation (Tarus and Aime, 2014). Therefore, tenure diversity is likely to lead to greater strategic change (Tarus and Aime, 2014). In short, diverse tenure is thus anticipated to produce a balance that is conducive to social performance (Hafsi and Turgut, 2013).

1.3. Significance of Study

According to Ferreira (2010), highlighted that diverse groups stimulate innovation and provide a broader range of ideas and problem-solving strategies. Importantly, board diversity strongly stimulates various perspectives and participation, allowing organisations to make larger investments in order to maximise profitability (Sivakumar, 2011). As a nutshell, this study will help organisations prioritise corporate governance, particularly board diversity, in order to boost productivity and build a well-engaged board that meets the needs of shareholders and stakeholders.

As there are currently few studies conducted in this field, this research will offer more light on this unique topic. The results of this topic are anticipated to contribute to the determination of the present business practise (Nasir et al., 2019). The policymakers, including Bursa Securities or other relevant authorities, may use the results to analyse and assess corporate governance practices and, as a result, make the necessary modifications and changes with the aim of enhancing the governance structure of Malaysian firms (Nasir et al., 2019). Moreover, it also allows policymakers to understand and comprehend the necessary steps to ensure organization comply with board diversity practices to ensure transparency and integrity in the best in interest of the company (Nasir et al., 2019).

In addition, the findings of this research might assist firms in enhancing their board effectiveness based on their board structure and board composition (Vafaei, 2020). The statement's completeness and openness may be improved by enhancing the board diversity aspects of companies to guarantee companies adhere with suitable corporate governance standards in order to attract more investors in the long run (Vafaei, 2020). This is to also guarantee that firms make every effort to avoid fraud and, as a result, gain and maintain public trust (Vafaei, 2020). Furthermore, politically linked executives may assist businesses in dealing with authorities and obtaining government contracts (Sivakumar, 2011).

On the other hand, several companies have progressively adopted board diversity since it attracts long-term investors (Ferreira, 2010). Investors, according to Ferreira (2010), are focused on strengthening board effectiveness, particularly in terms of board diversity. A well-diversified board enables the business to make lucrative investments by assessing the firm's potential development so that investors may obtain higher returns in the future (Ferreira, 2010). Therefore, the findings of this research could be useful to investors on the need of choosing firms that have high level of diversity so that firms are aware of the policy.

1.4. Research Objectives & Research Question

1.4.1. General Objective

The main objective of this research is to examine the relationship between board diversity and financial performance practiced by top 100 Malaysian companies.

1.4.2. Specific Objectives

The specific objective of this study is to investigate the relationship between age diversity and financial performance in the boardroom. Besides, this research also examines the relationship between gender diversity and financial performance of the top 100 Companies in Malaysia. In additional, the objective of this research is to synthesize the relationship between educational diversity and financial performance in the boardroom. Lastly, the research focuses on the objective to identify the relationship between tenure diversity and financial performance of the top 100 Companies in Malaysia.

1.4.3. General Question

- i. Does the board diversity impact financial performance practice by top 100 Malaysian companies?

1.4.4. Specific Questions

- i. Does age diversity influence financial performance practiced by top 100 Malaysian Companies.
- ii. Does gender diversity influence financial performance practiced by top 100 Malaysian Companies?
- iii. Does educational diversity influence financial performance practice by top 100 Malaysian Companies?
- iv. Does tenure diversity influence financial performance practice by top 100 Malaysian Companies?

1.5. Conclusion

In conclusion, this chapter described the study context, which included a discussion of board diversity and financial performance. This study also formulated adequate research questions and objectives to inform readers of the research's primary focus. On other hand, this study provides readers a basic understanding on the topic to ensure readers are able to comprehend the following chapters.

CHAPTER 2

LITERATURE REVIEW

2. Introduction

This chapter begins with a discussion of proposed theoretical frameworks, followed by literature review of the independent variables such as age diversity, gender diversity, educational diversity, and tenure diversity as well as dependent variable which is financial performance. This chapter highlights the importance of theories such as agency theory and resource-based view theory which provides a clear understanding of the factors. The chapter concludes with a summary of the conceptual framework formed following the hypothesis developments.

2.1. Theoretical Framework

In this section, two theories will be discussed to provide readers with in-depth understanding. Board diversity closely relates to agency theory and resource-based view theory as it explains the impact of board diversity and financial performance (Barney, 1991). Resource-based view approach and agency theory may be used to explain board diversity issues regarding participation and leadership (Barney, 1991).

According to the Resource-Based View Theory (Barney, 1991), the distinctive resources of the organisation promote business continuity and sustainability. According to the resource-based view concept, business

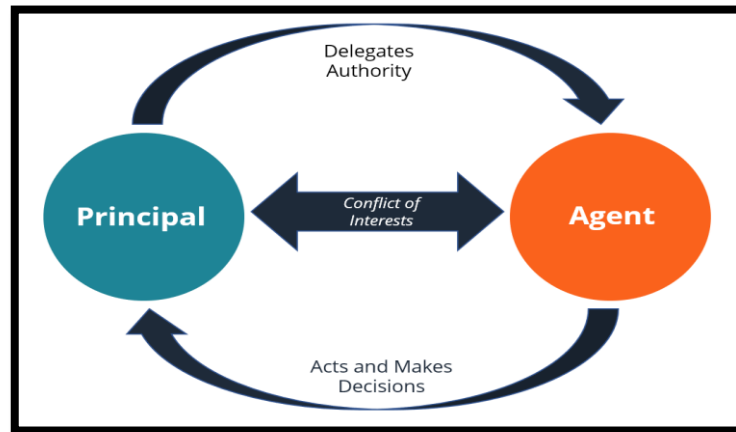
performance is determined by the company's ability to integrate and effectively employ available resources (Barney, 1991). Boards of directors are seen as a company's most valuable resource and have a considerable impact on strategic business decisions, such as the disclosure of information, since board members are viewed as the company's most influential decision-makers in terms of corporate social responsibility (Barney, 1991). The composition of the board of directors and its committee will have material effects on the company (Barney, 1991). Resource-based theory suggests that organisations gain competitive advantage by acquiring and creating important resources, such as board members and prospective board members who provide their experience, skills, and reputation (Armstrong and Shimizu, 2007). According to the theory, having a diverse range of occupational representation on a board increases the amount of knowledge present as well as the number of relationships to key external constituencies (Armstrong and Shimizu, 2007).

On the other hand, the agency model is widely recognised as one of the more well-known theories in the fields of management and economics (Panda and Leepsa, 2017). According to Wijethilake and Ekanayake (2020), corporate governance embraced agency theory to describe the relationship between shareholders and the board of directors. The agency theory stresses the difficulties that emerge in companies as a result of the division of proprietors and administrators, as well as the importance of resolving this problem (Panda and Leepsa, 2017). This concept makes it easier to adopt a variety of control measures to manage the actions of actors in collectively held companies. (Wijethilake and Ekanayake, 2020).

Researchers noted that the separation of ownership and control produced a principal-agent relationship between shareholders and the board of directors, which prevented them from reaching a common agreement, thereby creating an agency problem (Wijethilake and Ekanayake, 2020). The agent refers to the board of directors, whereas the principle refers to the company's shareholders or owners (Wijethilake and Ekanayake, 2020). The agent is in charge of the day-to-day operations on behalf of the principal (Wijethilake and Ekanayake, 2020).

Both the principle and the agent have distinct concerns about the firm; yet the agents are supposed to prioritise the principal's interests in order to prevent conflict of interest (Wijethilake and Ekanayake, 2020).

Figure 2.1: Agency Theory



Source: Developed for the study

As proposed by Lim et al. (2019), a corporation must build a monitoring system to limit or remove any conflict of interest issues, hence reducing the agency problem's effect. In accordance with this, government authorities have been enhancing the firm's corporate governance processes (Panda and Leepsa, 2017). Through the advising duties and monitoring mechanisms of corporate governance, the board of directors may defend the shareholder interests (Vafaei et al., 2020). Consequently, conflicts of interest between principle and agent may be successfully addressed by the implementation of more comprehensive corporate governance structures (Vafaei et al., 2020). In 1983, Fama and Jensen published the results of their investigation into decision-making and leftover claims. The researchers separated the company's decision-making process into two distinct categories: administration of decisions and control of decisions, with employees serving as the principal actors in both categories (Panda and Leepsa, 2017).

In complex organisations, the agency problem occurs in the management decision process since the decision-makers who originate and execute company decisions will not suffer the wealth impacts of their choices

(Panda and Leepsa, 2017). They reasoned that agency problems must be handled for company survival in the long term (Panda and Leepsa, 2017). In addition, corporate governance standards may avoid asymmetric information concerns by establishing a guideline for the degree of information sharing, which is mostly determined by the board (Jaafar et al., 2021).

According to agency theory, a diverse board increases the monitoring efficacy of the board of directors because varied points of view and perspectives provide significant knowledge and experience to board members (Panda and Leepsa, 2017). Moreover, agency theory highlights that directors play a crucial role in decreasing agency costs by approving and monitoring the firm's key decisions and recruiting, terminating, and compensating managers (Puni and Anlesinya, 2020). According to the agency hypothesis, directors of high quality are supposed to oversee managers more closely, hence limiting businesses' excessive risk-taking behaviour and minimising corporate risk (Puni and Anlesinya, 2020). The agency hypothesis suggests that a more diverse board of directors guarantees better control and more independence, hence enhancing firm control mechanisms and boosting productivity (Puni and Anlesinya, 2020).

On top of that, the diversity of the board's structure has significant advantages such as being attentive to ethical concerns, offering new views on complicated topics, acting less opportunistically and exercising greater monitoring abilities, and enhancing management responsibility (Kagzi and Guha, 2018). To conclude, agency theory emphasises that board diversity characteristics such as age, educational, gender, and tenure promote board performance and independence while decreasing agency costs, hence boosting stakeholder trust (Kagzi and Guha, 2018).

2.2. Relevant Past Studies

Financial scandals and the high incidence of corporate failure over the previous decade, as well as the 2008 financial crisis, have heightened concerns about enhancing board performance (Kılıc and Kuzey, 2016). Scandals occur as a consequence of a moral void (Kılıc and Kuzey, 2016). According to Sivakumar (2011), many executive actions show that they do not know how to apply sound judgement. This results in scandals and managerial failures (Kılıc and Kuzey, 2016).

In this section, there will be discussions on factors that impacts board diversity towards financial performance. The factors include four independent variables such as age diversity, gender diversity, educational diversity, tenure diversity and dependent variable such as financial performance.

2.2.1. Age Diversity

Significantly, age diversity obtains less management attention and fewer HR regulations than other demographic diversity (Rahman et al., 2020). Therefore, understanding age diversity concepts is increasingly important (Rahman et al., 2020). The term "age diversity" is used to describe the presence of employees from various behaviour, attitude and values (Rahman et al., 2020). On other hand, age diversity also refers to the involvement of diverse ages in workgroups since age is crucial for organizations (Xu et al. 2022). According to Scheuer and Loughlin (2021), age diversity is important to observe as it demonstrates an organization's openness to embrace personnel of diverse ages. Furthermore, age diversity highlights an organization's propensity to absorb fresh perspectives, skills, and experiences from a diverse talent pool in order to benefit shareholders, stakeholders, and the organization as a whole (Scheuer and Loughlin, 2021). In short, age diversity highlights the needs of different age group of talents as it leads to better decision-making outcomes (Li et al. 2011).

According to Xu et al. (2022), age diversity is essential because it fosters innovation and produces better solutions to organisational challenges. This is because each talent group has its own unique and useful viewpoint, allowing the company to improve the business from a range of angles (Xu et al. 2022). Furthermore, age diversity is seen as an important factor because it enables directors from both younger and older generations to develop distinct perspectives that contribute to the firm's performance (Scheuer and Loughlin, 2021). Age diversity, on the other hand, is important in any firm since it stimulates and provides younger talents with larger opportunities, which may result in improved cash flow in the long term (Scheuer and Loughlin, 2021). In addition, age diversity enables an organisation to identify and pursue possible investment ideas owing to a higher degree of expertise and experience, which results in better profits for the business (Xu et al. 2022). The importance of having employees of varying ages is that it makes the process of sharing information and organisational culture more efficient (Talavera and Zhang, 2021)

According to Rahman et al. (2020), diverse age groups possess a broader range of knowledge and abilities than homogeneous age groups, giving diverse age groups better flexibility and inventiveness. Researches added that diverse capabilities, expertise, and experiences of group members may generate cognitive friction, which can assist in collective decision-making (Xu et al. 2022). According to Talavera and Zhang (2021), age diversity does not ensure organisational performance, but work groups should learn to work together to benefit from a pool of knowledge and abilities, stimulating discussions and developing good communication, which leads in improved decision-making and learning (Talavera and Zhang, 2021). In additional, researchers claims that leaders should encourage knowledge sharing and teamwork among members of different backgrounds in order to improve team output (Xu et al. 2022). This is due to the fact that different individuals assess decisions from different perspectives; therefore, age diversity enables boardroom members to initiate

more discussions, resulting in improved financial performance (Rahman et al., 2020).

Moreover, Rahman et al. (2020), claims that older board members are structured and disciplined, have great communication skills and focus on detail, and are consistent, whereas younger board members are creative, adaptive, digitally savvy, multitasking, and focused on speed and efficiency. Researchers added that some cognitive qualities, such as creativity, intellect, and the ability to cope with complex situations, as well as physical abilities, deteriorate with age, necessitating the need for diverse age groups to support the firm's long-term success (Rahman et al., 2020). On the other hand, researchers argue that firms with diverse age groups may develop and maintain better relationships with collaborators such as suppliers, partners and other third-party which benefits firms in terms of profitability and growth (Talavera and Zhang, 2021). This is because having a strong link with collaborators allows companies to achieve feasible objectives, please customers, and receive higher profits, which may result in the involvement of other potential collaborators (Talavera and Zhang, 2021).

Moreover, age diversity in the boardroom correlates favourably with technological advancements and internal business joint ventures (Scheuer and Loughlin, 2021). This is because young board members have more access to and knowledge of complex technical developments, which may result in increased investment to attract additional investors (Rahman et al., 2020). Although board members have diverse behaviours, experiences, and approaches, these traits may contribute to value creation (Talavera and Zhang, 2021). Therefore, age diversity has a significant impact on financial performance (Talavera and Zhang, 2021).

2.2.2. Gender Diversity

According to Garcia-Solarte et al. (2018), shown that gender diversity is an excellent way for fostering gender equality in the workplace, particularly at the board level. In management professions, it is a legitimate criteria for maximising the available human resource (Garcia-Solarte et al., 2018). On the other hand, gender diversity evaluates an organization's requirement to diversify its board in order to guarantee that women are represented, with the goal of improving board quality and decision-making standards (Oradi and Izadi, 2019). Another research by Oradi and Izadi (2019), states that gender diversity in the boardroom is defined as the presence of women on the board, which is an essential part of board diversity. Researchers highlighted that gender diversity is intrinsically linked to women's involvement on boards since men and women approach business matters differently, which may impact the development and profitability of a company (Oware and Mallikarjunappa, 2021). In summary, gender diversity at the board level refers to the presence of both men and women on the board with the aim of maximising shareholder value (Oware and Mallikarjunappa, 2021).

Gender diversity in the boardroom is crucial because it fosters creativity and innovation while also developing critical thinking by allowing individuals to share knowledge for a better outcome (Ly-Le, 2022). Furthermore, diverse group of board members is more effective because different board members have different ways of approaching challenges (Ozdemir and Erkmn, 2022). As a consequence, gender diversity may result in in-depth debate, allowing each board member to assess information before adopting to lower the chance of failure (Ozdemir and Erkmn, 2022). In addition, gender diversity is seen as a key component since it allows for greater employee retention, stronger cooperation and teamwork, a broader viewpoint, and an enhanced corporate reputation in the pursuit of effective governance procedures (Oware and Mallikarjunappa, 2021).

