

INFLUENCE OF CEO REMUNERATION AND
GENDER DIVERSITY ON RISK-TAKING
PATTERNS IN MALAYSIA'S DUAL BANKING
SYSTEM

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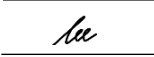


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- (3) Equal contribution has been made by each group member in completing the FYP.
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LIST OF ABBREVIATIONS

CEO	Chief Executive officer
POLS	Pooled OLS
FEM	Fixed Effect Model
REM	Random Effect Model
GD	Gender Diversity
CR	Capital Regulation
AITP	Approach/ Inhibition Theory of Power
ESG	Environmental, social, and governance
ROA	Return on Assets
CAR	Capital Adequacy Ratio
U.S	United States
BCCS	Basel Committee on Banking Supervision
CLRM	Classical Linear Regression Model
GCC	Gulf Cooperation Council
VIF	Variance Inflation Factor
TOL	Tolerance
BPLM	Breusch-Pagan Lagrange Multiplier

PREFACE

This study, titled "Influence of CEO remuneration and gender diversity on risk-taking patterns in Malaysia's dual banking system," is being carried out as a mandatory research project in the Business Administration (Honours) Banking and Finance course. This study offers a comprehensive analysis of the relationship between CEO compensation and gender diversity on risk-taking patterns within Malaysia's dual banking system.

The relationship between CEO compensation, gender diversity, and risk-taking patterns in the banking industry has emerged as an important topic of study in the context of current rapidly changing global financial landscape. As Malaysia's dual banking system evolves, understanding the complicated relationship of these factors becomes valuable knowledge for both banking practitioners and government authorities. The subject matter has attracted worldwide concern, with countries such as Australia, the United States, the United Kingdom, Hong Kong, Singapore, China, and Indonesia becoming more aware of the issue. However, in Malaysia, it has not gained much attraction as a topic of discussion. Thus, this study specifically targets the banking sector in Malaysia.

Given the unique of banking system in Malaysia. This research had made a comparison between conventional banking and Islamic banking, by examine the effect of CEO remuneration, gender diversity and capital regulation toward bank risk-taking patterns in Malaysia Dual Banking system.

ABSTRACT

This research investigates the influence of CEO remuneration and gender diversity on bank risk-taking patterns within Malaysia's Dual Banking system. Malaysia's banking sector operates within a unique framework that encompasses both Islamic and conventional banking institutions. Against this backdrop, understanding the interplay between executive compensation structures, gender composition in leadership, and risk-taking patterns becomes essential for comprehending the dynamics of financial stability and resilience. Besides that, based on agency theory and capital buffer theory, this study seeks to determine the influence of CEO remuneration, gender diversity and capital regulation on risk-taking patterns in Malaysia Dual Banking system. This study is using EViews and Stata to conduct data analysis. This paper applied times series data and cross-sectional data, which are include five conventional bank and five Islamic banks during the period of 2010-2020. The result shows that capital regulation and CEO remuneration had a significant relationship on bank risk-taking patterns in conventional bank, however gender diversity is insignificant. For Islamic bank, CEO remuneration, gender diversity and capital regulation had an insignificant on bank risk-taking pattern in Islamic bank.

CHAPTER 1 RESEARCH OVERVIEW

1.0 Introduction

Chapter one of this research begins with a discussion of the research background. The problem statement is utilized to address the concerns raised in this investigation. Next, the study objectives, questions, and hypotheses are presented in that order. The necessity of conducting this study is then discussed. The chapter arrangement includes an overview of the material in each chapter. Finally, a conclusion summarizes the important concepts from Chapter One.

1.1 Research Background

The financial sector plays an important role in the worldwide economy. It offers fundamental monetary services to a significant proportion of the population. It also finances commercial activity and provides funding and cash accessible to the marketplace. The finance industry manages most of the financial movements and contributes to over 70% of total funds in the banking industry. As a result, it is realistic to believe that a productive and lucrative banking industry will contribute to a sustainable monetary system that promotes socioeconomic growth and expansion (Hong et al., 2016). Within the financial sector, banking institutions play a crucial role in promoting economic growth by facilitating the flow of funds between individuals and organisations in need of financing. This ensures that financial resources are utilised efficiently, leading to increased production and overall economic growth (Kazak et al., 2023).

Banking institutions can be classified into conventional and Islamic sectors. The origins of conventional banking may be traced back to the year 1407, when the Casa di San Giorgio was established in Genoa, marking its position as the first recognised bank (Cerović et al., 2017). While the demand for interest-free banking among

Muslims, driven by religious requirements, as well as the growth of the Muslim population and the rise in oil prices, has led to the first establishment of Islamic banks in Egypt founded in 1963 (Bougatef et al., 2020; Louati & Boujelbene, 2015; Salman & Nawaz, 2018). The key difference between Islamic banking and conventional banking is in the fundamental principle of profit and risk sharing that underlies Islamic banks (Cerović et al., 2017). Islamic banking adheres to the principles of Shariah law, which include the prohibition of interest (riba), profit-sharing between the bank and the customer, the prohibition of speculative behaviour (maysir), and the prohibition of asymmetric information (gharar) (Abedifar et al., 2015; Tatiana et al., 2015). This principle has facilitated the development of Islamic banking products, such as Musharakah or Mudarabah, which emphasise risk-free transactions and promote models of risk-sharing in accordance with Islamic Shariah Law principles (Beck et al., 2013; Bakhouché et al., 2022). In the context of conventional banks, it employs an interest rate system to safeguard their investments by shifting the risk to the debtor side (Cerović et al., 2017). This has highlighted the distinction between an Islamic bank and a conventional bank. Islamic banking has experienced rapid growth over the past two decades. In 2020, Islamic banking accounted for 69% of the world's total assets, which were valued at \$2.88 trillion (ICD-Refinitiv, 2020). Islamic banking is projected to continue to expand, led by countries such as Malaysia, Indonesia, and the GCC. Islamic banking is still at the growing stage in the worldwide banking industry. Yet, the rapid expansion of Islamic banking coupled with intense competition from conventional banks in identical sectors has generated interest in the creditworthiness of Islamic banks (Lassoued, 2018).

Dual banking systems are distinguished by the simultaneous existence of two distinct banking models, referring to conventional banks and Islamic banks. There are 18 countries operating with dual banking systems, with 11 countries having total financial assets that are above 0.5 percent of total global Islamic banking assets, including Bahrain, Bangladesh, Egypt, Indonesia, Kuwait, Malaysia, Pakistan, Qatar, Saudi Arabia, Turkey, and United Arab Emirates (Karim, 2019). Some researchers categorize Islamic banks as complements rather than substitutes for conventional banks as they provide more competition and promote the stability and

resilience of financial intermediaries due to their risk-free function (Imam & Kpodar, 2013). The presence of both conventional and Islamic banks in the dual banking system offers several benefits. Dual banking system provides flexibility to the overall financial system by catering to the diverse needs of the community. This includes offering interest-free credit cards and fixed-term savings options through joint ventures between the bank and clients (Cerović et al., 2017). Additionally, dual banking system helps reduce the risk-taking behaviour of Islamic banks by creating a competitive market environment associated with competition from conventional bank (Alam et al., 2019).

Malaysia's financial sector can be broadly classified into three levels, which are the banking system, non-bank intermediate system, and financial industry. Bank Negara Malaysia (BNM) acts as a controller in our nation, regulating and controlling banking institutions such as commercial banks, financial businesses, and merchant banks (Shafee et al., 2021). Additionally, Malaysia is one of the earliest nations in the entire world to implement a dual banking system where its Islamic banking system runs concurrently with the conventional banking system (Zainordin et al., 2016). The establishment of dual banking system has allowed the rapid growth of Islamic banking without bringing huge disturbance towards the conventional financial system (Khiyar, 2012).

Malaysia has gained recognition as a prominent proponent of the dual banking system among the 18 countries under consideration. This distinction can be attributed to Malaysia's attempts to establish itself as a global center for Islamic finance, as well as the implementation of policies following the 1998 Asian financial crisis. These policies aimed to augment the number of Islamic banking service providers and consolidate the banking sector (Ibrahim et al., 2019). In addition, with the effort of government and the Central Bank of Malaysia by introducing three phases of development for Islamic banking system, the Islamic banking part of Malaysia experienced a rapid growth which included the establishment of full-fledged Islamic banking and comprehensive Islamic financial system (Khiyar, 2012). As a result, Malaysia dual banking system has experience

rapid growth and recorded a size of 26 conventional banks and 17 Islamic banks in year 2023 (Bank Negara Malaysia, 2023).

As the banking industry has evolved, the issue of bank risk-taking has emerged as a major concern. The failure of a bank can have a catastrophic impact effect on the entire economy. This issue has become more visible with the rise of the financial crisis. The 2007-2008 financial crisis motivated bank regulators and researchers to reevaluate the root causes of bank failures, specifically focusing on the impact of inadequate corporate governance practices. The financial crisis is often attributed to the inadequate stewardship practices of financial institutions. Prior research has discovered that the financial crisis is caused by reckless funding, extreme risk-taking, and the pressure on executives from stockholders to achieve unrealistic revenue growth. This leads administrators to take excessive risks, resulting in the occurrence of the crisis (Trofimov et al., 2018). In addition, the board of directors could potentially contribute to the collapse of numerous banks by neglecting to properly assess risk, evaluate the banks' susceptibility to economic shocks, and exercise with prudence. As the main component of a country's financial system, banking institutions have the responsibility of both lending and accepting funds from the public. Additionally, they offer payment and service facilities. Insufficient risk management and ineffective corporate governance in banks can lead to instability in the banking sector, making them vulnerable to significant shocks. Consequently, there has been a growing demand from international initiatives to enhance the bank's risk-taking pattern and improve its governance practices.

Additionally, it is found that the credit risk associated with Islamic banks is distinct from that of traditional conventional banks due to variations in contractual arrangements (Alam et al., 2017). In the context of a Mudarabah (profit sharing) contract, a notable occurrence is the emergence of information asymmetry between the Islamic bank and the entrepreneur. This disparity arises due to the Islamic bank's limited involvement in the decision-making process of the business, which is primarily determined by the entrepreneur (Ali et al., 2023). In the present scenario, Islamic banks are encountering a significant degree of credit risk as compared to conventional banks. On top of that, the competition between Islamic bank and

conventional bank has the potential to increase the risk-taking patterns of the banks within the dual banking system (Ali et al., 2023). Although the superior performance of Islamic banks compared to conventional banks was apparent during the 2007-2008 financial crisis, Islamic banking is still regarded as an emerging sector and requires a more comprehensive evaluation in terms of risk-taking pattern. Hence, it is imperative to evaluate the risk-taking pattern within the dual banking system in order to enhance the financial stability of a dual banking system.