Greater board diversity increases a company's competitive edge over companies with less diversity (Singh et al., 2022). Researchers highlighted that women's involvement also improves workplace communication and teamwork (Oware and Mallikarjunappa, 2021). It is claimed that women lower men's over-competitiveness, lessen confrontations, and heighten their awareness of the need to overcome differences (Oware and Mallikarjunappa, 2021). Typically, the board of directors works as a group, and hence, variances within the group may undoubtedly contribute to an increase in knowledge, skills, and information (Lim et al., 2019). Additionally, it is argued that gender diversity in senior management would certainly improve the financial health of companies with lower shareholder rights (Ly-Le, 2022). Due to their temperament and experience, women are said to be more likely to ask questions so that judgements are made after thorough deliberation (Ly-Le, 2022). These deliberations are seen to increase problem-solving, creativity, and invention (Ly-Le, 2022). Relatively, having more women on boards has been shown to enhance decision making and problem solving, but it has also been noted that more diverse boards are less productive due to an increase in disputes and a decrease in efficiency (Singh et al., 2022). Moreover, researchers claims that stronger managerial oversight, which is carried out by female directors, is associated with lower risk (Ozdemir and Erkmen, 2022).

Researchers find that gender-diverse boards engage with financial experts more often during merger and acquisition transactions (Ozdemir and Erkmen, 2022). This is because female directors are more likely to seek expert perspectives and suggestions, which may assist the board in identifying, assessing, and overseeing company risk, hence reducing firm risk (Ozdemir and Erkmen, 2022). Researchers hypothesise that the inclusion of female directors would benefit the board's decision-making process by assisting the board in recognising diverse cognitive frameworks and fostering creativity and innovation (Lim et al., 2019). In order to stay competitive, companies need a diverse set of leaders at all levels of the organisation and understanding the impact of gender diversity on the

workplace is essential (Lim et al., 2019). Researchers discovered that males come up with more remedies for a single issue, while women often provide higher-quality ideas (Kara et al., 2022).

Previous research has found that women are more likely to add new perspectives and expand the information set available to the company because they are more risk adverse and cautious about risk management, and they are less likely to engage in immoral activity (Kara et al., 2022). In addition, female representation on boards has been proved to improve corporate governance and boost company performance (Kara et al., 2022). However, gender-diverse boards may encourage directors to identify more strongly with the viewpoints of the directors of the same gender, hence increasing the probability of conflict (Kara et al., 2022). Nonetheless, academics suggest that although gender diversity increases the potential of conflict, but it also permits investors and other stakeholders to feel that the business is doing all possible to secure a higher return (Singh et al., 2022).

2.2.3. Educational Diversity

According to Hambrick and Mason (1984), a person's formal educational experience may provide rich and diverse information on their beliefs and cognitive preferences. According to Curşeu et al. (2012), education level is a measure of a person's knowledge, skill set, and cognitive ability. In addition, educational diversity demonstrates an organization's capacity to attract and retain individuals from diverse backgrounds in order to effectively manage complex situations (Mathisen and Marnburg, 2013). Diversity in education at the board level may be able to capture or represent the board's cognitive resources and capacity to participate in complicated and innovative problem-solving (Lu et al., 2021). Diversity in educational backgrounds of board members, for instance, may contribute distinct abilities, knowledge, and skills that facilitate the expression of diverse viewpoints and generate a greater variety of ideas and options for strategic

decisions (Issa et al., 2021). In short, educational diversity in the boardroom assesses an individual's capacity to develop the best strategic alternatives for the organisation, resulting in the best interests of the shareholders and the firm as a whole (Singh et al., 2008).

Educational diversity is seen as a significant factor because it allows an organization to compete against competitors, gaining a competitive edge over their rivals (Lu et al., 2021). Furthermore, educational diversity in the boardroom enables the firm to undertake profitable investment projects, resulting in improved firm performance and profitability (Issa et al., 2021). On the other hand, monitoring the need for balance educational diversity in the boardroom allows for better decision making outcome which may reduce risk of business failures (Kramarić and Miletić, 2022). According to Kramarić and Miletić, (2022), promoting educational diversity in the boardroom leads to a better awareness of the firm's potential challenges, enabling for more creative and innovative solutions to be implemented. In addition, having board members from a diverse range of academic fields promotes greater understanding and opens up new avenues for problem-solving (Kabara et al., 2022).

According to the principle of cognitive resource diversity, adding new members and perspectives to a group may improve firms performance by using the members' unique sets of skills and knowledge (Lu et al., 2021). Diverse groups had the capacity to evaluate a broader range of viewpoints and build more cognitive complexity in respect to a knowledge domain, which allowed them to be more innovative and provide higher-quality solutions (Lu et al, 2021). Significantly more organisations with high educational diversity engage in boundary-spanning activities than those with low educational diversity (Issa et al., 2021). However, the disparities in viewpoints, attitudes, and opinions voiced by people from various educational backgrounds may inhibit internal communication and cause conflict (Kramarić and Miletić, 2022). Moreover, a high level of educational diversity can involve diverse knowledge and information which allows

board members to make right decision for the firm's long term growth (Kabara et al., 2022). This is because a diverse group of board members can view and spot problems as well as coming up with remedies to prevent the business from losing capital, credibility, and clients (Kabara et al., 2022). As a consequence, educational diversity propels businesses in a variety of directions, resulting in increased returns, investors, and customers, as well as enhanced company performance (Kabara et al., 2022).

Education develops the cognitive foundation of humans so that they can assimilate new concepts and boosts their information processing ability (Jaafar and Rahmat, 2021). Researchers found that directors with higher education bring varied perspectives to board meetings, which may increase the board's knowledge of corporate issues from various sides and increase the likelihood of innovative and creative solutions to complex problems (Jaafar and Rahmat, 2021). Diverse educational backgrounds are likely to contribute to legitimacy by enhancing the capacity of board members to comprehend the interests and demands of diverse stakeholder groups (Lu et al., 2021). Researches claims that boards with highly educated directors are more likely to disclose environmental information in annual reports, as these directors have a broader understanding of and greater sensitivity to environmental issues (Kramarić and Miletić, 2022). According to Gold et al. (2021), knowledge and understanding are derived from education and experience, and different studies have highlighted that greater educational levels on boards boost the board's capacity to comprehend information and accept innovation, resulting in increased board effectiveness (Issa et al., 2021). Diverse levels of education and cognitive abilities among directors may result in more effective corporate strategy development (Kramarić and Miletić, 2022). Some researchers claim that a high degree of education may lead to dispute and argument, which can delay decision-making, while researchers feel that a certain amount of cognitive conflict improves board effectiveness and results in better firm performance (Gold et al., 2021).

2.2.4. Tenure Diversity

According to Tanikawa and Jung (2016), the term "tenure diversity" refers to the average number of years that directors have served on the board collectively. Employees with varying levels of tenure have different opportunities to contribute their knowledge, expertise, and skills to improve the firm's performance and quality (Tanikawa and Jung, 2016). Therefore, diversifying personnel with short and long tenures to guarantee efficiency and effective communication contributes to the success of a business (Tanikawa and Jung, 2016). On the other side, tenure diversity assesses a company's ability to manage and mitigate risk if it attracts personnel with better experience and the potential to improve the company's long-term success (Lo et al., 2019). Furthermore, organisational tenure represents knowledge gained via socialization. Individuals develop tacit and explicit knowledge of firm-specific processes and practises over organisational tenure, which eventually benefits their job and organisational performance (Díaz-Fernández et al., 2016). To summarise, tenure diversity embraces a firm's quality and standard by evaluating and monitoring director tenure to guarantee effective decision-making that promotes shareholders and the firm's interests (Díaz-Fernández et al., 2016).

Diversity in tenure is crucial at the boardroom level because it improves the quality of boardroom decision-making by introducing new viewpoints and fostering an environment that encourages discussion, debate, and information exchange (Lo et al., 2019). Moreover, tenure diversity is important for team creativity because team members with various expertise generate novel concepts and methods (Dey and Ganesh, 2020). In addition, enhancing tenure diversity in the boardroom facilitates better communication, which may lead to directors' active participation in ensuring shareholders' and the firm's interests are satisfied (Díaz-Fernández et al., 2016). Furthermore, improving tenure diversity policies at the board level eliminates blind spots and conflicts of interest, encouraging the board to be more focused on the firm's goals (Dey and Ganesh, 2020).

Additionally, tenure diversity is essential in the boardroom since it broadens the knowledge base and generates more debates to ensure that the company is aware of the problem and its approaches (Lo et al., 2019).

Researchers discovered a correlation between tenure and financial performance (Dey and Ganesh, 2020). Boards of directors that are relatively new to the company may prefer to be associated with new products and processes, and hence provide greater guidance on strategic changes, such as the creation of new products (Khan et al., 2022). In addition, Díaz-Fernández et al. (2016), discovered that decision-makers with shorter tenures show more dedication to strategic change, however extremely short-tenured executives may participate in less amount of strategic change. This is due to the fact that board members may have less expertise, exposure, and understanding of the firm's policies, and hence have difficulties in managing the organisation (Díaz-Fernández et al., 2016). On top of that, short-tenured board members may not successfully lead strategic change due to lack of expertise with routines, processes, and policies, hence tenure diversity is predicted to contribute to greater strategic change (Díaz-Fernández et al., 2016). A long tenure policy enables members to have a thorough knowledge of each other, allowing for in-depth discussions, analysis of multiple alternatives, and development of fresh creative ideas to accomplish challenging issues (Dey and Ganesh, 2020). Longer board tenure would improve management oversight since it would minimise directors' exposure to management influence and raise their understanding of firm-related problems (Dey and Ganesh, 2020). Long tenure results in a greater comprehension of both firm-specific and environmental challenges (Shatnawi et al., 2022). This will result in improved communication and relationships between board members and stakeholders who are concerned about ESG and other environmental initiatives (Shatnawi et al., 2022).

According to Shatnawi et al. (2022), organisational decision-makers with both long and short tenures are more receptive to strategic change. Boards with a wide range of backgrounds and experiences are better able to

draw from a wider range of information sources, which is essential for boosting a company's bottom line (Shatnawi et al., 2022). Diversity in tenure allows board members to reap the benefits of engaging with both senior and younger directors in terms of knowledge learning and independence (Dey and Ganesh, 2020). Combining long and short-tenured directors may increase oversight and aid corporations in formulating appropriate policies and practices (Yadav and Lenka, 2022). According to Khan et al. (2022), long-term board members may weaken board independence and enhance the influence of others owing to the strong power and control of a majority on the board. Researchers added that long team tenure may result in increasing isolation from external sources of knowledge, making members less sensitive to change and innovation (Khan et al., 2022). As a result, it is believed that combining the opinions of board members with long and short tenures would boost the company's performance towards achievements (Lo et al., 2019).

2.2.5. Control Variables

Board Size: Board size, according to Karim et al. (2022), refers to the total number of individuals serving on the board. Board size is seen as an essential aspect in board diversity because it enables organisations to access the efficacy of board decisions via board formation (Karim et al., 2022). Researchers added that the effectiveness of a corporate board can be affected by the size of the board (Karim et al., 2022). According to agency theory, increasing the number of board directors is averse to governance efficiency (Nguyen and Thanh, 2022). Researchers stated that a small board size is efficient because its members are more inclined to be cooperative and active while monitoring the agent (Nguyen and Thanh, 2022). When the board size increases, potential group dynamics issues such as groupthink, high cohesion and communication barriers, and a significant likelihood of developing factions and coalitions appear (Nguyen and Thanh, 2022). However, as compared to a bigger board, each director on a smaller board

has a higher workload and obligations, which may impair the productivity of their monitoring functions (Nguyen and Thanh, 2022).

In order to effectively oversee the agent, a larger board gives more broad experience, greater managerial capacity, more viewpoints on business plans, and less power concentration risks (Andoh et al., 2023). In addition, agency theory favours large boards due to the belief that greater board size will diminish managers' ability to dominate the board and provide for a broader view on the management issues faced by organisations (Andoh et al., 2023). Therefore, researchers advise that the optimum number of board members is between eight and ten, however it also relies on the type and size of the company (Andoh et al., 2023). In short, the appropriate board size will enable a company to manage, contribute to, and improve its performance by engaging in potential projects, increasing participation, and reducing firm's risk (Andoh et al., 2023).

Board independence: Board independence refers to the proportion of independent board members relative to the total number of board members (Kweh et al., 2022). According to agency theory, a firm selects independent directors to boost monitoring efficiency, increase management transparency, and mitigate agency issues (Kweh et al., 2022). Moreover, researchers added that an efficient corporate governance system develops a structure for controlling directors in order to prevent them from misusing their powers and to guarantee that they act in the best interests of the firm (Kweh et al., 2022). According to Kweh et al. (2022), board independence has a significant influence on company performance as assessed by return on assets and return on equity. When the cost of accessing firm information is minimal, the more independent directors there are, the higher the performance improvement (Kweh et al., 2022).

At a higher level, a larger number of independent directors may have a stronger voice in monitoring managers' judgements on resource misallocation while making suboptimal decision (Sasidharan, 2020). As a

result, a large number of directors on a board enables successful compliance with corporate governance norms and rigorous monitoring of operations (Sasidharan, 2020). In addition, an efficient and active board relies on the tenure of independent directors to guarantee effective decision making, improved communication, and better management of the firm's operations in order to boost the firm's long-term performance (Sasidharan, 2020). In accordance with Practice 5.3 of the MCCG (2021), the tenure of independent directors must not exceed nine years. This gives businesses the option to attract new talent to guarantee compliance with governance rules (Sasidharan, 2020). As a consequence, businesses are able to retain board independence in order to limit the possibility of majority directors controlling board decisions (Sasidharan, 2020).

Financial leverage: Financial leverage considerations are among the most important decisions that leaders should consider (Ghardallou, 2023). Financial leverage is measured by the total debts and total assets of the firm (Ghardallou, 2023). Corporate leverage choices are important since they may lead to excessive mistakes, such as selecting investments that are not possibly viable, which can have a negative impact on profitability (Ghardallou, 2023).

According to reports, the amount of financial leverage has a direct and substantial impact on corporate profitability, hence it decides the firm's success in the long term (Danso et al., 2021). The conflict between equity and debt inevitably affects an organization's performance (Danso et al., 2021). In this aspect, managers must make the best option possible in order to maximise shareholder value, while keeping in mind that business performance is influenced by the composition of debts and equity (Danso et al., 2021). In addition, financial leverage heightens financial risks. Greater financial leverage raises the debt repayment and fund recovery pressures of businesses, hence increasing overall debt risks (Danso et al., 2021). On other hand, financial leverage may be used as a business monitoring instrument to reduce agency issues (Danso et al., 2021). This may raise the firm's value

since agency issues might be an impediment to increasing firm's value (Danso et al., 2021).

2.2.6. Financial Performance

According to researchers, financial performance is an economic indicator of an organisation's capacity to use its human and material resources to achieve its objectives (Lim et al., 2019). Researchers added that the performance of a firm must also consider the effectiveness of its use of resources throughout production and consumption (Lim et al., 2019). In the 1950s, firm success was linked to corporate efficiency, which is the degree to which an organization, as a social system with fixed resources and methods, achieves its goals without overworking its members (Song et al., 2020). Cherrington (1989) defined performance as a notion of an organization's success or effectiveness, as well as an indicator of the organisational style in which it is functioning effectively to fulfil its objectives successfully. The notion of company performance must be differentiated from the broader concept of organisational effectiveness. As a result, firm performance refers to the efficacy of a company as a whole, including its financial and operational results (Lim et al., 2019).

There are a variety of tools available for measuring a company's success. ROA may be used as a tool or indication to observe a company's capacity to generate profits via the usage of its total owned assets (Johari and Komathy, 2019). Theoretically, a better ROA value suggests that a corporation is in a position to generate more asset value (Johari and Komathy, 2019). Due to the usage of EBITDA as the denominator, ROA may disclose the true performance of a firm (Johari and Komathy, 2019). ROA would offer all stakeholders with insight into the effectiveness of a company's management in using its assets to create profits and returns (Johari and Komathy, 2019). ROA enables consumers to judge how successfully a firm's CG mechanism secures and motivates efficient

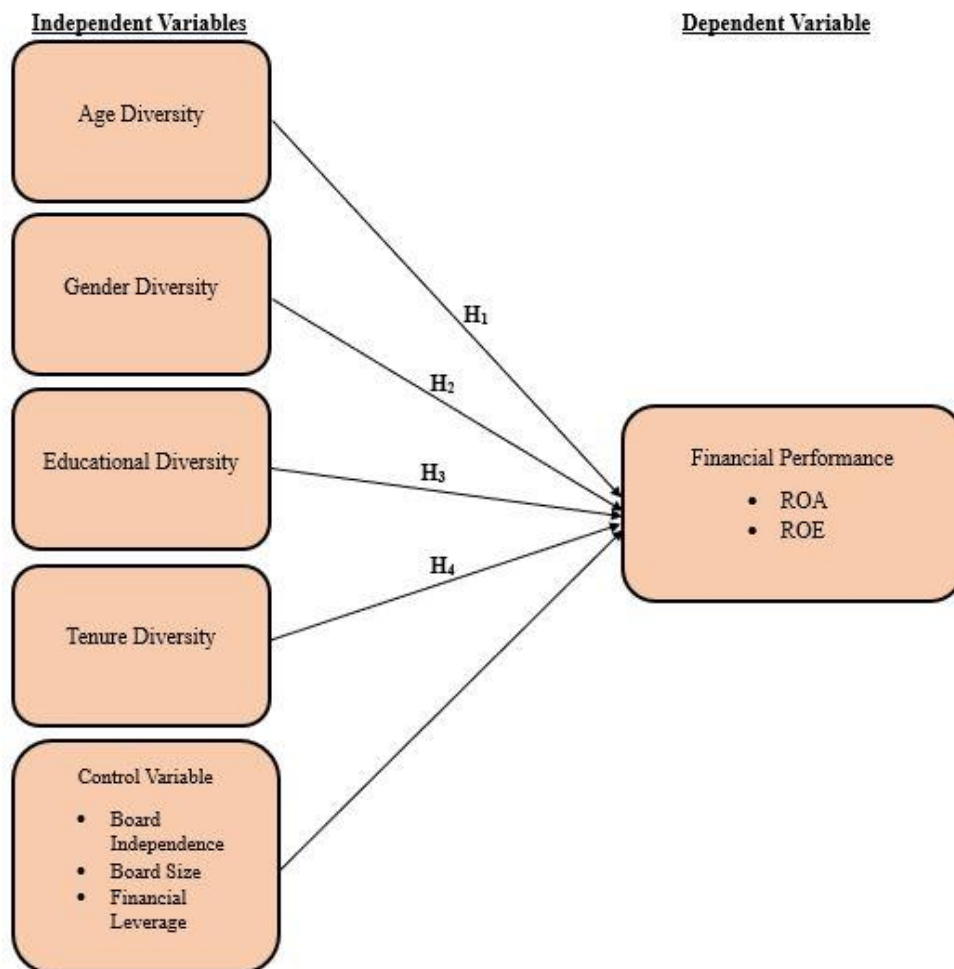
management (Johari and Komathy, 2019). On other hand, ROE is a metric that indicates to investors how much profit a firm earns from shareholder capital (Johari and Komathy, 2019). Firms may get valuable insight into the profitability of their operations by calculating their return on equity (Johari and Komathy, 2019). In a nutshell, it's a great approach to assess the company's ability to make effective use of the firm's equity and informs investors as to whether or not firms are receiving a fair return on their investment (Johari and Komathy, 2019).

According to Lim et al. (2019), evaluating a company's performance is crucial for ensuring the best possible results, as it informs board members of the company's current status in relation to industry norms and the actions that can be taken to enhance the firm's productivity. On the other hand, financial performance is strongly correlated with board diversity because it ensures that a diverse board has a greater capacity to generate higher returns and undertake potential investments that are consistent with the objectives of the firm and its stakeholders (Song et al., 2020). Moreover, evaluating a company's performance is essential since it enables directors and shareholders to give better decisions to problems and to provide new approaches to increase a company's return and value (Song et al., 2020).

The relevance of corporate governance in a company's success has been underlined by researchers who have discovered the favourable effect of board diversity on financial performance (Yousaf et al., 2021). According to Song et al. (2020), more board diversity boosts a firm's competitive advantage over businesses with less diversity. This is due to the fact that a more diverse board enables corporations to participate in and accept criticism, allowing board members to improve their business policies in order to retain long-term investors (Lim et al., 2019). This is because organisations that accept criticism are able to take significant steps to enhance company performance, adopt new strategies, and reduce possible risks, resulting in increased productivity and profits (Lim et al., 2019). On other hand, greater board diversity enhances board compositions and, as a

result, keeps board members who contribute fairly and disseminate good ideas to improve financial performance (Yousaf et al., 2021). According to resource dependency theory, board diversity helps a corporation to access resources that are critical to reducing risks and improving operational results (Song et al., 2020). A more diverse board of directors offers access to a wider range of essential resources, which in turn leads to improved decision-making and overall company success (Yousaf et al., 2021). Lastly, a diverse board delivers symbolic values to a firm's stakeholders, there may be a greater opportunity for a firm to create a positive connection with its stakeholders, which may boost firm value (Song et al., 2020).

2.3. Research Framework



2.4. Hypothesis Development

2.4.1. Age Diversity

According to Shaheen et al. (2017), increasing age diversity in the boardroom improves organisational performance in terms of productivity, investments undertaken, effective negotiation, and improved communication to assess ideas in order to maximise shareholder value. Researchers stated that age diversity has the ability to improve a company's performance by bringing diverse perspectives, debates, and discussions to guarantee that decisions are valuable (Shaheen et al., 2017). In contrast, Rahman et al. (2020) found that age diversity had a significant impact on company performance. This is because firms with a diverse board are able to attract new investors, produce more revenue, and outperform rivals (Rahman et al., 2020). As a result, age diversity has a positive influence on firm's performance (Shaheen et al. 2017) and Rahman et al. (2020).

H₀ : There is no relationship between age diversity and financial performance.

H₁ : There is relationship between age diversity and financial performance.

2.4.2. Gender Diversity

Gender diversity, according to researchers, has a major impact on corporate success (Singh et al., 2022). This is because having a sufficient board of both male and female directors will result in improved financial health of the organisation (Singh et al., 2022). Furthermore, Singh et al. (2022) stated that increasing the number of female directors on boards helps to improve governance procedures and boost discussions, which leads to increased business productivity. Li et al. (2022) hypothesise that the inclusion of female directors would enhance the board's decision-making

process by aiding the board in recognising diverse cognitive frameworks and fostering creativity and innovation in decision-making. Consequently, a diverse board is able to increase board performance and provide the organisation with high-quality output, resulting in increased returns for shareholders and the firm (Li et al., 2022). Therefore, researchers concludes that gender diversity has a positive influence towards firm's performance Singh et al. (2022) and Li et al. (2022).

H₀ : There is no relationship between gender diversity and financial performance.

H₁ : There is relationship between gender diversity and financial performance.

2.4.3. Educational Diversity

Diversity of education is anticipated to give legitimacy by enhancing board members' capacity to comprehend the interests and demands of diverse stakeholder groups (Issa et al., 2022). Hence, diversity in boardrooms is likely to have a favourable effect on financial performance (Issa et al., 2022). Moreover, a diverse board in terms of educational diversity contributes to the improvement of a company's performance since directors with varied educational backgrounds address problems differently (Issa et al., 2022). A board with members from various background will have access to a wider range of perspectives, ideas, and approaches that can all help to boost the company's success (Gold et al., 2021). This is because board members are able to accurately assess the situation and, as a result, lower the risk of organisational failure (Gold et al., 2021). Therefore, researchers assert that educational diversity has a substantial impact on company performance (Gold et al., 2021).

H₀ : There is no relationship between educational diversity and financial performance.

H₁ : There is relationship between educational diversity and financial performance.

2.4.4. Tenure Diversity

According to researchers, tenure diversity has a significant influence on financial performance (Dey and Ganesh et al., 2020). This is due to the fact that organisations with diverse tenure are able to create new ideas and debate them with senior board members to guarantee that decisions are made in the best interest of the company (Dey and Ganesh et al., 2020). In addition, tenure diversity is intimately related to board members' experience and their ability to see situations from various perspectives (Dey and Ganesh et al., 2020). This will aid firms in examining possible problems in detail and delivering the best results for the business (Dey and Ganesh et al., 2020). On the other side, researchers note that keeping long-tenured board members may have an impact on the firm's success, as it may influence voting power and other aspects (Yadav and Lenka, 2022). Therefore, tenure diversity has a positive impact on financial performance (Yadav and Lenka, 2022).

H₀ : There is no relationship between tenure diversity and financial performance.

H₁ : There is relationship between tenure diversity and financial performance.

2.5. Conclusion

Based on the preceding literature analysis, it is clear that there are several mixed outcomes from previous research on this topic. The literature review will aid in forecasting the impact of each board diversity variable on financial performance. In this chapter, the suggested study framework and hypotheses are outlined. The discussion of research methods continues in the next chapter.

CHAPTER 3

METHODOLOGY

3. Introduction

This chapter will begin with a description of the research design and sampling method of this proposed research, after the formation of those hypotheses that contained all the recommended variables. Followed by the data collection methods, research instrument, construct measurement, and data analysis method. The analytical tests will be clearly explained, along with the justifications for choosing to analyse the data collected. Finally, a summary of the most key facts is provided in the chapter's conclusion.

3.1. Research Design

This section provides an overview of the research methodology used to answer the research questions. As illustrated in research framework, the research aims to examine the impact of board diversity factors towards firm's performance. The independent variable consists of age diversity, gender diversity, educational diversity and tenure diversity which has a significant impact on firm's performance. Moreover, there are also three control variables which includes board independence, board size and financial leverage added to analyse the impact towards financial performance. According to Sileyew

(2019), research design is created particularly to answer research questions and control research variation. The objective is to answer the research question or test the research hypothesis that demonstrates a relationship between IVs and DVs (Sileyew, 2019).

3.1.1. Quantitative Research

Quantitative research, according to Yilmaz (2013), focuses on numerical data analysed using mathematically based methodologies, particularly statistics. This approach is used to social or human issues, evaluating hypotheses consisting of variables that are quantified using numbers to determine whether components are connected (Yilmaz, 2013). Relatively, quantitative research is used to describe and analyse the data in order to provide information and develop conclusions about the topic being researched (Avgousti, 2013). This approach is used to create data from surveys that contain statistical results, evaluation, and measured amounts of data (Avgousti, 2013). In short, quantitative method was used to analyse the influence of the main variables such as age diversity, gender diversity, educational diversity and tenure diversity in relation to firm's performance.

3.1.2. Descriptive Research

Descriptive research is a crucial component that gives demographic information and aims to explain what is frequent, prevalent, or already exists in the population being studied (Siedlecki, 2020). The primary objective is to resolve difficulties such as when, what, who, and where (Siedlecki, 2020). Thus, this strategy enables readers to better comprehend data obtained throughout the research investigation and rationally adjust the quantity of data collected (Siedlecki, 2020). According to Siedlecki (2020)., descriptive research focuses on demographic characteristics, identifying existing issues,

or examining differences in features or practices across organisations or nations.

3.2. Sampling Design

Sampling enables researchers to acquire data more quickly and at a reduced cost, which is important to the study (Turner, 2020).

3.2.1. Target Population

This research is focused on top 100 Companies in Malaysia according to Statista Toplist.

3.2.2. Sampling Size

The study proposes to select the Top 100 Malaysia Public Listed as targeted sample based on market capitalization. The sample period for the obtained data encompasses five years, from 2017 to 2021. One of the primary reasons for determining the range is the consequence of the Companies Act of 2016, which took effect on 31 January 2017 (MCCG, 2021). Therefore, the data was extracted over a span of five years to produce more meaningful research results. Nevertheless, organisations in the financial sector are being phased out. Banking, insurance, trust and funds, and securities, for example, are excluded from the sample owing to the nature of their businesses. In Malaysia, these businesses are subject to additional government regulations, particularly those imposed by Bank Negara Malaysia (BNM). The sample size will be filtered in order to identify the final and qualified sample data. As a consequence, 83 companies have met the aforementioned requirements and will be used to generate data for meaningful outcomes.

3.2.3. Sampling Technique

The actual outcomes of this research are determined via non-probability sampling. Non-probability sampling refers to statistical population with unknown or unequal probabilities of selection (Turner, 2020). Non-probability sampling entails that certain components have no chance of being chosen and others have an uncertain likelihood of being selected (Turner, 2020).

The term "purposive sampling" is used to describe a wide variety of non-probability sampling methods (Andrade, 2021). Purposive sampling is a type of sampling in which the entities (e.g., individuals, cases/organizations, occurrences, bits of data) to be examined are chosen based on the researcher's biased opinion (Andrade, 2021). It is a type of non-probability sampling in which the researcher makes choices about which companies should be included in the sample based on a variety of factors such as companies industry, field, nature of business and etc (Andrade, 2021). Therefore, purposive sampling's primary aim is to concentrate on specific traits of a group that are of interest in order to best answer research questions (Andrade, 2021). This sampling technique is appropriate for this study because it examines the top 100 Malaysian companies in order to assess the standard of corporate governance applied by those firms.

3.3. Data Collection Method

3.3.1. Secondary Data

Secondary data are data generated by another researcher and made accessible to researchers so that they may locate reliable and trustworthy information (Hox and Boeije, 2005). Primarily, secondary data is used to save the time and expense of undertaking research from scratch (Martins and et al., 2018). Regarding the dependability of the data, all sources are culled from suitable platforms, such as emerald management e-journal collection, scientific direct, and government websites. The data gathered from 1984 to 2023 is appropriate for the analysis of the research investigation. The suitability of data taken from sources is accurate, dependable, and comparable across all publications. Official government sites are used to collect up-to-date data on population for the purpose of interpreting the research study further (Turner, 2020). The quality of data utilised in this study is suitable and acceptable since there are many comparable historical research results that are accurate and trustworthy (Turner, 2020).

The essential information for this proposed research is derived from secondary sources, such as the reputable websites and public annual reports of the respective PLCs. All variables for this study will be collected from trustworthy sources, such as the Bloomberg database, Refinitiv and the Annual reports of the selected PLCs. The annual reports are retrieved from Bursa Malaysia or the websites of the various companies. The public data sources are well-known for providing academics with easy access to credible statistical data (Turner, 2020). Furthermore, all the variables are then transferred and tested with the application of EViews for the panel data analysis.

3.4. Research Instrument

The majority of the relevant data is gathered from the Bloomberg database, Refinitiv and the annual reports of the sampled companies. In today's digitalized world, the required annual reports are easily accessible through the investor relations page of the organization's official website or the primary stock exchange website of the relevant nation.