Prior researches have examined the bank risk-taking pattern across several factors. Pozo (2023) found that the impact of foreign shocks on bank risk-taking in emerging economies. In addition, Pour et al. (2023) claimed that differences in bank risk-taking among different national cultures and CEO power are more noticeable in cases where cultural values and CEO power indicators are heightened. The potential effect towards bank risk-taking pattern due to gender diversity on the board of directors (BOD) has been the focus of numerous studies (Skala and Weill, 2018; Abou-El-Sood, 2019; Birindelli et al., 2020; Khan et al., 2020). Prior systematic literature studies have underscored the significance of taking into account the demographic attributes of chief executive officers (CEOs), including their risk tolerance and gender representation. Ibrahim et al. (2022) and Khatib et al. (2021) have reported the beneficial impact of these factors. Other than that, previous studies had remarked that generally female executives do not obtain fair recognition for their talents and abilities due to a stereotype perception as they are lacking experience in completing ordinary male jobs (Dezsö & Ross, 2012; Julizaerma & Sori, 2012; Nainggoln et al., 2022). In the study of Liu et al. (2022) found that beneficial impact on the bank risk when consider gender diversity of a dominant gender group.

The subsequent focus of the study related to the incentives provided to CEOs in relation to their tendency for engaging in risky behaviour within the banking sector. It is observed that CEO incentives have a significant role in influencing bank risk-taking behaviours in the study of Ongena et al. (2022). Specifically, there is a positive correlation between CEO salary and the propensity of banks to take risks. In addition, Guo et al (2015) also investigated the relationship between the

composition of CEO compensation and the bank's incentive to engage in excessive risk-taking. Hagendorff and Vallascas (2011) examine the impact of executive compensation structure on the risk preferences of bank CEOs.

While there have been several studies on the relationship of gender diversity and CEO remuneration in relation to bank risk-taking pattern, there have been few studies specifically examining this relationship within the dual banking system of Malaysia. This has motivated us to investigate the relationship of gender diversity and CEO remuneration towards the risk-taking pattern of banks, with the aim of improving the governance procedures of both conventional and Islamic banks in Malaysia.

1.2 Problem Statement

In the conventional framework of the agency theory, CEO remuneration is widely regarded as an effective instrument for either aligning CEO's values with stakeholders or motivating the executives to meet the objectives. Consequently, it is crucial to ascertain whether CEO salaries in financial institutions can be correlated with managerial authority proxies above the variables that contribute to acceptable market prices (Tian & Yang, 2014). States and the financial institution regulatory agencies adopted precautionary actions at both the worldwide and national stages to encourage bank CEOs to engage in more prudent manners. Yet there is no evidence that these conservative measures are adequate to protect our banking and economy system from collapsing (Mondello & Smaoui, 2021).

It is believed that CEO compensation encourages excessive risk-taking has its origins in the legislative and financial framework of business management. In fact, the executive viewpoint regarding risk might not be the ideal from the stockholders' perspective. In the absence of supplementary rewards such as compensation, CEO might be cautious as they do not desire to jeopardize their private monetary assets or investment in the corporation. According to agency theory, CEO with higher risk sensitivity might be awarded more incentives-based remuneration to encourage

risk-taking. Researchers investigate whether freshly appointed CEOs obtain initial compensation bundles that match the guideline which reflect their risk preferences (Graffin et al., 2020). The typical agency hypothesis contends that CEO incentives packages stimulate risk-taking, however this viewpoint is controversial because a variety of aspects might affect how bank risk taking is affected from CEO remuneration (Chu et al., 2020).

The occurrence of the financial crisis has served as an awakening for both bank regulators and researchers, shedding light on the shortcomings of corporate governance and the propensity for excessive risk-taking within the banking sector. The primary factor attributed to the failure is widely thought to be the decision-making of the boards of directors. Hence, the significance of board diversity, particularly in terms of gender diversity, has been proposed to mitigate bank risk-taking patterns (Abou-El-Sood, 2021). The significance of gender diversity has garnered growing attention and recognition, as it is widely considered that the inclusion of diverse perspectives on a company's board can lead to fresh insights, ultimately benefiting both the board's and the firm's performance (Jabari, 2021).

Consequently, there has been an increasing demand for gender diversity on corporate boards, especially in Malaysia. According to the Malaysia Code of Corporate Governance 2017 (MCCG, 2017), the government of Malaysia has implemented a policy recommending a minimum representation of 30 percent of females on corporate boards for all publicly listed company which are including banks. However, the lack of enforcement in the Malaysia Code of Corporate Governance 2017 led to the female presence on board being relatively less in both conventional banks and Islamic banks. Therefore Malaysian government revised the policy by recommending all publicly listed companies should comprise a minimum of 30% of women directors and should disclose the process and timescale for achieving 30% within three years or fewer in the Malaysia Code of Corporate Governance 2021 (MCCG, 2021). In the context of dual banking, it is anticipated that both conventional banks and Islamic banks adhere to the requirements outlined in the Malaysian Code on Corporate Governance (MCCG) of 2021. It indicates that gender diversity on the board of directors in the publicly listed company included

conventional banks and Islamic banks is still in process. Gender diversity has become a popular standard for corporate governance. Numerous scholars have explored the impact of gender diversification on risk-taking patterns in conventional banks. However, there is a lack of research on the influence of gender diversification specifically in Islamic banks. Considering the different features exhibited by conventional banks and Islamic banks, it is essential to investigate whether gender diversification yields comparable outcomes in mitigating bank risk-taking patterns within the Islamic banking sector, with a specific focus on the Malaysian banking system.

1.3 Research Objectives

1.3.1 General Objectives

The general objective of this study is to determine the influences of CEO remuneration, gender diversification and capital regulations towards bank risk-taking patterns in Malaysia.

1.3.2 Specific Objectives

To attain our overall goal, the specific objectives are designed.

- 1) To examine whether there is a significant relationship between CEO remuneration and risk-taking patterns in Malaysia's Dual Banking System.
- 2) To examine whether there is a significant relationship between gender diversification and risk-taking patterns in Malaysia's Dual Banking System.
- 3) To examine whether there is a significant relationship between capital regulations and risk-taking patterns in Malaysia's Dual Banking System.

1.4 Research Questions

The following research questions are designed to give a clear direction for our investigation.

- 1) Does CEO remuneration have a significant relationship towards risk-taking patterns in Malaysia's Dual Banking System?

- 2) Does gender diversification have a significant relationship towards risk-taking patterns in Malaysia's Dual Banking System?

- 3) Does capital regulation have a significant relationship towards risk-taking patterns in Malaysia's Dual Banking System?

1.5 Hypothesis of The Study

H₁: There is a significant relationship CEO remuneration towards risk-taking patterns in Malaysia's Dual Banking System.

H₂: There is a significant relationship gender diversification towards risk-taking patterns in Malaysia's Dual Banking System.

H₃: There is a significant relationship capital regulation towards risk-taking patterns in Malaysia's Dual Banking System.

1.6 Significance of The Study

It is crucial to carry out this study as it can help to maintain financial stability. This is due to Malaysia's dual banking system, which includes both conventional and Islamic banks. Assessing the impact of CEO salary and gender diversity on risk-

taking patterns is critical for financial sector stability. Systemic vulnerabilities and financial disasters can result from uncontrolled risk-taking. Regulators can improve the resilience of the financial system by researching these variables. Effective risk management practices assist banks in maintaining financial stability by recognizing, assessing, and mitigating potential losses. Banks can avoid unexpected losses and retain financial health through controlling risks, which is critical for their long-term profitability.

Besides that, banks can make more informed decisions that balance short-term earnings with long-term sustainability by researching the factors that influence risk-taking patterns. This is because sustainable banking practices are vital for long-term viability. Environmental, social, and governance (ESG) concerns can be identified and mitigated through sustainable banking practices. Banks can prevent exposure to risky assets or activities that may result in financial losses in the future by considering these considerations in decision-making. For example, by avoiding funding projects with high environmental risks, such as coal-fired power plants, banks can decrease their exposure to prospective legislative changes or stranded assets as the globe moves to a low-carbon economy.

Furthermore, banks' risk-taking patterns can have significant economic consequences. Excessive risk-taking can lead to serious economic downturns, as seen in the 2008 financial crisis. By understanding these processes may help in the mitigation of systemic risks and the prevention or mitigation of future financial crisis. Banks are required by regulatory organizations to maintain a specific level of capital adequacy. Sufficient capital works as a buffer against unexpected losses, allowing banks to absorb shocks without going bankrupt. Adequate capital levels strengthen the financial system's resilience to systemic risks and increase its ability to weather economic downturns.

1.7 Chapter Layout

The context for the research explains the reasons for choosing the research topic in chapter one. It included research objectives, research questions, and hypotheses development. Additionally, this study also elaborated the significance of the study. Chapter two comprises a literature review of previous studies on the factors that influence risk-taking patterns in Malaysia's Dual Banking System. This chapter includes an overview of the variables and theoretical frameworks used in earlier studies. Then, it also defines the variables and presents the findings of other researchers in a cohesive manner.

Chapter three focuses on the research methodology. This chapter explains the research design, sampling size selection, sampling technique, and research instrument. It also describes the steps involved in data processing and analysis.

Chapter four presents the research findings. This chapter is crucial in achieving the research objectives. It includes the results of descriptive analysis, preliminary data screening, and inferential analysis.

The research is concluded in Chapter 5 with a detailed discussion of the outcomes derived from the analysis of data. Next, it also provides recommendations on the way policymakers can apply on their findings. Finally, it addresses the study's weaknesses and provide strategies for overcoming them.

1.8 Conclusion

Malaysia's banking industry is composed of banks with variety of business nature, which results in different outcomes in terms of gender diversity and CEO compensation towards the bank's risk-taking patterns. This research highlights on the achievement of conventional banks and Islamic banks, as well as the gender of the labour force in Malaysia. The World Bank's data on the proportion of women in the workforce and the reports of women joining the workforce in gender diversity on Board of Directors in Malaysian Banking Sectors Malaysia are at contradiction.