3.5. Construct Measurement

The source of the construct originated from past studies which has been discussed in Chapter 2. This research is carried out using four independent variable and one dependent variable.

3.5.1. Dependent, Independent and Control Variables

Table 3.1: Dependent, Independent and Control Variables

Dependent Variables	Formula	Source
Financial Performance		
Return on Assets (ROA)	$\frac{\text{Net Income}}{\text{Total Assets}}$	Bin Khidmat et al., 2020 Johari and Komathy, 2019
Return on Equity (ROE)	$\frac{\text{Net Income}}{\text{Total Equity}}$	Bin Khidmat et al., 2020 Johari and Komathy, 2019
Independent Variables	Formula	Source
Age Diversity	Directors age groups	Rahman and Jehangir, 2020
Gender Diversity	Number of male and female directors	Ly-Le, 2022

Educational Diversity	Directors educational background	Jaafar and Rahmat, 2021
Tenure Diversity	Number of years on board	Shatnawi et al., 2022
Control Variables	Formula	Source
Board Size	Number of board members	Karim et al., 2022
Board Independence	Number of independent directors	Kweh et al., 2022
Financial leverage	$\frac{\text{Shareholder Equity}}{\text{Total debts}}$	Danso et al., 2021

3.6. Data Analysis

Data analysis is the procedure of applying statistical data to define, evaluate and explain data accordingly (Albers, 2017).

3.6.1. Descriptive Analysis

Data analysis is the process of using statistical data to define, assess, and appropriately interpret data (Loeb et al., 2017). It would enable raw data to be transformed into a simpler form and relevant information that is easy to grasp and analyse (Loeb et al., 2017). In this study, the analysis is primarily used to determine the mean and standard deviation for the variables examined (Loeb et al., 2017). The analysis produces results that are utilised to represent the target population (Loeb et al., 2017).

3.6.2. Pearson Correlation Analysis

Table 3.2: Rule of Thumb of Pearson Correlation Analysis

Coefficient Range	Strength of Association
± 0.91 to ± 1.00	Very Strong
± 0.71 to ± 0.90	High
± 0.41 to ± 0.70	Moderate
± 0.21 to ± 0.40	Small but definite relationship
± 0.00 to ± 0.20	Slight, almost negligible

The rules of thumb of Pearson Correlation Coefficient shown in the table above will be used to analyse the strength, significance, and direction of the link between dependent and independent variables (Guetterman, 2019). -1.0 to +1.0 will be the range of correlation. – indicates negative correlation relationship, + indicates a positive correlation relationship (Guetterman, 2019).

3.6.3. Panel Data Analysis

The panel data analysis has been the predominant method used in the study of this topic (Hsiao, 2022). There are two essential components to the analysis (Hsiao, 2022). The correlation analysis will be performed first, followed by a regression analysis (Hsiao, 2022). A correlation analysis is required to determine the nature of the relationship between the explanatory variables in question and the dependant variables (Hsiao, 2022). It will also disclose whether or not the explanatory variables are affected by multicollinearity (Hsiao, 2022).

According to Hsiao (2022), panel data allows researchers to examine a subject over the course of multiple time periods by collecting and analysing samples from a broad range of fields. Panel analysis, which tracks firm dynamics over time, adds a second layer by fusing time series and cross-sectional data (Hsiao, 2022).

The following factors has been briefly explained in Chapter 2.

General Equation for panel:-

$$ROA_{it} = \beta_0 + \beta_1 \text{Independent}_{it} + \beta_2 \text{AD}_{it} + \beta_3 \text{GD}_{it} + \beta_4 \text{ED}_{it} + \beta_5 \text{TD}_{it} + \beta_6 \text{BI}_{it} + \beta_7 \text{BS}_{it} + \beta_8 \text{FL}_{it} + \varepsilon_{it}$$

$$ROE_{it} = \beta_0 + \beta_1 \text{Independent}_{it} + \beta_2 \text{AD}_{it} + \beta_3 \text{GD}_{it} + \beta_4 \text{ED}_{it} + \beta_5 \text{TD}_{it} + \beta_6 \text{BI}_{it} + \beta_7 \text{BS}_{it} + \beta_8 \text{FL}_{it} + \varepsilon_{it}$$

Description

β	: Beta	TD	: Tenure Diversity
ROA	: Return on Assets	BI	: Board Independence
ROE	: Return on Equity	BS	: Board Size
AD	: Age Diversity	FL	: Financial leverage
GD	: Gender Diversity	ε	: error term
ED	: Educational Diversity		

3.6.4. Random Effect Model (“REM”)

According to REM, individual effects are spread arbitrarily across cross-sectional units, and the regression model is defined with an intercept term that is to be regarded as a general constant term, with the objective of capturing the individual effect (Wooldridge, 2019). In simplified terms, this model implies that the explanatory variables have individual-specific effects that are distributed independently (Wooldridge, 2019). Thus, this model is chosen when it is anticipated that certain factors causing random variation in the coefficients can be controlled (Wooldridge, 2019).

The REM is regressed as follow:

$$Y_{it} = \alpha_i + \beta_1 X_{it} + u_{it} + e_{it}$$

Where:

Y_{it} = Dependent variable where i = entity and t = time

X_{it} = Independent variable

α_i = Unknown intercept for each entity

β_1 = Coefficient of Independent Variable

u_{it} = Within entity error term

e_{it} = Between entity error term

In addition, time-invariant elements can be incorporated into REM, which is a benefit of using this method (Wooldridge, 2019). The specific effects were assumed to be uncorrelated with other regressors, which appears to be a shortcoming of this estimation method (Wooldridge, 2019).

3.6.5. Fixed Effect Model (“FEM”)

FEM is a model in which the differences between cross-sectional units are represented in the differences between regression models' constant term and the intercept term, which varies across cross-sectional units (Wooldridge, 2019). This specific kind of panel analysis model is being used to collect and connect the independent factors as well as the unmeasured variability (Wooldridge, 2019). In other words, a model of this kind will be able to forecast the impact of an independent variable while removing any interference caused by time-invariant components (Wooldridge, 2019).

The original FEM is regressed as follows:

$$Y_{it} = (\beta_0 + \lambda_i) + \beta_1 X_{it} + u_{it}$$

Where:-

Y_{it} = Dependent variable where i = entity and t = time

X_{it} = Independent variable

λ_i = Unknown intercept for each entity

β_1 = Coefficient of independent variable

u_{it} = error term

Although FEM does not necessitate the idea that the random effects are uncorrelated with the observed variables (Wooldridge, 2019). Therefore, the model can provide the users with impartial estimates, and it has also been shown that prediction from such a model is solely reliant on change in the independent factors and the dependent variable (Wooldridge, 2019). Therefore, FEM will be unable to display impact values of time-invariant factors (Wooldridge, 2019).

3.6.6. Hausman Test

The Hausman test can be used by the user to decide between FEM and REM during the process of selecting between the two methods (Aït-Sahalia and Xiu, 2019). The Hausman test can help determine whether the independent factors in the model are linked with the error term in the model, and thus the best estimation technique among the two suggested can be determined (Aït-Sahalia and Xiu, 2019).

The regressor efficient in FEM and REM are found to be statistically distinct using the Hausman test (Aït-Sahalia and Xiu, 2019). If they vary, FEM is the better choice for this project, while if they are the same, REM is the better choice (Aït-Sahalia and Xiu, 2019).

The hypotheses for the Hausman Test are shown as follows:

H_0 : REM is preferable. The error term and independent variables are not correlated.

H_1 : FEM is preferable. The error term and independent variables are correlated.

If the null hypothesis is denied, the study will be performed using FEM because the rejection determined that the REM is contradictory and inefficient for a specific study (Aït-Sahalia and Xiu, 2019). Chi-square distribution will be known as the crucial number for the Hausman Test (Aït-Sahalia and Xiu, 2019). According to the test, if the p-value is less than the pre-set significance threshold of 0.05, the outcome is significant (Aït-Sahalia and Xiu, 2019). As a result, H_0 is rejected, and FEM is favored over the REM model (Aït-Sahalia and Xiu, 2019). In comparison, if the p-value is greater than the significance threshold, REM is favored, and H_0 is not rejected (Aït-Sahalia and Xiu, 2019).

3.7. Conclusion

This chapter describes the research procedures used to test and quantify the study's findings. The aforementioned strategies are used to gather and compile data and information, which will be examined in the next chapter to determine the correlations between different variables.

CHAPTER 4

RESEARCH RESULTS

4. Introduction

This chapter will utilize the EViews software to analyse the collected data. The data gathered comprise of 83 top Malaysian Companies by revenue. For the descriptive analysis, Pearson correlation, panel data variables, and model estimation including REM and FEM will be performed first. Last but not least, the Hausman test will be administered for the purpose of selecting the best model, followed by a summary of this chapter.

4.1. Descriptive Analysis

Table 4.1: Descriptive Analysis

	Mean	Maximum	Minimum	Std. Dev.	Observations
ROA	6.839	74.476	-21.831	10.562	415
ROE	9.904	172.589	-56.721	19.255	415
AD	2.622	4.000	1.000	1.065	415
GD	3.210	4.219	1.386	0.575	415
ED	6.469	7.000	3.000	1.156	415
TD	9.788	12.000	4.000	1.799	415
BI	4.427	9.000	1.000	1.939	415
BS	8.846	15.000	4.000	2.127	415
FL	0.968	34.433	4.720	3.603	415

The table above provides a summary of the descriptive statistics for the panel PLCs of the top 83 Malaysian companies. On the basis of the panel data approach, the EViews output is classified as overall (a combination of cross sectional and time series), between (cross sectional), and within (time series). To evaluate the outcomes, we will discuss the "overall" results. As shown in the table, the observations across years are inconsistent due to the absence of data, so they were omitted from the computation.

Results indicate an average ROA and ROE of 6.839 and 9.904, respectively. Further, the highest possible ROA and ROE are 74.476 and 172.589. Both variables have lowest values of -21.8312 and -56.7211. Moreover, ROA and ROE show the highest standard deviation of 10.5620 and 19.2552 respectively.

According to the result of the independent variables, the highest mean value is 9.788, which is under tenure diversity, with the minimum value of 4 and a maximum value of 12 over 5 years of data. Followed by board size, educational diversity, board independence, gender diversity, and age diversity with the values of 8.846, 6.469, 4.427, 3.210, and 2.622 respectively. As a dummy variable, financial leverage has the lowest mean value with a range of 0 to 1 which is 0.968.

The highest standard deviation is 3.603 which is under financial leverage. Followed by board size, board independence, tenure diversity, educational diversity, age diversity and gender diversity with the values of 2.127, 1.939, 1.799, 1.156, 1.065 and 0.575 respectively.

4.2. Correlation Matrix

Table 4.2: Correlation Matrix

Covariance									
Probability	ROA	ROE	AD	GD	ED	TD	BI	BS	FL
ROA	1.000								
ROE	0.923 (0.000)	1.000							
AD	-0.109 (0.027)	-0.091 (0.063)	1.000						
GD	0.247 (0.000)	0.185 (0.000)	0.167 (0.001)	1.000					
ED	-0.077 (0.116)	-0.169 (0.001)	0.096 (0.051)	0.169 (0.00)	1.000				
TD	0.177 (0.000)	0.172 (0.000)	0.241 (0.000)	0.132 (0.007)	-0.073 (0.139)	1.000			
BI	0.184 (0.000)	0.124 (0.012)	-0.017 (0.735)	0.252 (0.000)	0.128 (0.009)	0.081 (0.098)	1.000		
BS	-0.095 (0.054)	-0.110 (0.025)	-0.195 (0.000)	-0.069 (0.155)	0.095 (0.052)	0.113 (0.021)	0.544 (0.000)	1.000	
FL	-0.044 (0.377)	-0.007 (0.889)	0.080 (0.103)	0.038 (0.442)	-0.009 (0.839)	0.008 (0.874)	-0.086 (0.081)	0.099 (0.045)	1.000

Note – Figures in bracket are categorised as p-values.

Table 4.2 depicts the relationship between the independent factors used in the regression analysis. The table above shows a favourable relationship between ROA and ROE. According to the results, the connection between ROA and ROE appears to be high, with a maximum of 0.9225 when compared to other independent factors with low correlation coefficient values.

According to the table above, ROA is favourably linked to gender diversity, tenure diversity, and board independence. On top of that, the similar independent factors exhibit favourable relationships in terms of ROE. Furthermore, the p-value of the produced findings showed that gender diversity, tenure diversity, and board independence all have p-values less than 0.05, which are 0.0000, 0.0003, and 0.0002, respectively. This indicates that those factors have a significant relationship with the dependent variable. Comparatively, age diversity, educational diversity, board size, and financial leverage exhibit a negative correlation with ROA and ROE, as measured by coefficients of -0.1087, -0.0773, -0.0948, and -0.0435 respectively.

4.3. Research Model Results

In this part, three techniques will be used to produce findings in order to determine the most effective method to explain the connection between independent and dependent factors.

4.3.1. Panel Data Analysis

Table 4.3: Panel Least Square of ROA

Variable	ROA	ROE
C	-6.559* [-0.917] (0.3598)	-0.295* [-0.022] (0.982)
AD	-0.677* [-1.353] (0.177)	-1.168* [-1.267] (0.206)
GD	2.809* [3.037] (0.003)	3.967* [2.328] (0.020)
ED	-1.109* [-2.541] (0.011)	-3.366* [-4.180] (0.000)
TD	7.315* [2.897] (0.004)	12.629* [2.714] (0.007)
BI	1.516* [4.788] (0.000)	2.278* [3.903] (0.000)
BS	-1.103* [-3.799] (0.000)	-1.835* [-3.429] (0.001)
FL	-0.175* [-1.293] (0.000)	-0.129* [-0.520] (0.603)
	ROA	ROE
R-Square	0.154	0.134
Adjusted R-Square	0.139	0.119
F-statistics	10.540	9.029
Prob (F-statistics)	0.000	0.000

Note: “*” indicates coefficient values.
 “[]” indicates t-statistics values.
 “()” indicates probability values.

ROA Equation:

$$\text{ROA}_{i,t} = - 6.559 - 0.677_{i,t} + 2.809_{i,t} - 1.109_{i,t} + 7.3145_{i,t} + 1.516_{i,t} - 1.103_{i,t} - 0.175_{i,t} + \varepsilon_{i,t}$$

$$\text{ROE}_{i,t} = - 0.295 - 1.168_{i,t} + 3.967_{i,t} - 3.366_{i,t} + 12.629_{i,t} + 2.278_{i,t} - 1.835_{i,t} - 0.129_{i,t} + \varepsilon_{i,t}$$

4.3.2. Random Effect Model (“REM”)

Table 4.4: Random Effect Model

Variable	ROA	ROE
C	0.652* [-0.083] (0.934)	12.376* [0.894] (0.372)
AD	-0.855* [-0.984] (0.326)	-1.666* [-1.011] (0.313)
GD	0.852* [1.142] (0.254)	0.745* [0.591] (0.555)
ED	0.007* [0.012] (0.991)	-0.656* [-0.627] (0.531)
TD	3.002* [1.208] (0.228)	1.289* [0.303] (0.762)
BI	0.809* [2.837] (0.005)	0.947* [1.949] (0.052)
BS	-0.376* [-1.120] (0.263)	-0.355* [-0.606] (0.545)
FL	-0.101* [-0.694] (0.488)	-0.233* [-0.931] (0.353)
	ROA	ROE
R-Square	0.036	0.018
Adjusted R-Square	0.019	0.001
F-statistics	2.198	1.074
Prob (F-statistics)	0.034	0.379

Note: “*” indicates coefficient values.
“[]” indicates t-statistics values.
“()” indicates probability values.