The study questions in this study are to evaluate whether gender of the Board of Directors impacts a bank's risk-taking patterns; whether CEO incentives impact the bank's risk-taking patterns; and the impact of bank-specific variables on a bank's risk-taking patterns in dual banking system. To conduct this research, 10 banks were used, two microeconomic parameters and one bank-specific variable, the CEO remuneration and gender of the banks' Board of Directors. The further details of this study will be presented in the next chapters.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

The following components are discussed in Chapter 2, where there is a literature review for variables selected, identification of relevant theoretical models, proposal of a theoretical or conceptual framework relevant to this study, hypothesis development, and the overall conclusion. The dependent variable (Islamic and conventional bank risk-taking patterns) and the independent variables (gender diversification, CEO remuneration, and bank-specific factors (capital regulation) relationship in Malaysia will be explained in the literature review part. The agreement or argument on the relationship between a dependent variable and an independent variable will be also supported by several journalists based on their result findings. In this section, we will elaborate on the impact of unique nature board structures and the type of business on the risk-taking patterns of banks in Malaysia. We will also review relevant past theoretical models and discuss the significance of models adopted by previous researchers. Additionally, we will examine previous studies that explore the relationship between macroeconomic variables and bank-specific indicators towards bank risk-taking patterns. Then, the conceptual framework suited with this study will be developed based on this research objectives and research questions. In conclusion, we will make a summary of the relationship between the independent variable and dependent variable that was discussed in this chapter.

2.1 Theoretical review

2.1.1 Agency Theory

Fama and Jensen (1983) suggest that agency theory serves as a form of internal control aimed at mitigating the agency problem that arises between higher management and investors. The authors also mentioned that an organization is viewed as a hub of both implicit and explicit agreements between stakeholders, including owners, staff, executives, and other capital providers.

Under agency theory, CEO remuneration is an essential mechanism for resolving disputes related to interests involving shareholders and executives (Chan et al., 2017). It can be used to explain differences between management and owner-controlled organizations' CEO remuneration structures (Tosi Jr et al., 1989). Due to an imbalance incentive, CEO might be compelled to take unnecessary risks. Even though these activities raise the total risk for the bank, but higher pay may promote riskier practices in effort to short-term rewards. This is because CEOs are employed as the representative of stockholders and may have incentives to perform with actions that are detrimental to the greatest benefit of stockholders (Chan et al., 2017).

Besides that, there is proof by using the Approach/ Inhibition Theory of Power (AITP) concept to support agency theory to clarify whether the gender diversity influences the bank risk-taking patterns (Keltner et al., 2003). AITP is used to analyse mixed outcomes and provide information on whether female boards of directors choose to pursue more or fewer risky positions. Regulation of sufficient capital is intended to mitigate the unfavourable correlation between female boards and risk-taking. According to AITP concept, female boards believe having a higher financial base gives them greater ability to invest in risky commodities (Abou-El-Sood, 2021).

The inclusion of female director in the board of director protects its militancy and self-reliance. Female directors seem to be effective risk managers and excellent regulators (Carter et al., 2003).

The agency theory explains how independent female executives may be motivated to take risks in order to improve the firm's anticipated success. Additionally, women independent directors are typically more efficient when it comes to oversight and achievement of having control from the stockholder base (Poletti-Hughes & Briano-Turrent, 2019). The author mentioned that the rise in venture risk is mostly the result of the female boards, who are recruited on the basis of merit rather than relationships and offer more superior knowledge for the board's decisions. Nevertheless, Bianco et al. (2015) stated that women may not have the background and experience to support their company's operations as they are hired based on suggestions from the chairperson. This highlights the disparity in the motivation for taking risks of the female boards of directors.

2.1.2 Capital Buffer Theory

Capital buffer theory refers to the costs incurred as a result of adjusting the level of capital or the additional costs incurred when bank capital falls below the minimum level required. (Quang & Gan, 2019). It can be classified as implicit and explicit cost, with implicit cost referring to regulatory intervention to limit the probability of deposit insurance occurring and explicit cost referring to the cost arising from regulatory noncompliance with the minimum capital requirement (Buser et al., 1981). In a worst-case scenario, the cost of capital buffer could result in the liquidation of the bank's assets. In accordance with the capital buffer theory, banks will therefore look to maintain a buffer in excess of the minimum capital requirement in order to avoid these costs (Quang & Gan, 2019). Previous researcher has extended this theory to the bank risk-taking decision and discovered that banks will reduce their risk-taking on extremely risky assets

when they are unable to meet regulatory capital requirements (Milne, 2002). As less capital is required when risky assets are reduced, regulatory capital requirements are lowered, which in turn reduces bank risk-taking. While a bank with less than the minimum required capital faces the risk of paying fines to the authorities, it will pursue riskier investments in order to obtain the required capital, thereby increasing its risk-taking patterns (Quang & Gan, 2019).

2.2: Literature Review

2.2.1 Bank Risk-taking patterns

Banking risk encompasses the diverse perils that are inherent in a bank's operations and assets, hence subjecting the institution to potential dangers across its operational endeavors (Ha & Phan, 2018). The moral hazard theory claims that banks may exhibit a higher attitude towards risk and engage in greater risk-taking activities, resulting in potential harm to counterparties (Quang & Gan, 2019). Consequently, prior scholars have attempted to evaluate the tendency of banks to engage in risk-taking activities. However, quantifying risk-taking patterns has posed a challenge for regulators and researchers. Nevertheless, researchers have made progress in this area via their ongoing efforts. Various methodologies exist for assessing the risk-taking patterns of banks. The study conducted by Abid et al. (2021) employs bank loan quality, the ratio of total gross loans to total deposits, and Z score as indicators to assess credit risk, liquidity risk, and insolvency risk, respectively. While other researchers focus on other risk proxies, such as risk-weighted assets to total assets ratio, non-performing loan to gross loans, loan loss provision, and numerous other indicators (Abbas et al., 2021; Jiang et al., 2020). It has been proposed that the loan underwriting standards could be one of the key aspects for bank risk-taking patterns, as it influences financial stability and macroeconomy impact.

Previous studies have indicated that the Z-score is a recommended method for assessing the total level of risk in banks, and it has been widely employed in recent research (Ha & Phan, 2018; Mohsni & Otchere, 2018). Hence, the Z-score is employed in this study as a metric to assess the level of risk-taking patterns exhibited by banks.

2.2.2 CEO Remuneration

CEO remuneration is the term used to describe the monetary rewards and advantages given to a corporation's CEO. The incentive packages are made to encourage and keep the best executive personnel, to connect their desires with the stockholders, and to motivate them to advance the corporation's objectives (Cerasi & Oliviero, 2018). Several batches of samples have been utilised in several research to examine the effect of CEO remuneration and bank risk-taking patterns. For instance, Wang et al. (2011) used the sample of population in China found that most CEO compensation agreements are based on basic wages and incentives agreements instead of equity-based option packages.

The impact of bank risk-taking patterns from CEO remuneration has been inconsistent. Several studies have discovered a positive association between CEO salary and bank risk-taking patterns. According to Shinozaki et al. (2016), CEO remuneration plans like stock option-based remuneration can encourage bank executives to take risks. Moreover, Boateng et al. (2015) stated that bank executives with powerful reward plans have motivation to attempt excessive risks to improve short-term achievement. Ghazali and Yahya (2017) have mentioned that rewards for taking risks from variable pay plans are predicted to be significantly larger at banks than non-financial businesses. The author pointed out that the value of equity-driven CEO compensation rises together with the level of bank risk. Furthermore, Cheng et al. (2015) stated that executive salary is connected with risk because

corporation that take more risks typically offer higher remuneration to encourage risk-taking.

Boateng et al. (2022) indicates that surplus reserves and the bonuses found in CEO remuneration agreements have a positive and significant effect on financial risk and risk-taking. But the author discovers that the favourable relationship between CEO remuneration and surplus funds cancels out the effects of both risk-taking. Nguyen and Boateng (2015) also stated that executives who are paid through fixed wages and incentives agreements may exhibit risk-averse patterns. This is because they stand to lose if the banks do very well, they might not be enough prompted to expose themselves in taking unnecessary risks as the marginal gain in their compensation seems to be less than the risk they carry. If the bank collapses, CEO may face risk in losing their managerial positions and labour investments. Additionally, Fernandes et al. (2021) discovered that the increasement of CEO's shares acts as a deterrent to raise the corporate risk. Swanepoel and Smit (2016) examined banks in the UK and US and discovered that CEO monetary benefits reduce the bank risk-taking patterns. The authors found that the risk-taking declined as CEO compensation rose, whereas risk-taking increase when CEO compensation declined.

However, a study shows an insignificant effect of CEO remuneration on bank risk-taking patterns. Beltratti et al. (2012) mentioned that they did not discover a meaningful link between bank compensation variables and risk in inadequately capitalised institutions. This indicates that CEO remuneration such as bonuses, does not have directly influence on bank risk-taking patterns.

Moreover, the effect of CEO remuneration on bank risk-taking patterns found that have mixed results from previous studies. There may be a connection between higher managerial bonuses and higher bank risk in certain circumstances, such as when shareholders have less oversight. For instance, larger compensation can encourage bank management to keep a

closer focus on the loan portfolio, but they might also discourage shareholder supervision and increase risk (Cerasi & Oliviero, 2018).

There are distinct statistical approaches have implemented in different studies to explore the relationship between CEO remuneration and bank risk-taking patterns. First of all, Dynamic Panel Data approach has been used in the previous study. This strategy is to avoid the endogeneity when analysing the relationship of risk-taking patterns from CEO remuneration (Bakke et al., 2016). Besides that, the Ordinary Least Square method was employed by Cerasi and Oliviero (2018). The Statistical Packages Social Science software was utilised by Swanepoel and Smit (2016) to analyse the data. Ongena et al. (2022) employed Regression Analysis in the study.

To conclude, the existing literature found the effect of CEO remuneration and bank risk-taking patterns have incompatible results. Existing literature shows most of there is have a significant effect, whereas some studies also mentioned negative effects while a study shows insignificant effects between CEO remuneration and bank risk-taking patterns. These different results are due to the variety of methodologies employed, the selection of control variables and endogeneity might make the evaluation and interpretation of data more complex.

2.2.3 Gender Diversity

In recent years, there has been an increase in the number of women serving on corporate boards. However, there is still a "glass barrier" limiting female representation in certain areas, particularly in finance (Girardone et al., 2021). Despite earning higher degrees than their male counterparts, female directors are paid less and are less likely to be selected for critical leadership roles on the board of directors (Field et al., 2020). Chen et al. (2019) also found that gender-diverse boards tend to be more risk-aware than all-male boards when making financial decision. Furthermore, Berger et al. (2014)

discovered that women are generally more risk-averse in financial decision-making. However, Sila et al. (2016) found no evidence of a relationship between gender diversity and firms' risk-taking behavior. Farag and Mallin (2017) argue that male and female executive directors may exhibit similar risk-taking behavior.