REM Equation:

$$ROA_{i,t} = 0.652 - 0.855_{i,t} + 0.852_{i,t} + 0.007_{i,t} + 3.002_{i,t} + 0.809_{i,t} - 0.376_{i,t} - 0.101_{i,t} + \varepsilon_{i,t}$$

$$ROE_{i,t} = 12.376 - 1.666_{i,t} + 0.745_{i,t} - 0.656_{i,t} + 1.289_{i,t} + 0.947_{i,t} - 0.355_{i,t} - 0.233_{i,t} + \varepsilon_{i,t}$$

4.3.3. Fixed Effect Model (“FEM”)

Table 4.5: Random Effect Model

Variable	ROA	ROE
C	-14.483* [-0.941] (0.348)	-7.239* [-0.282] (0.779)
AD	2.324* [0.493] (0.622)	1.383* [0.176] (0.861)
GD	0.455* [0.579] (0.563)	0.317* [0.242] (0.809)
ED	1.241* [1.491] (0.137)	1.851* [1.330] (0.184)
TD	1.032* [0.372] (0.710)	-2.462* [-0.531] (0.596)
BI	0.585* [1.886] (0.060)	0.643* [1.241] (0.216)
BS	0.106* [0.252] (0.802)	0.409* [0.584] (0.559)
FL	-0.124* [-0.729] (0.466)	-0.383* [-1.348] (0.179)
	ROA	ROE
R-Square	0.753	0.792
Adjusted R-Square	0.685	0.736
F-statistics	11.126	13.942
Prob (F-statistics)	0.000	0.000

Note: “*” indicates coefficient values.
“[]” indicates t-statistics values.
“()” indicates probability values.

FEM Equation:

$$ROA_{i,t} - \overline{ROA}_{i,t}$$

$$-14.483 + 2.324 (AD_{i,t} - \overline{AD}_i) + 0.455 (GD_{i,t} - \overline{GD}_i) + 1.241 (ED_{i,t} - \overline{ED}_i) + 1.032 (TD_{i,t} - \overline{TD}_i) + 0.585 (BI_{i,t} - \overline{BI}_i) + 0.106 (BS_{i,t} - \overline{BS}_i) - 0.124 (FL_{i,t} - \overline{FL}_i) + u_{i,t}$$

$$\mathbf{ROE}_{i,t} - \overline{\mathbf{ROE}}_{i,t}$$

$$-7.239 + 1.383 (AD_{i,t} - \overline{AD}_i) + 0.317 (GD_{i,t} - \overline{GD}_i) + 1.851 (ED_{i,t} - \overline{ED}_i) - 2.462 (TD_{i,t} - \overline{TD}_i) + 0.643 (BI_{i,t} - \overline{BI}_i) + 0.409 (BS_{i,t} - \overline{BS}_i) - 0.383 (FL_{i,t} - \overline{FL}_i) + u_{i,t}$$

4.3.4. Hausman Test

In addition, the Hausman test is applied to both panels to determine whether REM or FEM is more appropriate for this research.

The following hypotheses are stated:

H₀: REM is preferred. The error term and explanatory variables are not correlated.

H₁: FEM is preferred. The error term and explanatory variables are correlated.

Decision Rule: Reject H₀ if p-value is smaller than α 0.05; otherwise, do not reject H₀.

Table 4.6: Hausman Test

	ROA	ROE
Chi-square	19.662	21.109
P-value	0.006	0.004
Decision	Reject H ₀ Proceed to FEM	Reject H ₀ Proceed to FEM

As shown in Table 4.7 above, the researcher came to the opinion that the Chi-square for ROA is 19.66%. The p-value is less than the α threshold of 0.05. The panel's judgement is now to deny H₀, and FEM is preferred over REM.

4.4. Summary Analysis

In this section, a summary of the above methods will be discussed to provide readers with in-depth understanding and comparisons of methods applied.

4.4.1. Panel Least Square

According to the Table 4.3 above, the adjusted r-square is 0.139 and 0.119, indicating that the independent variables and control factors can describe 13.9% and 11.9% of the variance in the ROA and ROE equation. Furthermore, the probability (F-statistics) of both factor is 0.0000, indicating that the total trend is significant. Gender diversity, tenure diversity, and board independence are the most significant predictive factors in the ROA and ROE equation, with a relevance threshold of less than 5%. This suggests that the aforementioned variables have a favourable impact on ROA and ROE. In comparison, variables such as age diversity, educational diversity, board size, and financial leverage have a negative coefficient value. This implies that the variables have an unfavourable relationship with ROA and ROE.

4.4.2. Random Effect Model

Besides, the Table 4.4 reveals that the adjusted R-square of REM for the chosen PLCs is 0.019 and 0.018, indicating that approximately 1.9% and 1.8% of the variance in the ROA and ROE equation was explained by the explanatory variables. The most significant variable is board independence, which demonstrates a significance level of 0.05 and 0.052 of the variance in the ROA and ROE equation. Other factors such as age diversity, gender diversity, educational diversity, tenure diversity, board

size, and financial leverage, on the other hand, reveal insignificant values of more than 5% (p-value) in this REM for the chosen PLCs.

4.4.3. Fixed Effect Model

According to the Table 4.5, the adjusted R-square of the 83 Companies under observation is 0.753 and 0.792, showing that the ROA and ROE equation was able to describe 75.3% and 79.2% of the variance. However, none of the variables, including age diversity, gender diversity, educational diversity, tenure diversity, board independence, board size, and financial leverage, are significant because their p-values are greater than 0.05 (> p-value).

4.4.4. Hausman Test

The results of Table 4.6 indicate that the random effect model will not adequately explain the findings of this study. In this circumstance, the fixed effect model will be the model of choice. In comparison of Fixed Effect Model and Panel Least Square, the research outcome explains that Panel Least Square is the best method to apply. This is because Panel Least Square method provides three significant variables to describe the research. However, Fixed Effect Model has no significant variables to explain the research findings. As a consequence, the Panel Least Square results will be used to explain the discussions in Chapter 5.

4.5. Conclusion

This chapter summarizes the data collected and the data has been transmitted into EViews software to generate the results. The results of the descriptive analysis have been outlined in table to provide readers with general understanding of the research. Besides, there were three regression methods applied to identify the most suitable method in which Panel Least Square has been chosen. Therefore, the results of Panel Least Square will be used to discuss in Chapter 5.

CHAPTER 5

DISCUSSION AND CONCLUSION

5. Introduction

This chapter will examine the study's findings and their implications, beginning with a summary of the findings of the research. Further, the study's limitations will be discussed so that future researchers can enhance the study's quality and results. The study concludes with potential recommendations to help future researchers with aspects that may be useful for the researchers.

5.1. Summary of Statistical Analyses

In Chapter 2, results and literature from previous studies were used to estimate the expected relationships between the independent and dependent variables. It was hypothesized whether the empirical results obtained for this study correspond to the anticipated conditions.

Table 5.1: The summary of hypotheses and results

Hypothesis	Results		Supported
	ROA	ROE	
H ₁ : There is relationship between age diversity and financial performance among Top 100 Malaysian Companies.	p = 0.177	p = 0.206	No Negative
H ₂ : There is relationship between gender diversity and financial performance among Top 100 Malaysian Companies.	p = 0.003	p = 0.020	Yes Positive

H ₃ : There is relationship between educational diversity and financial performance among Top 100 Malaysian Companies.	p = 0.011	p = 0.000	No Negative
H ₄ : There is relationship between tenure diversity and financial performance among Top 100 Malaysian Companies.	p = 0.004	p = 0.007	Yes Positive

5.1.1. Age diversity

H₁: There is relationship between age diversity and financial performance among Top 100 Malaysian Companies.

Table 5.1 summarizes the panel least squares findings, which demonstrate that there is no positive association between age variety and financial performance among Malaysia's top 100 companies. This is due to the fact that the p-values of ROA and ROE are 0.177 and 0.206, respectively, which are greater than the significance threshold ($p < 0.05$). Therefore, H₁ is not supported.

According to the Xu et al. (2022), there is a negative relationship between age diversity and company success. This is because researchers argued that performance decline is more likely to be the result of skills failure than of diminishing mental powers (Xu et al. 2022). Many studies have found that senior workers are just as effective and competent as younger workers (Xu et al. 2022). If there is a decrease in work performance with age, it can be accounted for by better performance in other areas, such as employment expertise and problem-solving abilities (Xu et al. 2022). Furthermore, Talavera and Zhang (2021) claim that age diversity in the boardroom necessitates more skilled, experienced, knowledgeable, and independent individuals to manage complicated situations, for which seniors board members are suited. In this situation, selecting young board members with limited experience and poor problem-solving skills will delay board decisions and consequently have an impact on the success of the company (Talavera and Zhang, 2021).

Researchers, on the other hand, claim that boards with a greater age diversity have higher turnover rates (Rahman et al., 2020). This is due to the fact that age diversity in groups makes discussion more challenging and thus less prevalent (Rahman et al., 2020). As a result, the expense slope rises (Rahman et al., 2020). Furthermore, age diversity has a detrimental effect on output due to disparities in the beliefs and preferences of different age groups (Rahman et al., 2020). The difference in socialisation processes, societal and moral views between age groups raises the possibility of value disputes (Rahman et al., 2020). This, in turn, reduces the degree to which individuals are socially integrated, which, in turn, lowers overall productivity (Rahman et al., 2020). In addition, researchers noted that age diversity has less of an impact on financial performance than one's abilities, experience, and knowledge in a particular field because it is solely a demographic statistic (Talavera and Zhang, 2021). This indicates that age diversity negatively affected the financial health of a company, as measured by return on assets and equity (Talavera and Zhang, 2021).

5.1.2. Gender Diversity

H₁: There is relationship between age diversity and financial performance among Top 100 Malaysian Companies.

Table 5.1 summarizes the panel least squares findings, which demonstrate a favourable link between gender diversity and financial performance among the Top 100 Malaysian Companies. This is owing to the fact that the p-values of ROA and ROE are 0.003 and 0.020, respectively, which are lower than the significance threshold ($p < 0.05$). Therefore, H₁ is supported.

On a corporate level, the encouragement of women in management or leadership positions provides comparable benefits as it does on a team or group level (Singh et al., 2022). Researchers discovered in a study of

Fortune 500 companies that companies with a higher proportion of women in senior management positions experience substantially better financial results (Singh et al., 2022). This performance is consistent across industries, including the technology sector (Singh et al., 2022). Furthermore, women in senior roles are essential because a gender-diverse board produces a better public image of the company, which improves performance and profit (Singh et al., 2022). Another research by Oware and Mallikarjunappa (2021) found that the inclusion of independent female executives leads to better supervision and thus increases company worth. It is also argued that gender diversity in senior management is likely to boost the financial health of companies with lower stockholder rights (Oware and Mallikarjunappa, 2021).

On other hand, the inclusion of female directors, according to the researchers, would enhance the board decision-making process by assisting the board in recognising various thinking frameworks and promoting ingenuity and invention in the decision-making process (Oware and Mallikarjunappa, 2021). Therefore, researchers assert that gender diversification on the board of directors may result in greater quality decisions due to an increase in interactions and evaluation of multiple perspectives (Oware and Mallikarjunappa, 2021). Based on the research results, the higher the number of female directors on board, the better the firm' performance in terms of return on assets and return on equity.

Significantly, agency theory also holds that the existence of female leaders will decrease knowledge disparities, which is one of the primary sources of agency problems (Ozdemir and Erkmen, 2022). Gender diverse boards have been identified as one of the most important elements of supporting corporate governance processes on boards (Ozdemir and Erkmen, 2022). As a result, strong corporate governance is widely acknowledged to reduce agency problems for businesses and motivate the board of directors to work and conduct itself in a way that is much more transparent (Ozdemir and Erkmen, 2022). Researchers can conclude that

female diversification would be advantageous for the company's agency expense reduction transparent (Ozdemir and Erkmen, 2022). Consequently, this will unquestionably have an impact on the company's financial performance as a whole.

5.1.3. Educational Diversity

H₁: There is relationship between educational diversity and financial performance among Top 100 Malaysian Companies.

Table 5.1 highlights the panel least squares results, which show a positive relationship between educational diversity and financial performance among Malaysia's Top 100 companies. ROA and ROE have p-values of 0.011 and 0.000, respectively, which are less than the significance level ($p < 0.05$). Nonetheless, the produced coefficient values revealed that the IV and DV have a negative association. As a result, H₁ is not supported.

According to Kabara et al. (2022), educational diversity in the boardroom is essential for ensuring that a company's goals and values are reached through the implementation of projects with the potential to increase financial performance and returns. This is due to the fact that board members with diverse educational backgrounds can readily access potential solutions, initiatives, and identify company risks (Kabara et al., 2022). However, companies with highly diversified board may create communication obstacles, disputes, differences of opinion, and even the refusal to attend board meetings (Kabara et al., 2022). This may also result in a lack of majority to approve board resolutions due to disagreements among board members (Kabara et al., 2022).

On top of that, a highly diversified board will have different opinions, ideologies, views, and approaches which will generate internal communication issues and promote disputes because some board members

may have little understanding of such situations (Lu et al, 2021). In such cases, some board members may debate in terms of educational aspects such as theories and regulations, while others may argue in terms of their field experience (Lu et al, 2021). As a result, the decision-making process will slow down due to opposing opinions of board members, resulting in greater instability (Lu et al, 2021). As a consequence, disputes among board members may cause delays in board choices, affecting company success (Lu et al, 2021).

Moreover, some studies demonstrate that there is no specific educational requirement for directors and that the educational backgrounds of board members have little to no impact on financial performance (Issa et al., 2021). In comparison to the experience level of board members, educational level has minimal impact, as it is solely a qualification requirement (Issa et al., 2021). Issa et al. (2021) highlighted that board members must have adequate human capital to comprehend information to fulfil their responsibilities. Such human capital aids in the processing of information and can be acquired through extensive business experience (Issa et al., 2021). Therefore, a specific educational level is seeming to be less significance (Issa et al., 2021). This concludes that educational diversity has a negative relationship with financial performance.

5.1.4. Tenure Diversity

H₁: There is relationship between tenure diversity and financial performance among Top 100 Malaysian Companies

Table 5.1 highlights the panel least squares results, which show a positive relationship between tenure diversity and financial performance among Malaysia's Top 100 companies. This is owing to the fact that the p-values of ROA and ROE are 0.004 and 0.007, respectively, which are lower than the significance threshold ($p < 0.05$). Therefore, H₁ is supported.

Diversity in tenure allows board members to reap the benefits of having both senior and young directors, such as perpetuation of knowledge and independence (Dey and Ganesh, 2020). According to Dey and Ganesh (2020), a diverse board composed of both long and short tenured members contributes to group unity, shared experience, and low interaction costs. Researchers added that a longer-term policy enables board members to get to know each other, which facilitates in-depth discussions, consideration of various investments, creative problem-solving, and novel solutions (Dey and Ganesh, 2020). Long-tenured board members are able to mentor new board members, thereby shaping the board's performance towards achieving the company's objectives (Dey and Ganesh, 2020).

On the other hand, researchers noted that it is essential to monitor and restructure the board annually to ensure its independence (Díaz-Fernández et al., 2016). This is due to the fact that maintaining long-tenured board members can sometimes hinder board performance (Díaz-Fernández et al., 2016). Furthermore, businesses that maintain tenure diversity at the board level help to improve decision-making quality, improved dialogue, idea sharing, learning process, and create a more open and polite academic atmosphere (Díaz-Fernández et al., 2016). Besides, tenure diversity increases board member expertise because board members are able to exchange views and generate effective conversations among themselves,

which may result in better decisions that are in the best interests of the shareholders and company (Shatnawi et al., 2022). Therefore, researchers conclude that combining the perspectives of members with long and short tenures will enhance the company's performance (Shatnawi et al., 2022). As a result, tenure diversity and financial performance have a favourable impact among Malaysia's top 100 companies.

5.1.5. Control Variables

The empirical findings regarding the ideal board dimensions are inconclusive (Karim et al., 2022). A large board size has been criticized for increasing costs and boardroom squabbles, whereas a small board size may not be able to effectively oversee influential managers (Karim et al., 2022). All other factors being equal, a board is less likely to be successful when its board size numbers exceed a certain threshold (Karim et al., 2022). Nguyen and Thanh (2022) also noted that a board with many members might make it harder to accomplish the company's goals due to issues like ineffective collaboration, poor communication, and lengthy decision-making processes. As a result, this may have an effect on the firm's performance, as certain opportunities necessitate time and proper management to ensure the company's short-term goals are met (Nguyen and Thanh, 2022).

According to agency theory, researchers' belief that there is an unfavourable connection between board size and financial performance (Andoh et al., 2023). A bigger board size will incur more agency costs, and as the board grows in size, issues like collaboration and communication costs will rise (Andoh et al., 2023). On the other hand, boards with few members may not add to the firm's performance because there are insufficient members in terms of board efficacy and the quality of choices made that may affect the company's performance (Andoh et al., 2023). Nonetheless, researchers pointed out that board size does not always add to business success because it is solely dependent on-board members' efforts and initiative made on firm projects (Andoh et al., 2023).

According to Kweh et al. (2022), board independence has a positive effect on financial performance. This is because increasing the number of independent members ensures that the board of directors is focused on the company's goals rather than self-interest (Kweh et al., 2022). According to agency theory, an organization chooses independent members to boost management openness, increase board effectiveness, and resolve agency issues (Kweh et al., 2022). Kweh et al. (2022) also added that it is essential to monitor and reorganize board yearly because long-tenure members, whether independent or not, may control the majority power of the board, which will affect financial performance. Thus, shareholders have the right to assess the board's performance to ensure proper disclosure, reporting, and decisions that benefit shareholders and the firm (Kweh et al., 2022).

At a higher level, a larger number of independent members may have a stronger influence in monitoring director's decisions regarding resource misallocation when making poor decisions (Sasidharan, 2020). This will help companies to screen through every directors performance in terms of objectives met, and initiatives taken to ensure that board effectiveness increases (Sasidharan, 2020). In addition, board independence enables directors to focus on the transparency and integrity of information, resulting in enhanced board practices and discipline to governance practices as directors are aware of potential repercussions (Sasidharan, 2020). Consequently, board independence provides greater benefits to the firm in terms of enhancing board quality, effectiveness, and reforming the company's governance practices, which will enhance the company's reputation in global markets (Sasidharan, 2020). Therefore, the findings of the research can conclude that board independence has a positive influence towards financial performance.

Ghardallou (2023) added that financial leverage has minimal impact on financial performance. This is because financial leverage may not be the most important factor in boosting financial performance, as it depends on the firm's capacity to repay debts (Ghardallou, 2023). As debts increase, a

company's financial risk rises, which reduces the firm's potential earnings and its ability to enhance performance in terms of undertaking potential investments (Ghardallou, 2023). A high financial leverage ratio indicates that a business is devoting an unhealthy proportion of its resources towards servicing its debts, increasing the likelihood of bankruptcy (Ghardallou, 2023). As a result, board members may lack sufficient funds to pursue prospective initiatives or even restructuring the firm that could improve the firm's performance while offering minimal to no profits to shareholders (Ghardallou, 2023). This may cause shareholders to become dissatisfied and leave the company (Ghardallou, 2023).

Furthermore, researchers noted that financial debt may not always be advantageous because it raises the chance of directors making additional loans (Danso et al., 2021). As a result, it exacerbates disputes between stockholders and directors (Danso et al., 2021). This is because the board of directors is always in a position to meet the requirements of the shareholders, and larger loans may cause shareholder dissatisfaction because the shareholders' goal is to make greater returns (Danso et al., 2021). Therefore, there is a negative relationship between financial leverage and financial performance, as larger debt ratios reduce a company's ability to make greater investments due to insufficient cash reserved (Danso et al., 2021). As a result, the findings of the research highlights that there is a negative relationship between financial leverage and financial performance.

5.2. Implication of Study

According to the findings, investors, board members, and policymakers can emphasize a number of implications for the future enhancement of CG. There are several important implications that must be considered to improve corporate governance, particularly board diversity elements that match the interests of all stakeholders.

Importantly, the Malaysian government should prioritize enhancing board diversity by enforcing mandatory conformance at the highest levels of company to guarantee a suitable and adequate board composition is established. Local government should emphasize the significance of maintaining the proper board structure to ensure that board performance and effectiveness can reflect the image of the nation. Moreover, companies should therefore investigate the significance of board diversity compliance by reviewing the board composition annually. In the process of choosing competent board members, organizations should assess one's past records in terms of director accomplishments, objectives met, and whether directors exemplified the company's guiding principles. In addition, the board should establish the standards by which both independent and non-independent members are appraised, considering the organization's requirements and objectives. By enforcing adequate compliance, the company will voluntarily reorganize its board to boost its effectiveness, bring itself into line with best practices in corporate governance, and reduce agency costs.

In addition, the local government and Securities Commission (SC) should make the appointment of at least two women directors mandatory for all companies, especially Malaysian Public Listed Companies, in order to increase gender diversity in boardrooms. This is also consistent with Malaysia's objective of having at least 30 percent women on all PLC boards. Institute of Corporate Directors Malaysia (ICDM) can continue to work closely with regulators and stakeholders to develop and diversify the talent pipeline in order to improve board skills and proficiency, thereby enhancing Malaysia's business

landscape's overall performance. Furthermore, authorities should focus on the importance of board diversity in terms of age, skills, experience, and education level to ensure directors are able to identify possible issues and handle them in a prompt way to reduce the risk of company failure. This will provide more opportunity for organizations to recruit qualified board members instead of maintaining redundant resources that may affect organization's performance and productivity.

SC, on the other hand, should provide defined corporate governance standards in terms of optimal board size to guarantee that businesses can decrease the number of board members while still achieving board success. According to the results, the larger the board size, the higher the agency cost. As the board size increases, problems such as collaboration and communication expenses will rise. As a result, reaching the optimal board size will assist the organization in assessing the performance of each director as well as improving communication skills to hold immediate discussions in order to accomplish the organization's goals. In addition, SC should randomly assess compliance with tenure diversity requirements. This is to ensure that board independence is maintained in order to reduce board power control and influence.

Finally, the results from the previous chapter suggest that some of these factors have a favorable impact on company success. Adoption of good corporate governance aids in proper conformance, particularly for publicly traded businesses, as it allows the country's image and name to be reflected.

5.3. Limitation of Study

The first drawback of this research is the small sample size of the Top 100 Malaysian Companies based on revenue. It is advised to make the best use of accessible data in order to reach a more precise decision. Even if the sample size exceeds the minimal standard, it is preferable to expand the sample size because a lower sample size may result in a biased and distorted outcome.

This study focused solely on four independent variables which includes age diversity, gender diversity, educational diversity, and tenure diversity. Other variables that appear to play an important role in affecting board success, such as cultural diversity, experience diversity, and ethnicity diversity, appear to be overlooked. However, in this study, control variables such as board size, board independence, and financial leverage have been included. Nonetheless, as the primary four independent factors, these control variables are not thoroughly investigated.

On the other side, this study was performed over a period of five years, from 2017 to 2021. However, some businesses may have experienced a decline in income, a rise in debt, and inconsistent performance during the COVID-19 era in 2020 and 2021, which could have an impact on the reliability of the study. Furthermore, there were unpublished yearly reports for certain years, which impacted the study findings.

Lastly, conducting research on a time limited basis affects the reliability and consistency of information during the online learning phrase. The period to conduct the research, especially for the last segment, is shorter because it was challenging to extract data from annual reports or other websites due to amendments in company profiles. In addition, it was also difficult to access the latest information, documents and journals which are beneficial for research. This is because there is limited research conducted on board diversity and financial performance especially among Malaysian Companies which may defer in terms of supporting evidence. For instance, it was difficult to express

factors such as age diversity, educational diversity, and tenure diversity since the availability of journals are limited.

5.4.Recommendations

Following the discussion of the limitations in the previous section, some suggestions were offered to future researchers as a way to help them reduce the possible risk of research problems. Future researchers may consider these suggestions in their research for further findings on board diversity and financial performance.

To begin with, future researchers may increase the sample population or number of years. It is possible to increase both the sample size and the total number of years. This can improve the accuracy of the observational findings, allowing them to reflect the entire population of Malaysian PLCs. On the other hand, future researchers may concentrate on Malaysian companies with good disclosure to determine the company's conformance with corporate governance practices. This will aid governments, Securities commissions, and other regulators in ensuring governance practices are effectively implemented.

Furthermore, it is suggested that future researchers consider including additional pertinent independent factors. Those factors must be more practical and precise indicators so that an improved framework for the study can be developed. It is recommended for future researchers to investigate factors such as experience diversity, cultural diversity, functional diversity, and nationality diversity. The better the model, the easier it is for policymakers and managers to turn to and make choices to handle problems of board diversity and financial performance.

Additionally, future scholars should dedicate more time to data collection to guarantee accurate information is retrieved. Researchers can show ordered data with a larger sample size and a greater number of years examined

by scheduling proper time management. Researchers are able to present organized data with a larger sample size and a greater number of observed years when they effectively manage their time. Future researchers are encouraged to utilize Scopus, Sage Journals, and other websites to gain access to the most recent journals on the topic.

5.5. Conclusion

In conclusion, this chapter summarises the important details of the empirical result which relates the research objectives. There are several implications brought into focus to help policymakers, governments companies and other regulators to further understand companies compliance on corporate governance practises. This chapter concludes with several limitation and recommendations to help future researchers to improve research quality and results based on future data.

REFERENCES

- Aït-Sahalia, Y., & Xiu, D. (2019). A Hausman test for the presence of market microstructure noise in high frequency data. *Journal of Econometrics*, 211(1), 176-205.
- Alazzani, A., Hassanein, A., & Aljanadi, Y. (2017). Impact of gender diversity on social and environmental performance: evidence from Malaysia. *Corporate Governance: The International Journal of Business in Society*.
- Albers, M. J. (2017). Quantitative data analysis—In the graduate curriculum. *Journal of Technical Writing and Communication*, 47(2), 215-233.
- Andoh, J. A., Abugri, B. A., & Anarfo, E. B. (2023). Board Characteristics and performance of listed firms in Ghana. *Corporate Governance: The International Journal of Business in Society*, 23(1), 43-71.
- Andrade, C. (2021). The inconvenient truth about convenience and purposive samples. *Indian Journal of Psychological Medicine*, 43(1), 86-88.
- Ararat, M., Aksu, M., & Tansel Cetin, A. (2015). How board diversity affects firm performance in emerging markets: Evidence on channels in controlled firms. *Corporate Governance: An International Review*, 23(2), 83-103.
- Armstrong, C. E., & Shimizu, K. (2007). A review of approaches to empirical research on the resource-based view of the firm. *Journal of management*, 33(6), 959-986.
- Arquisola, M. J., Shella, K., & Hutabarat, E. (2018). How does board diversity affect the financial performance of commercial banks in indonesia? An inquiry. *Jurnal Manajemen*, 22(1), 62-73.
- Avgousti, K. (2013). Research philosophy, methodology, quantitative and qualitative methods. *The Cyprus Journal of Sciences*, 11, 33.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of management*, 17(1), 99-120.

-
- Ben-Amar, W., Francoeur, C., Hafsi, T., & Labelle, R. (2013). What makes better boards? A closer look at diversity and ownership. *British Journal of Management*, 24(1), 85-101.
- Bhatt, P. R., & Bhatt, R. R. (2017). Corporate governance and firm performance in Malaysia. *Corporate Governance: The international journal of business in society*.
- Bin Khidmat, W., Ayub Khan, M., & Ullah, H. (2020). The Effect of Board Diversity on Firm Performance: Evidence from Chinese Listed Companies. *Indian Journal of Corporate Governance*, 13(1), 9-33.
- Cherrington, D. J. (1989). The Management of individual and organizational performance.
- Curşeu, P. L., Raab, J., Han, J., & Loenen, A. (2012). Educational diversity and group effectiveness: A social network perspective. *Journal of Managerial Psychology*.
- Danso, A., Lartey, T. A., Gyimah, D., & Adu-Ameyaw, E. (2021). Leverage and performance: do size and crisis matter?. *Managerial Finance*, 47(5), 635-655.
- Darmadi, S. (2011). Board diversity and firm performance: The Indonesian evidence. *Corporate ownership and control Journal*, 8.
- Department of Statistics Malaysia Official Portal. (2022). Retrieved December 30, 2022, from https://www.dosm.gov.my/v1/index.php?r=column%2FctwoByCat&parent_id=115&menu_id=L0pheU43NWJwRWVSZklWdzQ4TlhUUT09
- Dey, C., & Ganesh, M. P. (2020). Impact of team design and technical factors on team cohesion. *Team Performance Management: An International Journal*.
- Díaz-Fernández, M. C., González-Rodríguez, M. R., & Simonetti, B. (2016). The role played by job and non-job-related TMT diversity traits on firm performance and strategic change. *Management Decision*.

-
- Dong, Y., Liang, C., & Wanyin, Z. (2023). Board diversity and firm performance: Impact of ESG activities in China. *Economic Research-Ekonomska Istraživanja*, 36(1), 1592-1609.
- Fama, E., & Jensen, M. C. (1983). Separation of ownership and control. *Journal of Law and Economics*, 26(1), 1–32.
- Fernández-Temprano, M. A., & Tejerina-Gaite, F. (2020). Types of director, board diversity and firm performance. *Corporate Governance: The International Journal of Business in Society*.
- Ferreira, D. (2010). Board diversity. *Corporate governance: A synthesis of theory, research, and practice*, 8, 225.
- Garcia-Solarte, M., de Lema, D. G. P., & Madrid-Guijarro, A. (2018). Gender diversity and its impact on high-tech SMEs' organizational leadership. *Gender in Management: An International Journal*.
- Ghardallou, W. (2023). The heterogeneous effect of leverage on firm performance: a quantile regression analysis. *International Journal of Islamic and Middle Eastern Finance and Management*, (ahead-of-print).
- Gold, N., Aifuwa, H. O., Usman, M. K., Subair, M. L., Osazevbaru, A., & Oloyede, B. M. (2021). Board Members' Education Diversity and Sustainability Reporting. *GOLD, NO, AIFUWA, HO, USMAN, MK, SUBAIR, ML, OSAZEVBARU, A., & OLOYEDE, BM (2021). "Board Members' Education Diversity and Sustainability Reporting." Annals of Spiru Haret University. Economic Series*, 21(1), 109-129.
- Guetterman, T. C. (2019). Basics of statistics for primary care research. *Family medicine and community health*, 7(2).
- Hafsi, T., & Turgut, G. (2013). Boardroom diversity and its effect on social performance: Conceptualization and empirical evidence. *Journal of business ethics*, 112(3), 463-479.
- Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of management review*, 9(2), 193-206.