Currently, there is a debate on the impact of gender diversity in the boardroom on the bank risk-taking patterns. According to Lu and Boateng (2018), women involved in the board of directors of UK banks have a negative impact on credit risk. In addition, according to Cardillo et al. (2021), gender diversity had a significant impact on bank risk-taking where having women on a board lowers the likelihood that a bank will need to be bailed out. Recently, Birindelli et al. (2020) and Menicucci and Paolucci (2020) found that gender diversity has a negative impact on bank risk-taking patterns which having more female directors in the boardroom can reduce banking risk. Furthermore, according to a study by Setiyono and Tarazi (2014), having more women on bank boards can lead to lower risk in commercial banks. In the study by Abou-El-Sood (2021) a sample study of US commercial banks, female boards tended to invest in less risky portfolio positions, displaying a risk-averse attitude. In the study of Dong et al. (2017) study found that having more women directors resulted in reduced risk in conventional banking in China.

However, the study of Liao et al. (2019) found that is a significant relationship with the positive impact where increasing female representation on board can increase the bank risk-taking and systematic risk. Besides that, Berger et al (2014) study found there is a positive and significant impact of gender diversity on bank risk-taking patterns, a higher proportion of female representation on board members increase the bank risk in German. In contrast, in the study of Talavera et al (2018) found that gender diversity had an insignificant relationship with bank risk-taking. The author mentioned that women executives tend to have less experience than men and that this may increase the risk-taking in German financial institutions. In addition,

Zhou et al. (2019) found a similar result which is no gender diversity effects on a bank risk-taking pattern.

In the context of Islamic banks, Nainggolan et al. (2022) study found that is a negative and significant effect where gender diversity can reduce bank risk-taking in Indonesian and Malaysian Islamic banks. Besides that, Khan et al. (2018) study found that there is a significant relationship between gender diversity and bank risk-taking because Islamic banks with more female executives had lower levels of credit risk. However, Khan et al. (2020) found that the impact of gender diversity on bank credit risk is not significant which indicates that the presence of female directors on the board does not affect bank risk in Islamic banks. Jabari and Muhamad (2022) study, which included 141 listed banks (including 48 Islamic banks) from 14 countries over nine years (2012-2020), found that gender diversity did not have a significant effect on Islamic bank risk-taking. The study by Sbai and Ed-Dafali (2023) also found that the presence of women on boards did not affect bank risk-taking patterns across 26 countries with Islamic banks.

Previous studies have employed the Random Effects Regression models to estimate the relationship. The regression analysis takes into account variables like female directorship, risk-taking patterns, and other control variables (Mollah & Zaman, 2015; Ramly & Nordin, 2018; Mollah et al., 2021). However, Sbai and Ed-Dafali (2023) employed the Fixed Effects models in the study. In conclusion, there are mixed results between gender diversity and bank risk-taking patterns. most studies show a negative relationship, while some show a positive relationship. Findings indicate that having more women executives has a positive effect on reducing risk in banking.

2.2.4 Capital Regulation

Capital regulation is aimed to improve the soundness of banking system and to improve the stability of banking system caused by previous financial crisis (Bitar et al., 2018). Capital regulation is first proposed in 1988 by the Basel Committee on Banking Supervision (BCCS) to address the bank credit risk and establish minimum capital requirement based on the bank assets portfolio risk (Ashraf et al., 2016). Currently, Basel III has been established to strengthen the quantity and quality of capital regulation. The introduction of capital regulation serves the purpose of managing risk-taking and mitigating adverse impacts on banks by means of oversight by regulatory bodies (Asiamah et al., 2023). Recently, researcher adopted capital regulation to measure the effect of capital regulation towards bank risk-taking patterns. It is defined as the total regulatory capital as a percentage of risk-weighted asset (Ashraf et al., 2016). As the increase in capital regulation may be due to the increase of regulatory capital or decrease in risk-weighted asset, the effect of capital regulation towards the bank risk-taking patterns remains controversial (Ashraf et al., 2016).

The effect on bank risk taking of capital regulation has been contradict. The study conducted on 21 listed commercial banks of Pakistan has found out that capital regulation induced bank in Pakistan to reduce asset portfolio risk to meet the capital regulation requirement, which in turn reduced the bank risk taking patterns (Asharf et al., 2016). Also, in a study of international banks from 111 countries, the researchers found that capital regulation reduces bank' exposure to risk (Asharf et al., 2020). Moreover, a study that focus on countries such as Australia, United States, United Kingdom, Hong Kong, Singapore and other countries that total up with 25 countries also revealed that higher capital regulation significantly reduces the bank-risk patterns of the bank (Danisman & Demirel, 2019). Besides, Floreani et al. (2023) have noted that the banking sector in European nations tends to reduce risk-taking tendencies by augmenting their bank capital. In a study conducted by Jiang et al. (2022), the researchers examined the impact of

capital restrictions on risk-taking patterns within Chinese banks. This research provides a detailed analysis of the tendency of banks with substantial capital to prioritise the protection of shareholder capital, resulting in a tendency for avoidance of risk. Furthermore, a study conducted by Asiamah et al. (2023) has revealed that the increase of capital adequacy regulations in banks located in Sub-Saharan Africa results in a rise in credit risk, while simultaneously decreasing overall risk and liquidity risk. The research mentioned above illustrates the ongoing debate about the effect of various bank risk from capital restriction.

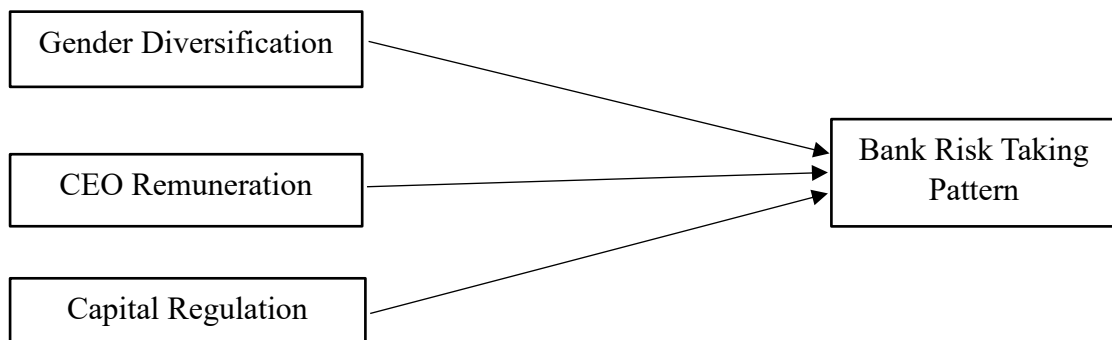
Meanwhile, Mujtaba (2022) has revealed that capital regulation positively effects risk-taking patterns in Asian emerging market, that are in line with "regulatory hypothesis". Also, the study of Jiang et al. (2020) provided evidence that continuously increasing bank capital requirement does not lead to reduce risk-taking patterns among Chinese bank, it may lead to greater risk-taking for high-risk bank to meet the high capital requirement. However, Nguyen et al. (2019) found that capital regulation has no effect on bank risk. On top of that, Maghyereh & Awartani (2014) found that capital requirement does not affect bank risk in GCC countries.

In the context of dual banking system, Bougatef and Korbi (2019) discover that higher capital regulation reduces bank risk taking patterns for banks located in Middle East and North Africa. In addition, the study of Mateev et al. (2021) revealed the positive impact on bank risk taking pattern from capital regulation in conventional banks. However, the effect is insignificant in Islamic Bank. The study further explained that the profit-sharing basis behind the Islamic Bank that led to less capital required in Islamic bank, which causes the insignificant effect on bank risk taking pattern from capital regulation in Islamic bank (Mateev et al., 2021). The difference effect of capital regulation in dual banking system provides the reason for us to conduct further study on the effect of capital adequacy in Malaysia that are operating in dual banking system.

The mixed result in the relationship of capital regulation towards bank risk-taking patterns may be contributed to the variation in countries examined, the result may be two sided in developed countries and developing countries. Furthermore, previous study has discovered the different effect of capital regulation towards conventional bank and Islamic bank in dual banking system. While the effect of capital regulation towards various risk is also different. Therefore, the contradictory conclusion of the recent literature provides incentives to explore and address the research gap in this study.

2.3 Conceptual Framework

Figure 2.1 *Conceptual Framework*



In order to examine the bank-risk taking patterns within the dual banking system in Malaysia, Figure 2.1 shows a conceptual framework. The conceptual framework involves four different independent variables, specifically gender diversification, CEO salary and capital regulation. Based on prior academic research, it is expected that these independent variables will exert an important impact on the bank risk-taking patterns. By utilizing this framework, the significance of the relationship and a hypothesis will be built in the following section.

2.4 Hypotheses Development

2.4.1 CEO Remuneration

CEO remuneration can be possibly having a significant influence on the bank risk-taking patterns. Consideration of agency conflicts between executives, stockholders, and investors as it explores the factors that determine risk in banks. Hence, the greater the managerial compensation, it will lead to an adverse impact on bank risk since they can both reduce shareholders oversight efforts and foster risk-taking patterns (Cerasi & Oliviero, 2018).

Some studies have examined that executive remuneration plans concentrate mostly on the connection between CEO remuneration and risk-taking in developed nations such as United States and United Kingdom (Swanepoel & Smit, 2016). Besides that, Amewu and Alagidede (2019) discovered that CEO remuneration raises bank risk-taking patterns following with effective mergers or acquisitions in Africa. Hence, the study come out first hypothesis:

H₁: CEO remuneration positively influence bank risk-taking patterns in Malaysia.

2.4.2 Gender Diversity

Gender diversity can also significantly influence bank risk-taking patterns. The findings demonstrate that women's boards can lower the risk to banks' profitability. Past studies have revealed that there is a considerable reduction in banking risk when there are more than two female directors in a corporation (Sbai & Ed-Dafali, 2023).

There is various research focused on the effect of risk-taking patterns due to gender diversity. In Nainggolan et al. (2022) study, the risk-taking pattern in Islamic Bank from Indonesia and Malaysia was effectively reduced due to the presence of female directors on the Board of Directors. Hence, the following hypothesis is developed:

H₂: Gender diversification negatively influence bank risk-taking patterns in Malaysia.

2.4.3 Capital Regulation

Previous research has examined the impact of capital regulation on the risk-taking patterns of banks and has concluded that such regulation has the potential to mitigate the level of risk-taking shown by banks. The moral hazard hypothesis proposes that the implementation of capital regulation exposes bank capital to risk, hence influencing banks to adopt a more cautious approach towards riskier assets (Ugwuanyi, 2015).

Previous research has revealed a negative relationship on capital regulation towards bank risk-taking patterns. Hence, this current research is assumed to have a significant and negative relationship on capital regulation towards bank risk-taking patterns in Malaysia.