-
- Hox JJ and Boeije HR (2005) Data collection, primary vs. secondary. In: Kempf-Leonard K (ed.) *Encyclopedia of Social Measurement*. Atlanta, GA: Elsevier Science, pp. 593–599.
- Hsiao, C. (2022). *Analysis of panel data* (No. 64). Cambridge university press.
- Huong, T. (2022). *Thriving sustainably with diversity, equity and inclusiveness*. The Star. Retrieved December 30, 2022, from <https://www.thestar.com.my/business/business-news/2022/08/30/thriving-sustainably-with-diversity-equity-and-inclusiveness>
- Issa, A., Zaid, M. A., Hanaysha, J. R., & Gull, A. A. (2021). An examination of board diversity and corporate social responsibility disclosure: evidence from banking sector in the Arabian Gulf countries. *International Journal of Accounting & Information Management*.
- Jaafar, S. B., & Rahmat, M. M. (2021). Trends of board diversity: who sits in a boardroom?. *Asia-Pacific Management Accounting Journal (APMAJ)*, 16(2), 129-158.
- Jabari, H. N., & Muhamad, R. (2020). Gender diversity and financial performance of Islamic banks. *Journal of financial reporting and accounting*.
- Johari, J., & Komathy, M. (2019). Sustainability reporting and firm performance: Evidence in Malaysia. *International Journal of Accounting, Finance and Business*, 4(17), 32-45.
- Jubilee, R. V. W., Khong, R. W., & Hung, W. T. (2018). Would diversified corporate boards add value? The case of banking institutions in Malaysia. *Asia-Pacific Journal of Business Administration*.
- Kabara, A. S., Khatib, S. F., Bazhair, A. H., & Sulimany, H. G. H. (2022). The Effect of the Board's Educational and Gender Diversity on the Firms' Performance: Evidence from Non-Financial Firms in Developing Country. *Sustainability*, 14(17), 11058.
- Kachkar, O., & Yilmaz, M. K. (2022). How diverse are Shariah supervisory boards of Islamic banks? A global empirical survey. *International Journal of Ethics and Systems*.

-
- Kagzi, M., & Guha, M. (2018). Does board demographic diversity influence firm performance? Evidence from Indian-knowledge intensive firms. *Benchmarking: An International Journal*.
- Kara, A., Nanteza, A., Ozkan, A., & Yildiz, Y. (2022). Board gender diversity and responsible banking during the Covid-19 pandemic. *Journal of Corporate Finance*, 102213.
- Karim, S., Naeem, M. A., & Ismail, R. B. (2022). Re-configuring ownership structure, board characteristics and firm value nexus in Malaysia: the role of board gender and ethnic diversity. *International Journal of Emerging Markets*.
- Karim, S., Vigne, S. A., Lucey, B. M., & Naeem, M. A. (2022). Discretionary impacts of the risk management committee attributes on firm performance: do board size matter?. *International Journal of Emerging Markets*, (ahead-of-print).
- Khan, A., Yilmaz, M. K., & Aksoy, M. (2022). Does board demographic diversity affect the dividend payout policy in Turkey?. *EuroMed Journal of Business*, (ahead-of-print).
- Khatib, S. F., Abdullah, D. F., Elamer, A., & Hazaea, S. A. (2022). The development of corporate governance literature in Malaysia: a systematic literature review and research agenda. *Corporate Governance: The International Journal of Business in Society*.
- Khemakhem, H., Maalej, M., & Fontaine, R. (2022). Inside the black box: How can gender diversity make a difference in the boardroom?. *Equality, Diversity and Inclusion: An International Journal*, (ahead-of-print).
- Kılıç, M., & Kuzey, C. (2016). The effect of board gender diversity on firm performance: evidence from Turkey. *Gender in management: An international journal*.
- Kramarić, T. P., & Miletić, M. (2022). The influence of demographic, cultural, and educational background in the boardroom on firm performance—The

-
- Croatian evidence. *Zbornik Radova Ekonomski Fakultet u Rijeka*, 40(1), 79-95.
- Kweh, Q. L., Lu, W. M., Ting, I. W. K., & Thi My Le, H. (2022). The cubic S-curve relationship between board independence and intellectual capital efficiency: does firm size matter?. *Journal of Intellectual Capital*, 23(5), 1025-1051.
- Li, J., Chu, C. W. L., Lam, K. C., & Liao, S. (2011). Age diversity and firm performance in an emerging economy: Implications for cross-cultural human resource management. *Human Resource Management*, 50(2), 247-270.
- Lim, K. P., Lye, C. T., Yuen, Y. Y., & Teoh, W. M. Y. (2019). Women directors and performance: evidence from Malaysia. *Equality, Diversity and Inclusion: An International Journal*.
- Lo, F. Y., Wang, Y., & Zhan, W. (2019). Does TMT cultural diversity contribute to firm performance and do socialisation and tenure matter? A test of two competing perspectives. *Personnel Review*.
- Lu, K., Qiao, X., Yun, Q., & Hao, N. (2021). Educational diversity and group creativity: Evidence from fNIRS hyperscanning. *NeuroImage*, 243, 118564.
- Ly-Le, T. M. (2022). Hiring for gender diversity in tech. *Journal of Management Development*, 41(6), 393-403.
- Malaysian code on Corporate Governance (2021). Retrieved September 28, 2022, from <https://www.sc.com.my/api/documentms/download.ashx?id=239e5ea1-a258-4db8-a9e2-41c215bdb776>
- Mathisen, G. E., Ogaard, T., & Marnburg, E. (2013). Women in the boardroom: how do female directors of corporate boards perceive boardroom dynamics?. *Journal of business ethics*, 116(1), 87-97.
- Nasir, N. A. B. M., Ali, M. J., & Ahmed, K. (2019). Corporate governance, board ethnicity and financial statement fraud: evidence from Malaysia. *Accounting Research Journal*.

-
- Nguyen, L. T., & Thanh, C. L. (2022). The influence of board characteristics on environmental performance: evidence from East Asian manufacturing industries. *International Journal of Emerging Markets*, 17(10), 2702-2720.
- Oradi, J., & Izadi, J. (2019). Audit committee gender diversity and financial reporting: evidence from restatements. *Managerial Auditing Journal*.
- Oware, K. M., & Mallikarjunappa, T. (2021). Financial performance and gender diversity. The effect of family management after a decade attempt. *Society and Business Review*.
- Ozdemir, O., & Erkmen, E. (2022). Top management team gender diversity and firm risk-taking in the hospitality industry. *International Journal of Contemporary Hospitality Management*.
- Panda, B., & Leepsa, N. M. (2017). Agency theory: Review of theory and evidence on problems and perspectives. *Indian Journal of Corporate Governance*, 10(1), 74-95.
- Puni, A., & Anlesinya, A. (2020). Corporate governance mechanisms and firm performance in a developing country. *International Journal of Law and Management*, 62(2), 147-169.
- Rahman, H. U., Zahid, M., & Jehangir, M. (2020). Different is better: Does difference in age and ethnicity of the directors matter for corporate performance in Malaysia?. *Journal of Applied Economics and Business Studies*, 4(2), 205-220.
- Saggar, R., Arora, N., & Singh, B. (2021). Gender diversity in corporate boardrooms and risk disclosure: Indian evidence. *Gender in Management: An International Journal*.
- Salin, A. S. A. P., Ismail, Z., Smith, M., & Nawawi, A. (2019). The influence of a board's ethical commitment on corporate governance in enhancing a company's corporate performance. *Journal of Financial Crime*.
- Sasidharan, A. (2020). Does board independence enhance firm value of state-owned enterprises? Evidence from India and China. *European Business Review*, 32(5), 785-800.

-
- Scheuer, C. L., & Loughlin, C. (2021). Seizing the benefits of age diversity: could empowering leadership be the answer?. *Leadership & Organization Development Journal*.
- Shaheen, N., Hussain, S., Ali, M., Mateen, A., & Ali, A. (2017). Impact of Age Diversity on Organizational Performance: A Case of Banking Sector in District Swat.
- Shatnawi, A., Al-Gasawneh, J., Mansur, H., & Alresheedi, A. (2022). The effect of board nationality and educational diversity on CSR performance: Empirical evidence from Australian companies. *Uncertain Supply Chain Management*, 10(4), 1467-1478.
- Siedlecki, S. L. (2020). Understanding descriptive research designs and methods. *Clinical Nurse Specialist*, 34(1), 8-12.
- Sileyew, K. J. (2019). *Research design and methodology* (pp. 1-12). Rijeka: IntechOpen.
- Singh, J., Singhania, S., & Aggrawal, D. (2022). Does board gender diversity impact financial performance? Evidence from the Indian IT sector. *Society and Business Review*, (ahead-of-print).
- Singh, V., Terjesen, S., & Vinnicombe, S. (2008). Newly appointed directors in the boardroom:: How do women and men differ?. *European management journal*, 26(1), 48-58.
- Sivakumar, N. (2011). Management of financial market scandals—regulatory and values based approaches. *Humanomics*, 27(3), 153-165.
- Song, H. J., Yoon, Y. N., & Kang, K. H. (2020). The relationship between board diversity and firm performance in the lodging industry: The moderating role of internationalization. *International Journal of Hospitality Management*, 86, 102461.
- Talavera, O., Yin, S., & Zhang, M. (2021). Tournament incentives, age diversity and firm performance. *Journal of Empirical Finance*, 61, 139-162.

-
- Tanikawa, T., & Jung, Y. (2016). Top management team (TMT) tenure diversity and firm performance: Examining the moderating effect of TMT average age. *International Journal of Organizational Analysis*.
- Tarus, D. K., & Aime, F. (2014). Board demographic diversity, firm performance and strategic change: A test of moderation. *Management Research Review*.
- Turner, D. P. (2020). Sampling methods in research design. *Headache: The Journal of Head and Face Pain*, 60(1), 8-12.
- Ujunwa, A., Okoyeuzu, C., & Nwakoby, I. (2012). Corporate board diversity and firm performance: Evidence from Nigeria. *Revista de Management Comparat International*, 13(4), 605.
- Vafaei, A., Henry, D., Ahmed, K., & Alipour, M. (2020). Board diversity: female director participation and corporate innovation. *International Journal of Accounting & Information Management*.
- Wellalage, N. H., & Locke, S. (2013). Corporate governance, board diversity and firm financial performance: new evidence from Sri Lanka. *International Journal of Business Governance and Ethics*, 8(2), 116-136.
- Wijethilake, C., & Ekanayake, A. (2020). CEO duality and firm performance: the moderating roles of CEO informal power and board involvements. *Social Responsibility Journal*, 16(8), 1453-1474.
- Wooldridge, J. M. (2019). Correlated random effects models with unbalanced panels. *Journal of Econometrics*, 211(1), 137-150.
- Xu, Q., Fernando, G. D., & Schneible, R. A. (2022). Age diversity, firm performance and managerial ability. *Review of Accounting and Finance*, (ahead-of-print).
- Yadav, S., & Lenka, U. (2022). A systematic review of job-related diversity and future research directions. *Equality, Diversity and Inclusion: An International Journal*, (ahead-of-print).

Yilmaz, K. (2013). Comparison of quantitative and qualitative research traditions: Epistemological, theoretical, and methodological differences. *European journal of education*, 48(2), 311-325.

Yousaf, U. B., Jebran, K., & Wang, M. (2021). Can board diversity predict the risk of financial distress?. *Corporate Governance: The International Journal of Business in Society*.

APPENDIX

No.	List of Companies
1.	7-Eleven Malaysia Holdings Bhd
2.	AEON Co. (Malaysia) Bhd.
3.	AirAsia Group Berhad
4.	AirAsia X Berhad
5.	Allianz Malaysia Bhd.
6.	Ann Joo Resources Berhad
7.	Astro Malaysia Holdings Bhd.
8.	ATA IMS Bhd.
9.	Axiata Group Bhd.
10.	Batu Kawan Bhd.
11.	Berjaya Crop. Bhd.
12.	Berjaya Sports Toto Bhd.
13.	Bermaz Auto Bhd.
14.	Boustead Holdings Bhd.
15.	British American Tobacco Malaysia Bhd.
16.	Bumi Armada Bhd.
17.	C.I . Holdings Bhd.
18.	Can-One Bhd.
19.	Carlsberg Brewery Malaysia Bhd.
20.	Dialog Group Bhd.
21.	DKSH Holdings (Malaysia) Bhd.
22.	DRB-Hicom Bhd.
23.	Eco World Development Group Bhd.
24.	FGV Holdings Bhd
25.	Fraser & Neave Holdings Bhd.
26.	Gamuda Bhd.
27.	Gas Malaysia Bhd.
28.	Genting Bhd.
29.	Genting Malaysia Bhd.
30.	Genting Plantation Bhd.
31.	Hap Seng Consolidated Bhd.
32.	Hartalega Holdings Bhd.
33.	Heineken Malaysia Bhd.
34.	Hengyuan Refining Co. Bhd.
35.	IHH Healthcare Bhd.
36.	IJM Corp. Bhd.
37.	IOI Corp. Bhd.
38.	IOI Propoerties Group Bhd.
39.	KPJ Healthcare Bhd.
40.	Kuala Lumpur Kepong Bhd.
41.	Leong Hup International Bhd.
42.	Lion Industries Corp. Bhd.
43.	Lotte Chemical Totan Holdings Bhd.
44.	Magnum Bhd.
45.	Malakoff Corp. Bhd.

46.	Malayan Flour Mills Bhd.
47.	Malaysia Airports Holdings Bhd.
48.	Maxis Bhd.
49.	MBM Resources Bhd.
50.	Metrod Holdings Bhd.
51.	MISC Bhd.
52.	MMC Corp. Bhd.
53.	MSM Malaysia Holdings Bhd.
54.	Oriental Holdings Bhd.
55.	Parkson Holdings Bhd.
56.	Petron Malaysia Refining & Marketing Bhd.
57.	PETRONAS Chemicals Group Bhd.
58.	Petronas Dagangan Bhd.
59.	Petronas Gas Bhd.
60.	Pharmaniaga Bhd.
61.	PPB Group Bhd.
62.	Press Metal Aluminium Holdings Bhd.
63.	QL Resources Bhd.
64.	S P Setia Bhd.
65.	Sapura Energy Bhd.
66.	Sarawak Oil Palms Bhd.
67.	Serba Dinamik Holdings Bhd.
68.	Sime Darby Holdings Bhd.
69.	Sime Darby Bhd.
70.	Sime Darby Plantation Bhd.
71.	Sime Darby Property Bhd.
72.	Southern Steel Bhd.
73.	Sunway Bhd.
74.	Tan Chong Motor Holdings Bhd.
75.	Telekom Malaysia Bhd.
76.	Tenaga Malaysia Bhd.
77.	UEM Edgenta Bhd.
78.	UEM Sunrise Bhd.
79.	UMW Holdings Bhd.
80.	V.S Industry Bhd.
81.	Wah Seong Corp. Bhd.
82.	YTL Corp Bhd.
83.	YTL Power International Bhd.

EVIEWS RESULTS

1. Descriptive Analysis Results

Date: 03/18/23 Time: 17:27 Sample: 2017 2021							
	ROA	ROE	AGE_DIVERS	GENDER_DI	EDUCATION	TENURE_R	BOARD_IND
Mean	6.839456	9.904344	2.621687	3.210083	6.469880	9.787952	4.426506
Median	4.025174	6.089545	3.000000	3.332205	7.000000	10.00000	4.000000
Maximum	74.47615	172.5885	4.000000	4.219508	7.000000	12.00000	9.000000
Minimum	-21.83127	-56.72109	1.000000	1.386294	3.000000	4.000000	1.000000
Std. Dev.	10.56202	19.25517	1.065040	0.575022	1.156136	1.798644	1.939613
Skewness	2.474227	4.108128	-0.355437	-0.593817	-1.874965	-0.406481	0.379788
Kurtosis	12.57638	28.94281	1.882875	2.926843	4.775236	2.417653	2.692097
Jarque-Bera	2009.191	12805.10	30.31766	24.48197	297.6491	17.29225	11.61585
Probability	0.000000	0.000000	0.000000	0.000005	0.000000	0.000176	0.003004
Sum	2838.374	4110.303	1088.000	1332.184	2685.000	4062.000	1837.000
Sum Sq. Dev.	46184.28	153495.3	469.6048	136.8891	553.3735	1339.340	1557.508
Observations	415	415	415	415	415	415	415

Date: 03/18/23 Time: 17:27 Sample: 2017 2021		
	BOARD_SIZE	FINANCIAL_
Mean	8.845783	0.968242
Median	9.000000	0.356322
Maximum	15.00000	34.43310
Minimum	4.000000	4.72E-05
Std. Dev.	2.126512	3.602916
Skewness	0.208149	8.518915
Kurtosis	2.408530	77.27663
Jarque-Bera	9.045968	100418.0
Probability	0.010857	0.000000
Sum	3671.000	401.8203
Sum Sq. Dev.	1872.130	5374.135
Observations	415	415

2. Correlation Matrix Results

Covariance Analysis: Ordinary Date: 03/18/23 Time: 17:35 Sample: 2017 2021 Included observations: 415							
Correlation Probability	ROA	ROE	AGE_DIVERS	GENDER_DI	EDUCATION	TENURE R	BOARD IND
ROA	1.000000 ----						
ROE	0.922484 0.0000	1.000000 ----					
AGE_DIVERSITY	-0.108737 0.0268	-0.091332 0.0630	1.000000 ----				
GENDER_DIVERSI	0.246936 0.0000	0.184943 0.0002	-0.170601 0.0005	1.000000 ----			
EDUCATIONAL_DI	-0.077269 0.1160	-0.168645 0.0006	-0.167190 0.0006	0.168845 0.0006	1.000000 ----		
TENURE_RANGE	0.177186 0.0003	0.171713 0.0004	-0.118894 0.0154	0.132319 0.0069	-0.072773 0.1389	1.000000 ----	
BOARD_INDEPEN	0.184152 0.0002	0.123793 0.0116	0.158977 0.0012	0.252033 0.0000	0.127999 0.0090	0.081376 0.0978	1.000000 ----
BOARD_SIZE	-0.094775 0.0537	-0.110422 0.0245	0.294131 0.0000	-0.069859 0.1554	0.095371 0.0522	0.113313 0.0210	0.543630 0.0000
FINANCIAL LEVE	-0.043503 0.3767	-0.006885 0.8888	-0.130341 0.0078	0.037861 0.4418	-0.009988 0.8392	0.007782 0.8744	-0.085731 0.0811

3. Panel Data Analysis Results

Dependent Variable: ROA				
Method: Panel Least Squares				
Date: 03/18/23 Time: 17:39				
Sample: 2017 2021				
Periods included: 5				
Cross-sections included: 83				
Total panel (balanced) observations: 415				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6.559192	7.154945	-0.916735	0.3598
AGE_DIVERSITY	-0.677022	0.500273	-1.353305	0.1767
GENDER_DIVERSITY	2.808608	0.924669	3.037420	0.0025
EDUCATIONAL_DIVERSITY	-1.109974	0.436834	-2.540948	0.0114
TENURE_DIVERSITY	7.314906	2.524729	2.897303	0.0040
BOARD_INDEPENDENCE	1.516047	0.316623	4.788180	0.0000
BOARD_SIZE	-1.102534	0.290241	-3.798686	0.0002
FINANCIAL_LEVERAGE	-0.175007	0.135321	-1.293277	0.1966
R-squared	0.153463	Mean dependent var	6.839456	
Adjusted R-squared	0.138903	S.D. dependent var	10.56202	
S.E. of regression	9.801055	Akaike info criterion	7.421946	
Sum squared resid	39096.70	Schwarz criterion	7.499600	
Log likelihood	-1532.054	Hannan-Quinn criter.	7.452653	
F-statistic	10.54033	Durbin-Watson stat	0.687803	
Prob(F-statistic)	0.000000			

Dependent Variable: ROE				
Method: Panel Least Squares				
Date: 03/18/23 Time: 18:08				
Sample: 2017 2021				
Periods included: 5				
Cross-sections included: 83				
Total panel (balanced) observations: 415				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.294519	13.18978	-0.022329	0.9822
AGE_DIVERSITY	-1.168404	0.922228	-1.266936	0.2059
GENDER_DIVERSITY	3.968609	1.704581	2.328202	0.0204
EDUCATIONAL_DIVERSITY	-3.366111	0.805282	-4.180038	0.0000
TENURE_DIVERSITY	12.62979	4.654212	2.713626	0.0069
BOARD_INDEPENDENCE	2.278161	0.583678	3.903111	0.0001
BOARD_SIZE	-1.835195	0.535045	-3.429985	0.0007
FINANCIAL_LEVERAGE	-0.129761	0.249457	-0.520173	0.6032
R-squared	0.134419	Mean dependent var	9.904344	
Adjusted R-squared	0.119532	S.D. dependent var	19.25517	
S.E. of regression	18.06775	Akaike info criterion	8.645223	
Sum squared resid	132862.6	Schwarz criterion	8.722877	
Log likelihood	-1785.884	Hannan-Quinn criter.	8.675930	
F-statistic	9.029226	Durbin-Watson stat	0.548811	
Prob(F-statistic)	0.000000			

4. Random Effect Model Results

Dependent Variable: ROE					
Method: Panel EGLS (Cross-section random effects)					
Date: 03/18/23 Time: 18:47					
Sample: 2017 2021					
Periods included: 5					
Cross-sections included: 83					
Total panel (balanced) observations: 415					
Swamy and Arora estimator of component variances					
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
C	12.37622	13.83746	0.894399	0.3716	
AGE_DIVERSITY	-1.665546	1.647849	-1.010739	0.3127	
GENDER_DIVERSITY	0.744673	1.260910	0.590584	0.5551	
EDUCATIONAL_DIVERSITY	-0.655524	1.045590	-0.626942	0.5310	
TENURE_DIVERSITY	1.289867	4.254115	0.303204	0.7619	
BOARD_INDEPENDENCE	0.946989	0.485638	1.949987	0.0519	
BOARD_SIZE	-0.354850	0.585808	-0.605744	0.5450	
FINANCIAL_LEVERAGE	-0.233398	0.250737	-0.930849	0.3525	
Effects Specification				S.D.	Rho
Cross-section random				15.12272	0.7000
Idiosyncratic random				9.900772	0.3000
Weighted Statistics					
R-squared	0.018139	Mean dependent var	2.783042		
Adjusted R-squared	0.001252	S.D. dependent var	10.07724		
S.E. of regression	10.07093	Sum squared resid	41279.38		
F-statistic	1.074164	Durbin-Watson stat	1.524441		
Prob(F-statistic)	0.379108				
Unweighted Statistics					
R-squared	0.057572	Mean dependent var	9.904344		
Sum squared resid	144658.3	Durbin-Watson stat	0.435011		

Dependent Variable: ROA					
Method: Panel EGLS (Cross-section random effects)					
Date: 03/18/23 Time: 18:00					
Sample: 2017 2021					
Periods included: 5					
Cross-sections included: 83					
Total panel (balanced) observations: 415					
Swamy and Arora estimator of component variances					
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
C	-0.652100	7.897647	-0.082569	0.9342	
AGE_DIVERSITY	-0.855007	0.869119	-0.983763	0.3258	
GENDER_DIVERSITY	0.852010	0.746015	1.142082	0.2541	
EDUCATIONAL_DIVERSITY	0.006960	0.587602	0.011844	0.9906	
TENURE_DIVERSITY	3.002106	2.485606	1.207796	0.2278	
BOARD_INDEPENDENCE	0.809835	0.285474	2.836811	0.0048	
BOARD_SIZE	-0.376071	0.335672	-1.120354	0.2632	
FINANCIAL_LEVERAGE	-0.100733	0.145256	-0.693487	0.4884	
Effects Specification				S.D.	Rho
Cross-section random				7.776576	0.6326
Idiosyncratic random				5.925908	0.3674
Weighted Statistics					
R-squared	0.036421	Mean dependent var	2.206199		
Adjusted R-squared	0.019849	S.D. dependent var	6.078007		
S.E. of regression	6.017384	Sum squared resid	14737.03		
F-statistic	2.197685	Durbin-Watson stat	1.633995		
Prob(F-statistic)	0.033610				
Unweighted Statistics					
R-squared	0.096630	Mean dependent var	6.839456		
Sum squared resid	41721.49	Durbin-Watson stat	0.577166		

5. Fixed Effect Model Results

Dependent Variable: ROA				
Method: Panel Least Squares				
Date: 03/18/23 Time: 17:54				
Sample: 2017 2021				
Periods included: 5				
Cross-sections included: 83				
Total panel (balanced) observations: 415				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-14.48293	15.39373	-0.940833	0.3475
AGE_DIVERSITY	2.324358	4.714479	0.493025	0.6223
GENDER_DIVERSITY	0.454553	0.785641	0.578576	0.5633
EDUCATIONAL_DIVERSITY	1.241346	0.832635	1.490864	0.1370
TENURE_DIVERSITY	1.032385	2.774913	0.372042	0.7101
BOARD_INDEPENDENCE	0.584902	0.310136	1.885952	0.0602
BOARD_SIZE	0.105523	0.419462	0.251567	0.8015
FINANCIAL_LEVERAGE	-0.124165	0.170151	-0.729735	0.4661
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.752885	Mean dependent var	6.839456	
Adjusted R-squared	0.685214	S.D. dependent var	10.56202	
S.E. of regression	5.925908	Akaike info criterion	6.585827	
Sum squared resid	11412.83	Schwarz criterion	7.459429	
Log likelihood	-1276.559	Hannan-Quinn criter.	6.931280	
F-statistic	11.12559	Durbin-Watson stat	2.075333	
Prob(F-statistic)	0.000000			

Dependent Variable: ROE				
Method: Panel Least Squares				
Date: 03/18/23 Time: 18:43				
Sample: 2017 2021				
Periods included: 5				
Cross-sections included: 83				
Total panel (balanced) observations: 415				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-7.239287	25.71922	-0.281474	0.7785
AGE_DIVERSITY	1.382592	7.876764	0.175528	0.8608
GENDER_DIVERSITY	0.317054	1.312617	0.241543	0.8093
EDUCATIONAL_DIVERSITY	1.850517	1.391134	1.330223	0.1844
TENURE_DIVERSITY	-2.461649	4.636214	-0.530961	0.5958
BOARD_INDEPENDENCE	0.643005	0.518163	1.240931	0.2155
BOARD_SIZE	0.409561	0.700820	0.584403	0.5594
FINANCIAL_LEVERAGE	-0.383133	0.284281	-1.347726	0.1787
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.792448	Mean dependent var	9.904344	
Adjusted R-squared	0.735611	S.D. dependent var	19.25517	
S.E. of regression	9.900772	Akaike info criterion	7.612384	
Sum squared resid	31858.22	Schwarz criterion	8.485987	
Log likelihood	-1489.570	Hannan-Quinn criter.	7.957837	
F-statistic	13.94241	Durbin-Watson stat	1.942974	
Prob(F-statistic)	0.000000			

6. Hausman Test Results

Correlated Random Effects - Hausman Test				
Equation: Untitled				
Test cross-section random effects				
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.	
Cross-section random	19.662368	7	0.0063	
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var(Diff.)	Prob.
AGE_DIVERSITY	2.324358	-0.855007	21.470941	0.4926
GENDER_DIVERSITY	0.454553	0.852010	0.060693	0.1067
EDUCATIONAL_DIVERSITY	1.241346	0.006960	0.348005	0.0364
TENURE_DIVERSITY	1.032385	3.002106	1.521902	0.1103
BOARD_INDEPENDENCE	0.584902	0.809835	0.014689	0.0635
BOARD_SIZE	0.105523	-0.376071	0.063273	0.0555
FINANCIAL_LEVERAGE	-0.124165	-0.100733	0.007852	0.7914
Cross-section random effects test equation:				
Dependent Variable: ROA				
Method: Panel Least Squares				
Date: 03/18/23 Time: 18:53				
Sample: 2017 2021				
Periods included: 5				
Cross-sections included: 83				
Total panel (balanced) observations: 415				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-14.48293	15.39373	-0.940833	0.3475
AGE_DIVERSITY	2.324358	4.714479	0.493025	0.6223
GENDER_DIVERSITY	0.454553	0.785641	0.578576	0.5633
EDUCATIONAL_DIVERSITY	1.241346	0.832635	1.490864	0.1370
TENURE_DIVERSITY	1.032385	2.774913	0.372042	0.7101
BOARD_INDEPENDENCE	0.584902	0.310136	1.885952	0.0602
BOARD_SIZE	0.105523	0.419462	0.251567	0.8015
FINANCIAL_LEVERAGE	-0.124165	0.170151	-0.729735	0.4661
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.752885	Mean dependent var	6.839456	
Adjusted R-squared	0.685214	S.D. dependent var	10.56202	
S.E. of regression	5.925908	Akaike info criterion	6.585827	
Sum squared resid	11412.83	Schwarz criterion	7.459429	
Log likelihood	-1276.559	Hannan-Quinn criter.	6.931280	
F-statistic	11.12559	Durbin-Watson stat	2.075333	
Prob(F-statistic)	0.000000			

Correlated Random Effects - Hausman Test				
Equation: Untitled				
Test cross-section random effects				
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.	
Cross-section random	21.109527	7	0.0036	
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var(Diff.)	Prob.
AGE_DIVERSITY	1.382592	-1.665546	59.328001	0.6923
GENDER_DIVERSITY	0.317054	0.744673	0.133071	0.2411
EDUCATIONAL_DIVERSITY	1.850517	-0.655524	0.841995	0.0063
TENURE_DIVERSITY	-2.461649	1.289867	3.396989	0.0418
BOARD_INDEPENDENCE	0.643005	0.946989	0.032648	0.0925
BOARD_SIZE	0.409561	-0.354850	0.147977	0.0469
FINANCIAL_LEVERAGE	-0.383133	-0.233398	0.017947	0.2637
Cross-section random effects test equation:				
Dependent Variable: ROE				
Method: Panel Least Squares				
Date: 03/18/23 Time: 18:51				
Sample: 2017 2021				
Periods included: 5				
Cross-sections included: 83				
Total panel (balanced) observations: 415				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-7.239287	25.71922	-0.281474	0.7785
AGE_DIVERSITY	1.382592	7.876764	0.175528	0.8608
GENDER_DIVERSITY	0.317054	1.312617	0.241543	0.8093
EDUCATIONAL_DIVERSITY	1.850517	1.391134	1.330223	0.1844
TENURE_DIVERSITY	-2.461649	4.636214	-0.530961	0.5958
BOARD_INDEPENDENCE	0.643005	0.518163	1.240931	0.2155
BOARD_SIZE	0.409561	0.700820	0.584403	0.5594
FINANCIAL_LEVERAGE	-0.383133	0.284281	-1.347726	0.1787
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.792448	Mean dependent var	9.904344	
Adjusted R-squared	0.735611	S.D. dependent var	19.25517	
S.E. of regression	9.900772	Akaike info criterion	7.612384	
Sum squared resid	31858.22	Schwarz criterion	8.485987	
Log likelihood	-1489.570	Hannan-Quinn criter.	7.957837	
F-statistic	13.94241	Durbin-Watson stat	1.942974	
Prob(F-statistic)	0.000000			