H₃: Capital regulation negatively influence bank risk-taking patterns in Malaysia.

2.5 Conclusion

The independent variables (CEO remuneration, gender diversity, and capital regulation) and dependent variables (bank risk-taking patterns) literature review are provided in this chapter. Furthermore, the theoretical framework adopted by the

other journalists in their past studies is also explained. Thus, the conceptual framework and hypotheses development are completed in this chapter.

CHAPTER 3: METHODOLOGY

3.0 Introduction

This chapter investigates into the research methodology to introduce the assessment of the impact on bank risk-taking patterns from CEO remuneration, gender diversity, and capital regulation in Malaysia's dual banking system. In addition, the data collection process is discussed, along with the model specification and diagnostic checking to ensure the regression analysis is conducted effectively.

3.1 Research Design

Our study aims to analyse the impact of CEO remuneration, gender diversity, and capital regulation on risk-taking patterns in Malaysia's Dual Banking System. All of the data we have is quantitative data derived from Malaysia's Dual Banking System. Eventually, we have opted for quantitative data to enhance the significance of our study for the reader. We utilize Eview software for conducting regression analysis and Stata software for diagnostic checking in our study. Stata is particularly effective for handling panel data due to its advanced capabilities in conducting diagnostic checking, thus Stata software is used as a complimentary tool to enhance effectiveness of this study.

3.2 Source of Data Collection

The process of data collection is conducted to facilitate the process of analysing relationships between explanatory variables towards the risk-taking patterns of banks in Malaysia. The data is collected from the bank's annual report and Refinitiv database. We employed the observation period of 11 years, from the year 2010 to the year 2020, which is similar to Asiamah et al. (2023) study. The sample size of

the bank in our study consists of eight listed conventional banks and its Islamic Banks' subsidiaries, which is consistent with approach taken by Loh and Sok-Gee (2017) study, which previously employed eight listed banking institutions in Malaysia to assess the bank risk taking pattern in Malaysia. Nevertheless, after considering the available data at hand, we excluded banks that could not provide complete annual reports for the observation period and did not specify the gender composition on their board. Eventually, a total amount of 5 conventional banks and 5 Islamic banks in Malaysia was employed for this study. The bank's details are as follows:

Table 3.1 List of Commercial Banks and Islamic Bank in Malaysia

Conventional Banks	Islamic Banks
Ambank (M) Berhad	Bank Muamalat Malaysia Berhad
CIMB Bank Berhad	Hong Leong Islamic Bank Berhad
Malayan Banking Berhad	HSBC Amanah Malaysia Berhad
OCBC Bank (Malaysia) Berhad	OCBC Al-Amin Bank Berhad
RHB Bank Berhad	RHB Islamic Bank Berhad

Table 3.2 Sources of Dependent Variable and Explanatory Variables

Variables	Measurement	Source
Bank risk-taking patterns	$\frac{(ROA + CAR)}{\sigma(ROA)}$	Refinitiv Database
CEO Remuneration	CEO Remuneration measured in RM million	Bank's annual report
Gender Diversity	Proportion of women representation on the Board of Directors	Bank's annual report
Capital Regulation	$\frac{(Tier\ 1\ Capital + Tier\ 2\ Capital)}{Risk\ Weighted\ Assets}$	Refinitiv Database

3.3 Model Specification

The model illustrates the fundamental model of this study:

$$BRTP_{it} = \beta_{0i} + \beta_1 CEOR_{it} + \beta_2 GD_{it} + \beta_3 CR_{it} + \mu_{it}$$

(Equation 3.1)

Where,

β_0 = constant term

$BRTP_{it}$ = Bank risk taking patterns measured by Z-score

CEOR = CEO remuneration measured in RM million

GD = Gender diversity, measured by the proportion of women representation on the board of directors

CR = Capital regulation, capital regulation of each bank in Malaysia from year 2010 to year 2020

μ_{it} = error term

3.4 Inferential analysis

3.4.1 Panel Data

The expression "panel data" finds application in various contexts within econometrics. It represents any dataset containing repetitive measurements over time for identical entities. These "entities" could encompass workers, households, businesses, industries, regions, or even entire countries (Arellano, 2003). A longitudinal or panel dataset denotes one that tracks a specific set of entities over time, thereby providing numerous data points for each entity present in the sample. Panel data has become readily accessible in both well-developed and emerging economies (Hsiao, 2022). According to Kılıç & Kuzey (2018), they suggested that employing panel data analysis

is strongly recommended to address issues such as multicollinearity, bias in estimation, and the time-varying impact between the independent and dependent variables.

3.4.2 Pooled Ordinary Least Square Model (POLS)

$$B RTP_{it} = \beta_{0i} + \beta_1 CEOR_{it} + \beta_2 GD_{it} + \beta_3 CR_{it} + \mu_{it}$$

(Equation 3.2)

The Pooled Ordinary Least Squares (OLS) technique is a common research approach for identifying linear relationships due to its ability to produce coefficients that are optimal for future predictions given certain assumptions being met (Molyneux et al., 2013).

In the context of this Pooled OLS regression model, it incorporates several assumptions, namely:

1. The assumption of parameter linearity.
2. The absence of endogeneity.
3. Assumptions of normality and homoscedasticity.
4. No presence of autocorrelation.
5. Avoidance of multicollinearity issues.

The Poolability F-test and Breusch-Pagan Lagrange Multiplier test are performed to assess the appropriateness of the Pooled OLS model for our study's data. The Poolability F-test is employed to evaluate the comparative effectiveness of the Pooled OLS model and the Fixed Effects Model (FEM) for our dataset. The Breusch-Pagan Lagrange Multiplier test is employed to ascertain the better performance of either the Pooled OLS model or the Random Effects Model (FEM) for our data. The software programme Stata can be utilised to conduct both of these tests.

3.4.3 Fixed Effect Model (FEM)

$$BRTP_{it} = \beta_{0i} + \beta_1 CEOR_{it} + \beta_2 GD_{it} + \beta_3 CR_{it} + \mu_{it}$$

(Equation 3.3)

Fixed Effects Model (FEM) constitutes one of the methodologies for panel data regression, applied to assess the influence of individual characteristics on panel data outcomes. FEM is employed to account for individual-level variations, assuming that the intercept remains constant over time and capturing latent individual distinctions (Gujarati & Porter, 2009). To accommodate individual differences in the intercept, dummy variable techniques can be introduced into the model. FEM proves particularly advantageous when explanatory variables are tied to imperceptible individual influences. This advantage stems from FEM incorporating a group-specific intercept within the model or treating unobservable effects as estimable parameters, correcting for category-specific biases and improving the result precision (Fernandez-Val & Weidner, 2018). In their investigation, Sufian and Habibullah (2009) employed FEM and reported unbiased results with consistent coefficient assessments. To compare the power of the FEM model against the POLS and REM models, researchers can utilize both the Poolability F-test and the Hausman test.

3.4.4 Random Effect Models (REM)

$$BRTP_{it} = \beta_{0i} + \beta_1 CEOR_{it} + \beta_2 GD_{it} + \beta_3 CR_{it} + \mu_{it}$$

(Equation 3.3)

Random Effects Model (REM) serves as a distinct type of panel data regression. As noted by Allison & Waterman (2002), the REM framework assumes statistical independence or lack of correlation between all unobserved variables and observed variables. This assumption stems from REM's ability to produce more precise outcomes when dealing with datasets

exhibiting significant variability. Therefore, REM finds widespread application in exploring determinants of bank performance. According to Matuszak et al. (2019), REM emerges as the best choice for understanding unbalanced panel models. Allison & Waterman (2002) highlighted a key contrast between FEM and REM, while FEM allows linking individual effects to explanatory variables, REM does not permit this connection. In the present study, we used the Hausman test to assess both FEM and REM, aiming to ascertain the more suitable model, whether it is REM or FEM, for utilization in empirical modelling.

3.5 Diagnostic Check

3.5.1 Poolability F Test

In this study, Poolability F tests is to conduct as a diagnostic check in order to evaluate the comparison in performance between the pooled ordinary least squares (POLS) model and the fixed effects model (FEM)

The hypothesis is presented as follows :

H_0 : Pooled Ordinary Least Square (POLS) is the preferable choice in this study.

H_1 : Fixed Effect Model (FEM) is the preferable choice in this study.

Critical value approach of the Poolability F-test is applied to this study. Test statistic greater than the critical value suggests that the FEM model is more suitable than the POLS model for use in this research; otherwise, the POLS model is more suitable for implementation of this study. This approach complies with study of Gujariti & Porter (2009), which stated that if the null hypothesis of the Poolability F-test is rejected, the researchers can determine

that the fixed effect model (FEM) is more appropriate than the Pooled Ordinary Least Square (POLS) or that the goodness-of-fit in the FEM has increased relative to the POLS.

3.5.2 Breusch-Pagan Lagrange Multiplier (BPLM Test)

This study utilised the BPLM test to compare the pooled ordinary least square (POLS) model with the random effect model (REM) in order to determine which model better aligns with our research purpose.

The hypothesis is presented as follows :

H_0 : Pooled Ordinary Least Square (POLS) is the preferable choice in this study.

H_1 : Random Effect Model (REM) is the preferable choice in this study.

In this study, the P-value method of the BPLM test is implemented. P-value lower than the specified level of significant, it indicates the REM model is more appropriate than the POLS model for the purposes of this study. Alternatively, if the P-value is greater than the significance level, the POLS model is more suitable for the execution of this study. This technique aligns with the study of Gujariti and Porter (2009), which indicated that when the null hypothesis of the BPLM test is rejected, researchers can conclude that the REM method is more suitable than the POLS. Inversely, the failure to reject the null hypothesis, which suggests that there is no individual effect in the dataset, demonstrates that POLS is a better appropriate method for this study.

3.5.3 Hausman Test

Hausman test is employed in this study to assess the comparative effectiveness of fixed effect models and random effect models within a given dataset. In the scenario when both the Poolability F test and BPLM test produce negative results, indicating a preference for FEM and REM, respectively, it remains inconclusive to ascertain the most appropriate model between FEM and REM. Consequently, Hausman Test is employed to ascertain the most suitable model to be utilised as the final model among the three models.

The hypothesis is presented as follows:

H_0 : Random Effect Model (REM) is the preferable choice in this study.

H_1 : Fixed Effect Model (FEM) is the preferable choice in this study.

P-value method of the Hausman test is implemented in this study. FEM model is more appropriate than the REM model for the purpose of this study when the P-value is lower than the specified significance level. Alternatively, if the P-value is greater than the significance level, the REM model is more suitable for the use of this study.

3.5.4 Multicollinearity

Multicollinearity takes place when various variables included in a regression analysis that have a strong correlation with not merely with the dependent variable but also with other variables (Shrestha, 2020). This will result in a major econometric issue as the model may be unable of generating accurate results. The outcome generated by the presence of multicollinearity variables may exhibit bias. There are a few methods to determine the

multicollinearity problem despite the fact there are no definitive tests for it (Kim, 2019). These are as follow:

- (a) High R^2 but low t ratio significance
- (b) Strong link between the regressors

When using the correlation matrix method, a correlation among the variables that is larger than 0.80 is considered to be highly connected.

- (c) Variance Inflation Factor (VIF) and Tolerance (TOL)

If the independent variables have correlations, the variance inflation factor (VIF) is applied to calculate the amount by which the predicted regression coefficient is inflated.

$$VIF = \frac{1}{1 - R^2}$$

At this point, when $VIF = 1$, it means that there is no correlation between the independent variables. If $VIF > 10$, indicates that the presence of high collinearity. Where, the tolerance (TOL) is just the inverse of VIF. The lower the tolerance, the greater the likelihood of multicollinearity between the variables.

$$TOL = \frac{1}{VIF}$$

A TOL value of 1 signifies the absence of multicollinearity among the variables. Conversely, when the TOL equals to 0, the model will seem to be multicollinearity. This method was applied by the investigators in this study, among other approaches.

3.5.5 Heteroscedasticity

Heteroscedasticity means that if the specific observation under discussion, it will affect the variance of the error term. On the other hand, the standard deviations of an indicator under observation throughout a certain period are non-constant. The occurrence of heteroscedasticity is due to the misspecification of models, there is certain significant variables were left out of the model.

There are several tests used to detect heteroscedasticity such as White test, Breusch-Pagan test, and Glejser test (Gujarati & Porter, 2009). Breusch-Pagan test is utilized in this study in accordance with study of Hussain & Bashir (2020). The hypothesis is presented as follows:

H_0 : There is no heteroscedasticity problem in this study.

H_1 : There is heteroscedasticity problem in this study.

P-value approach of heteroscedasticity is used in this study. The null hypothesis will be rejected, when p-value is lower than the specified significance level, indicating the model suffer from heteroscedasticity problem.

3.5.6 Autocorrelation

One of the underlying assumptions of the Classical Linear Regression Model (CLRM) is the absence of autocorrelation in the error term. The presence of autocorrelation can result in biased results. Hence, it is imperative to verify the absence of autocorrelation in the data prior to the estimate procedure. Studenmund (2014) suggests that pure serial correlation occurs when the error term in a properly defined equation excludes any connected observations. Impure serial correlation occurs when a variable is

omitted or when the functional type is incorrect. The Wooldridge test (Wooldridge, 2002) is used to determine whether or not autocorrelation exists in our panel data analysis. This method is aligned with the study of Abid et al. (2021).

H_0 : There is no autocorrelation in this study.

H_1 : There is autocorrelation in this study.

P-value approach of autocorrelation is used in this study. The null hypothesis will be rejected when the p-value is lower than the specified significance level, indicating the model suffer from autocorrelation problem.

3.5.7 Normality Test

Normality tests will be the next step in the preliminary data screening process. Inferential statistical approaches rely on the assumption of normality (Coakes & Ong, 2011). This is because when data does not follow a normal distribution, it will make we cannot acquire accurate and reliable results that allow us to make conclusions. (Ghasemi & Zahediasl, 2012). In addition, the Jarque-Bera test can be used to assess normality. The Jarque-Bera test can be employed to evaluate the normality of a distribution.

H_0 : The error term is normally distributed in this study.

H_1 : The error term is not normally distributed in this study.

P-value approach of Jarque-Bera test is used in this study. The null hypothesis will be rejected when the p-value is lower than the specified significance level, indicating the model is suffer from normality problem.

3.6 Conclusion

In short, chapter three discuss the process conduct of this research and it is quantitative research. Data are derived from the 5 conventional and 5 Islamic banks' annual reports ranging from 2010 to 2020. Besides that, others testing and checking for the regression model will be conducted according to the methodologies above. Lastly, all additional data analysis and major findings will be discussed on the upcoming chapter.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

This chapter concentrates on providing the research result according to chapter three methodologies. Next, the findings are applied the methodologies discussed in chapter three which are the Pooled OLS Model (POLS), Fixed Effect Model (FEM) and Random Effect Model (REM) will be highlighted in chapter four. Hence, Eview student Lite version is used to assess the result.

4.1 Descriptive Analysis

Table 4.1: Descriptive Statistical Results for Conventional Bank

	Capital Regulation	CEO remuneration (in RM million)	Gender Diversity
Mean	0.167675	5.396376	0.130692
Median	0.169900	4.812439	0.111111
Maximum	0.195100	13.181000	0.333333
Minimum	0.130700	1.149000	0
Standard Deviation	0.017017	2.564958	0.098922
Skewness	-0.212395	0.780495	0.501931
Kurtosis	2.160570	3.130405	2.263113
Jarque-Bera	2.028329	5.623052	3.553781
Probability	0.362705	0.060113	0.169163
Observation	55	55	55

In our study, we analysed 165 observations spanning from 2010 to 2020 in Malaysia conventional banking. We focused on three microeconomic variables: capital adequacy, CEO remuneration, and gender diversity, investigating their impact on risk-taking patterns.

For capital adequacy ratio, the average ratio (mean) was 0.1677%, with a median of 0.1699%. It ranged from a minimum of 0.1307% to a maximum of 0.1951%. The standard deviation was the lowest among the variables, at 0.0170%. The skewness value was -0.2124, indicating a right-skewed distribution. Kurtosis was 2.1606, suggesting lower volatility compared to a value of 3. Jarque-Bera test yielded a value of 2.0283, with a P-value of 0.3627, indicating a normal distribution.

Secondly, the average for CEO remuneration was RM5.396 million, with a median of RM4.812 million. It ranged from RM1.149 million to RM13.181 million. The reason why the minimum of CEO remuneration is RM1.149 million is because during the financial year 2012, CEO (Encik Johari Abdul Muid) does not receive any bonus on his performance (RHB Bank Berhad, 2012). The standard deviation was 2.5649. With a skewness value of 0.780495, it showed a right-skewed distribution also. The kurtosis value was 3.130405 indicating significant fluctuation. The Jarque-Bera test yielded a value of 5.6230, with a P-value of 0.060113, suggesting normal distribution.

Concluding, the analysis of Gender Diversity indicates an average of 0.1307% and a median of 0.1111%, with a range from 0% to 0.3333%. The standard deviation is 0.0989. The skewness value of 0.5019 suggests a right-skewed distribution. The kurtosis stands at 2.2631, indicating relatively low volatility. The Jarque-Bera test resulted in a value of 3.5538, with a P-value of 0.1692, suggesting normal distribution.

Table 4.2: Descriptive Statistical Results for Islamic Bank

	Capital Regulation	CEO remuneration (in RM million)	Gender Diversity
Mean	0.165744	1.784333	0.103460
Median	0.164800	1.741000	0.111111
Maximum	0.213700	4.391000	0.250000
Minimum	0.130400	0.122000	0
Standard Deviation	0.022039	0.875610	0.080161
Skewness	0.297354	0.401432	-0.071587
Kurtosis	2.142748	3.550704	1.744469
Jarque-Bera	2.494614	2.172189	3.659465
Probability	0.287277	0.337532	0.160456
Observation	55	55	55

For Islamic bank research, a total of 165 observations were included in our study. Islamic bank also took a similar year over a period of 2010 to 2020 to test their effect on the risk-taking patterns in Malaysia's Islamic banking system.

Initially, the capital regulation demonstrates an average of 0.1657% and a median of 0.1648%, with the range spanning from 0.1304% to 0.2137%. Notably, it boasts the lowest standard deviation among the variables, at 0.0220%. Moreover, the ratio presents left-skewedness, evident from its positive skewness value of 0.2974, while exhibiting relatively low volatility, indicated by a kurtosis of 2.1427. The Jarque-Bera test reveals a statistic of 2.4946, coupled with a corresponding P-value of 0.2873, underscoring the normal distribution of the variable.

Second, CEO remuneration with an average of RM1.784333 million and a median of RM1.741 million, it presents a notable gap between its maximum of RM4.391 million and minimum of RM1.22 million. The reason of the minimum CEO remuneration is because of RHB Islamic Bank CEO (Puan Jamelah Jamaluddin)

had resign on 9 Feb 2010 and after that, RHB Islamic Bank did not had employ CEO for the position in the financial year of 2010 (RHB Islamic Bank Berhad, 2010). Notably, its standard deviation stands at RM0.87561 million. While skewness indicates left skewedness (0.4014), the high kurtosis value of 3.5507 suggests substantial fluctuation. Despite this, the Jarque-Bera test results in 2.1722, with a corresponding P-value of 0.3375, affirming its normal distribution.

Concluding our analysis, gender diversity exhibits an average of 0.1035 and a median of 0.1111, with a range from 0 to 0.2500. Its standard deviation is 0.0802. Despite a slight right-skewedness indicated by a skewness of -0.0716, it demonstrates relatively low volatility with a kurtosis of 1.7445. The Jarque-Bera test yields a value of 3.6595, with a corresponding P-value of 0.1605, affirming its normal distribution.

4.2 Inferential Analysis

Table 4.3 Model Selection for Conventional Bank

Test conducted	Test statistic	P-value	Decision
Poolability F-test	100.84	-	FEM is preferable
Hausman Test	1.9940	0.5737	REM is preferable
Breusch-Pagan Lagrange Multiplier test	120.5954	0.0000	REM is preferable

This study employs panel data to conduct regression analysis. Hence, it is essential to determine the appropriate model to employ in this study through Poolability F-test, Hausman Test, and Breusch-Pagan Lagrange Multiplier test. For conventional bank, the outcomes of the Poolability F-test indicate that the FEM is the preferred choice for this study, while Hausman Test and Breusch-Pagan Lagrange Multiplier test indicate that the REM is the preferred choice for this study. As the majority of

tests indicate a preference for REM in this particular study despite the outcomes of the Poolability F-test indicating a preference for FEM in this study.

Table 4.4 Model Selection for Islamic Bank

Test conducted	Test statistic	P-value	Decision
Poolability F-test	83.66277	-	FEM is preferable
Hausman Test	31.626254	0.0000	FEM is preferable
Breusch- Pagan Lagrange Multiplier test	55.10272	0.0000	REM is preferable

For Islamic bank, the outcomes of the Poolability F-test and Hausman Test indicate that the FEM is the favoured choice for this investigation. As the majority of tests indicate a preference for FEM in this particular study despite the outcome of the Breusch-Pagan Lagrange Multiplier test indicating a preference for REM in this study.

4.2.1 Regression Analysis

$$B RTP_{it} = 9.1326 + 0.1109CEOR_{it} - 2.0925GD_{it} - 26.1251CR_{it} + \mu_{it}$$

(Equation 4.1)

Table 4.5 Regression Analysis for Conventional Bank

	Coefficient Beta	Coefficient Std. Error	t-statistics
Constant Term	9.1326	1.8335	4.9809***
CEO Remuneration	0.1109	0.0655	1.6922*
Gender Diversity	-2.0925	1.4627	-1.4306
Capital Regulation	-26.1251	9.4373	-2.768***

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

Based on our findings for conventional banks, the result stated that there is a positive coefficient and significant relationship between CEO remuneration and bank-risk taking patterns for conventional banks. It is found that the bank risk taking patterns will increase by 0.1109 percent with per percent increase of CEO remuneration. This result is consistent with Boateng et al. (2022) and Meijer (2017), but inconsistent with Ongena et al. (2022).

Furthermore, the result suggests that an increase of 1 percent in female representation on the board of directors leads to a reduction in overall bank risk-taking by 2.0925 percent. In other words, having more female directors on the board will result in lower risk-taking by the bank. However, the effect of female representation on conventional bank risk-taking in the Malaysian industry is insignificant. This major finding is same with Talavera et al. (2018) and Zhou et al. (2018). However, our result finding is contrast with

Cardillo et al. (2021), Berger et al. (2014), Liao et al. (2019), Dong et al. (2017) and Abou-El-Sood (2021).

The result indicates that capital regulation has influence towards bank risk-taking patterns in conventional bank. The effect of increasing capital regulation leading to lower risk-taking patterns in conventional bank, with reduce of 26.1251 percent of bank risk taking patterns of conventional bank in Malaysia for each percent increase in capital regulation. This result is consistent with previous study of Jiang et al. (2022), Danisman and Demirel (2019), but is inconsistent with the result of Mateev et al. (2021).

$$BRTP_{it} = 5.2109 + 0.2344CEOR_{it} - 1.4909GD_{it} - 4.0686CR_{it} + \mu_{it}$$

(Equation 4.2)

Table 4.6 Regression Analysis for Islamic Bank

	Coefficient Beta	Coefficient Std. Error	t-statistics
Constant Term	5.2109	1.2345	4.2211
CEO Remuneration	0.2344	0.1848	1.2689
Gender Diversity	-1.4909	2.5322	-0.5887
Capital Regulation	-4.0686	7.0923	-0.5737

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

For Islamic banks, the result stated that bank risk taking patterns of Islamic bank will increase by 0.234 percent with each percentage increase of CEO remuneration. However, the t-statistic suggest that the insignificant relationship exist in CEO remuneration towards bank-risk taking patterns for Islamic banks. The result of our study is consistent with Fahlenbrach and Stulz (2011) but reject to Filasti et al. (2021).

This study indicates that, an increase of 1% in female representation on the board of directors' results in a reduction of overall bank risk-taking by approximately 1.49 percent. This means that having more female directors on the board can lower the bank's risk. However, the t-statistic suggest that the effect on bank risk taking patterns in Malaysia's Islamic bank due to gender diversity is insignificant. This outcome is consistent with the findings of Khan et al. (2020), Jabari et al. (2022), and Sbai and Ed-Dafali (2023), while contrast with Khan et.al (2018).

The result suggests that with each percentage increase of capital regulation, the overall bank risk taking patterns of the bank decrease by 4 percent, indicating lower bank risk taking patterns. However, the t-statistic suggest that the effect of bank risk taking patterns from capital regulation is insignificant for Islamic bank. This finding is consistent with previous study of Mateev et al. (2021) and Maghyereh & Awartani (2014). However, the result is in contrast to several research statements such as Danisman & Demirel (2019), Asharf et al (2020), and Floreani et al (2023).

Table 4.7 Comparison between Conventional Bank and Islamic Bank

	Conventional Bank	Islamic Bank
CEO remuneration	0.1109*	0.2344
Gender Diversity	-2.0925	-1.4909
Capital regulation	-26.1251***	-4.0686

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

Our research indicates a positive and statistically significant relationship between CEO remuneration towards bank-risk taking patterns in conventional banks. It is observed that positive relationship in CEO remuneration towards bank-risk taking patterns exist in Islamic Bank in Malaysia. However, the effect is not statistically significant.

The finding of the study reveals that both conventional banks and Islamic banks in the Malaysian financial system exhibit a decrease in their risk-taking behavior due to gender diversity. Nevertheless, the statistical analysis reveals that neither the conventional bank nor the Islamic bank yielded statistically significant results, suggesting that the impact on bank risk-taking behavior due to gender diversity is not valid.

The effect of capital regulation is found to be different in Islamic bank and conventional bank. Our result suggests a negative and statistically significant relationship between capital regulation towards bank risk-taking patterns in conventional banks. Capital regulation has been found to successfully mitigate the risk-taking behavior of conventional banks, yet Islamic institutions do not exhibit the same effect. The disparity in the coefficient for CEO remuneration between Islamic banks and conventional banks can be attributed to the profit-sharing model employed by Islamic banks, which results in a lower capital adequacy ratio. Consequently, the impact of capital regulations on risk-taking behavior in Islamic banks is less pronounced compared to conventional banks (Mateev et al., 2022).

4.3 Diagnostic Checking

4.3.1: Multicollinearity Test

Table 4.8: Conventional Bank Multicollinearity Test Results

Independent Variable	VIF	Tolerance
CEO Remuneration	1.22	0.8221
Gender Diversity	1.21	0.8266
Capital Adequacy Ratio	1.01	0.9921

Multicollinearity test is conducted to determine the multicollinearity problem in the model. According to the table, the value of VIF for CEO

remuneration, gender diversity, and capital regulation for conventional bank is 1.22,1.21, and 1.01 respectively, while the value of tolerance is equal to 0.8221,0.8266, and 0.9921 respectively. There is no multicollinearity problem in the variable when the value of VIF is less than 10 and value of tolerance is close to 1. According to the table 4.1, the value of VIF and tolerance of all of our variables is less than 10 and close to 1 respectively, thus all of our variables for conventional bank did not encounter multicollinearity problem.

Table 4.9: Islamic Bank Multicollinearity Test Results

Independent Variable	VIF	Tolerance
CEO Remuneration	1.37	0.7305
Gender Diversity	1.37	0.7309
Capital Adequacy Ratio	1.18	0.8447

Multicollinearity test is conducted to determine the multicollinearity problem in the model. Based on the table above, the value of VIF for CEO remuneration, gender diversity, and capital regulation for Islamic bank is 1.37,1.37, and 1.18 respectively, while the value of tolerance is equal to 0.7305,0.7309, and 0.8447 respectively. There is no multicollinearity problem in the variable when the value of VIF is less than 10 and value of tolerance is close to 1. According to the table 4.2, the value of VIF and tolerance of all of our variables is less than 10 and close to 1 respectively, thus all of our variables for Islamic bank did not encounter multicollinearity problem.

4.3.2 Heteroscedasticity

Table 4.10: Conventional Bank Breusch-Pagan Test Results

Chi-square Statistic	0.10
P-value	0.7509

The consequences of having heteroscedasticity problem will impact the accuracy of the model's estimators and make the findings become useless. Additionally, the Breusch-Pagan Test was utilized in this research to identify whether a model has heteroscedasticity issues. The null hypothesis indicates that there does not have heteroscedasticity issue in the model whereas the other hypothesis implies that there is a heteroscedasticity issue.

Table 4.10 demonstrates that the p-value for conventional bank is 0.7509, thus it shows do not reject the null hypothesis at 1%. Hence, there will be no heteroscedasticity exist in the regression.

Table 4.11: Islamic Bank Breusch-Pagan Test Results

Chi-square Statistic	0.02
P-value	0.8950

Table 4.11 demonstrates that the p-value for Islamic bank is 0.8950, thus it shows do not reject the null hypothesis at 1%. Hence, there will be no heteroscedasticity exist in the regression.

4.3.3 Autocorrelation

Table 4.12: Conventional Bank Wooldridge Test Results

F-statistic	4.008
P-value	0.1159

Autocorrelation is a significant issue, especially in panel data analysis. In this research, due to our data being panel data, therefore our study is using the Wooldridge test to estimate the autocorrelation is occurs in panel data. The null hypothesis indicates that there is no first-order autocorrelation issue, whereas the alternative hypothesis indicates there is a first-order autocorrelation issue.

Table 4.12 demonstrates that the p-value for conventional bank is 0.1159, thus it shows do not reject the null hypothesis at a 1% significant level. Hence, there will be no autocorrelation problem occurs in the regression.

Table 4.13: Islamic Bank Wooldridge Test Results

F-statistic	2.053
P-value	0.2019

Table 4.13 demonstrates that the p-value for Islamic bank is 0.2019, thus, it shows do not reject the null hypothesis at a 1% significant level. Hence, there will be no autocorrelation problem occurs in the regression.

4.3.4 Normality test

Table 4.14: Conventional Bank and Islamic Bank Normality Test Results

Variable	Conventional Bank	Islamic Bank
CEO remuneration	5.2875	2.1722
Gender Diversity	3.5553	3.6595
Capital Adequacy Ratio	2.0283	2.4946
Regression Model	3.1366	2.3918

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

Normality test is conducted in our study to ensure the normality of the data. Data normality is conducted by using the Jarque Bera Test. In both conventional and Islamic bank, the data of CEO remuneration, gender diversity, and capital regulation and the regression model has met the requirement of normality under Jarque Bera test, thus the data did not occur normality problem.

4.4 Conclusion

In this chapter, a descriptive analysis is performed on the independent variables. In addition, model selection is conducted to determine the most appropriate model for the purpose of our study. then, a regression analysis is conducted, and the findings are then examined. Eventually, a diagnostic test is performed in order to verify the lack of any econometric issues dealing with the independent variable.

CHAPTER 5: DISCUSSION, CONCLUSION, AND IMPLICATION

5.0 Introduction

The final chapter addresses and examines the whole study outcome. This section summarizes important research findings, including statistical analysis and arguments, as well as consequences, restrictions, suggestions, and conclusions.

5.1 Discussion of Major Findings

Table 5.1: Summary of Regression Result

Dependent Variable	Independent Variables	Expected Sign	Result for Conventional Bank	Result for Islamic Bank
Bank risk taking patterns	CEO remuneration	Positive	Positive & Significant	Positive & Insignificant
	Gender Diversity	Negative	Negative & Insignificant	Negative & Insignificant
	Capital Regulation	Negative	Negative & Significant	Negative & Insignificant

Our findings indicate that CEO remuneration significantly increases risk taking patterns of conventional bank; however, it does not influence risk taking patterns of Islamic bank. Previous study revealed that greater CEO remuneration may attract more aspirational CEOs who have a higher risk appetite, which results in a rise in bank risk-taking (Hagendorff & Vallascas, 2011). In the context of dual banking system in Malaysia, the average CEO remuneration for conventional banking is much higher than Islamic banking. This results in varying effect of CEO remuneration towards risk taking patterns in conventional bank and Islamic bank.

In addition, our study stated that gender diversity does not influence risk taking pattern in both conventional bank and Islamic bank. The reason behind of insignificance of gender diversity towards bank risk taking pattern may be due to the lack of presence of women on board. According to Adam and Ferreira (2009), the presence of female on the board may create conflict and making effective decision hard to get in line. With the high-risk nature of the bank, bank may not want to undergo with heterogenous group to avoid highly uncontrollable circumstances. Due to the government of Malaysia lack of enforcement implement policy in year 2017, government of Malaysia only recommend company mandating the minimum 30% of female director in board is lack of enforcement lead to the presence of female on board is relatively less in both of conventional bank and Islamic bank. With the lack of presence of female on board, it is difficult for them to provide actionable suggestion to effectively reduce the bank risk taking pattern.

There is a distinct pattern in how the capital regulation affects the risk-taking patterns of conventional and Islamic banks, consistent with Mateev et al.'s (2021) prior research. The possible reason behind this effect may contributed to the profit-sharing aspect of Islamic banks, which involves an agreement between the customer and the bank. There are few profit-sharing contract offer by Islamic bank to customer, for example: Al-Mudharabah and Al-Musyarakah (Abduallah et al.,2014). This arrangement may result in Islamic banks being less interested in maintaining their capital levels to mitigate potential risks.

5.2 Implication of Study

This study provides several implications for policymakers, industry, and academic research contributions. The paper aims to contribute to Malaysia by examining the internal factors that influence bank risk-taking and understanding the structure of financial institutions.

From the policymaker's perspective, existing regulatory frameworks governing executive compensation and capital adequacy requirements in conventional banks

may need to be revisited. Regulations could be refined to discourage excessive risk-taking incentivized by CEO remuneration structures while ensuring that banks maintain adequate capital buffers to mitigate risks. For Gender Diversity Initiatives, policymakers may still advocate for gender diversity initiatives within conventional banks. While not directly influencing risk, diverse leadership can bring varied perspectives and potentially enhance decision-making processes, contributing to overall organizational resilience and sustainability. For Islamic banks, policymakers might consider tailoring regulatory measures specific to the principles and operational dynamics of Islamic finance. This could involve revisiting Shariah-compliant governance frameworks and risk management guidelines to ensure alignment with industry practices and objectives. Although gender diversity does not significantly affect Islamic and conventional bank risk-taking, it may be a major factor affecting bank risk-taking in the future since many firms have adopted gender diversity in their board to mitigate excessive risk.

Second, this study sheds light on the different implications of female involvement in banking governance. Boards and senior management teams at conventional banks might have to reevaluate their governance structures and compensation rules to reduce risk-taking patterns prompted by CEO pay. This might entail adding performance indicators that value long-term stability rather than short-term profits. Although gender diversity may not have a direct influence on risk-taking in conventional banks, industry participants may promote diversity and inclusion initiatives to build a more inclusive work environment and recruit top talent. Given that CEO salary, capital adequacy ratio, and gender diversity have no substantial impact on risk-taking, Islamic banks may highlight the value of ethical leadership and Shariah principles in directing business choices. This could involve promoting transparency, fairness, and accountability within organizational structures.

Our study provides insight into how internal factors can affect bank risk-taking patterns from an academic perspective. Although our results show that gender diversity and CEO remuneration do not significantly affect bank risk-taking in both conventional and Islamic banks, their effects may be contingent upon other contextual factors or institutional arrangements.

5.3 Limitation of Study

According to our research, we have merely targeted on dual banking system (conventional and Islamic) banks' performance in Malaysia. Our research may not holistically consider other nations' dual banking system; hence the effects may be different from other nations' dual banking system. This is because various nations have their own laws, regulatory system, national policies, and cultures. Therefore, the impacts and opinions of this study are only limited to use by Malaysia future scholars like Central Bank as well as conventional and Islamic banks. As a result, this research can only act as reference for future researchers to understand the circumstances of Malaysia's dual banking system.

In addition, obtaining reliable and precise information about internal variables poses a substantial constraint on our study due to the absence of specific information provided. The generalizability and validity of our outcomes may be limited since variables like educational background, age diversity, industry experience, and ethnic diversity does not take into account. This constraint hinders the ability to undertake further research on these moderating variables in order to enhance and expand the understanding of the subject. Understanding the role of moderating variables is crucial for enhancing the generalizability of research findings.

Furthermore, CEO remuneration is not sufficient to affect bank risk-taking patterns. Bank risk-taking patterns are often complicated, as it also encompassing a number of stakeholders, tactical aspects, legal and regulatory criteria. Hence, future studies can consider more comprehensive knowledge of variables in affecting bank risk-taking patterns instead of CEO remuneration and gender diversity.

5.4 Recommendation of Study

Based on the research, there are several suggestions for future researchers. Firstly, this study is only studying the bank risk-taking patterns in Malaysia's dual banking system. Therefore, it is advised that future researchers can focus their studies on a

broader range of areas instead of focus only in dual banking system. Additionally, Malaysia banks can be compared to other banks such as Japan, China, Singapore, and other nations as well. By comparing Malaysia with other countries, it may aid Malaysia banks in making better improvements.

Future researchers may focus on identifying and examining potential moderating variables that might amplify or attenuate the relationships between these factors and bank risk-taking. Such investigations could provide deeper insights into the nuanced mechanisms underlying risk decisions within banks. In other words, future research can build upon our findings to explore how the internal factors interact with other contextual factors to influence bank risk-taking patterns. Although it has challenges to obtain the data for moderating variables, yet we suggest that future researchers can consider it in their study. As the validity of a research outcome may be impacted by the reliability and availability of the data.

Lastly, future researchers can take into account that CEO power can influence bank risk-taking patterns. The influence of CEO can impact an organization's culture, particularly its perception of risk-taking. By emphasizing on the CEO power as independent variables, future researchers can examine the overall goal set by the CEO and its long-term effect on bank risk-taking. Additionally, this covers not just CEO remuneration and CEO power but also aspects like economic conditions, corporate governance frameworks, technology developments, and regulatory frameworks. These extra criteria can help future researchers to have better understanding of how different components interact to influence bank risk-taking patterns.

5.5 Conclusion

Chapter 5 summarizes the research findings from the previous chapter. In this study, the data and models are reliable, and the explanatory factors have demonstrated their importance. The key findings and consequences of the policy have been discussed to serve as a guide for the policymakers, industries, and academics for

designing and implementing initiatives. Therefore, the research's limitations were explored to avoid similar concerns in future research. Ultimately, recommendations were suggested based on the findings to assist future scholars in conducting comparable studies. Future research can encompass a wider area of banks and investigate more variables impacting risk-taking patterns; thus, it may result in a deeper comprehension of bank risk mitigation.

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APPENDICES

Appendix 1: Multicollinearity for Conventional Bank

. estat vif

Variable	VIF	1/VIF
genderdiversity	1.22	0.822068
CapitalAdequacyRatio	1.21	0.826571
CEOremuneration	1.01	0.992070
Mean VIF	1.14	

Appendix 2: Autocorrelation - Wooldridge Test for Conventional Bank

. xtserial Zscore CEOremuneration genderdiversity CapitalAdequacyRatio

Wooldridge test for autocorrelation in panel data

H0: no first-order autocorrelation

F(1, 4) = **4.008**
 Prob > F = **0.1159**

Appendix 3: Heteroscedasticity - Breusch Pagan Test for Conventional Bank

. estat hettest

Breusch-Pagan/Cook-Weisberg test for heteroskedasticity

Assumption: Normal error terms

Variable: Fitted values of **Zscore**

H0: Constant variance

chi2(1) = **0.10**
 Prob > chi2 = **0.7509**

Appendix 4: Multicollinearity for Islamic Bank

. estat vif

Variable	VIF	1/VIF
CEOremuner~n	1.37	0.730493
CapitalAde~o	1.37	0.730949
genderdive~y	1.18	0.844715
Mean VIF	1.31	

Appendix 5: Autocorrelation - Wooldridge Test for Islamic Bank

```
Wooldridge test for autocorrelation in p
> anel data
H0: no first-order autocorrelation
      F( 1,      6) =      2.053
      Prob > F =      0.2019
```

Appendix 6: Heteroscedasticity - Breusch Pagan Test for Islamic Bank

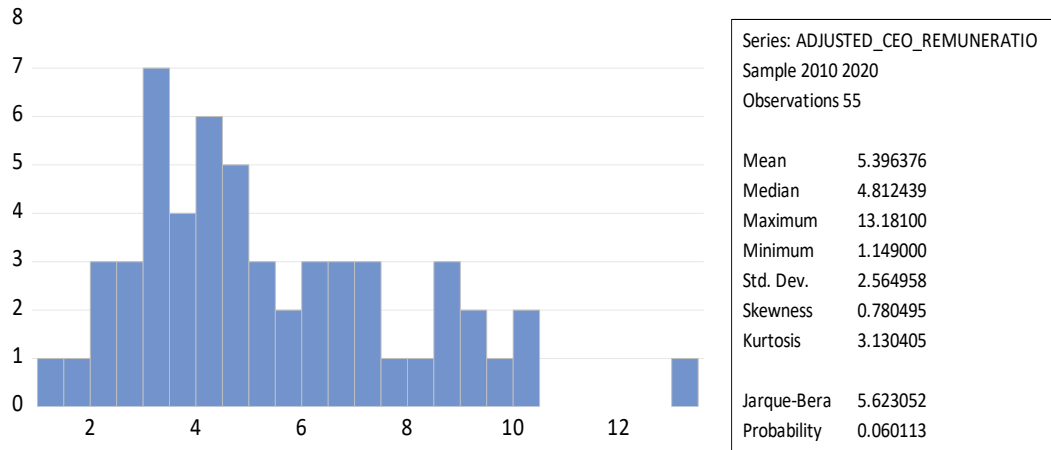
. estat hettest

Breusch-Pagan/Cook-Weisberg test for heteroskedasticity
Assumption: Normal error terms
Variable: Fitted values of **Zscore**

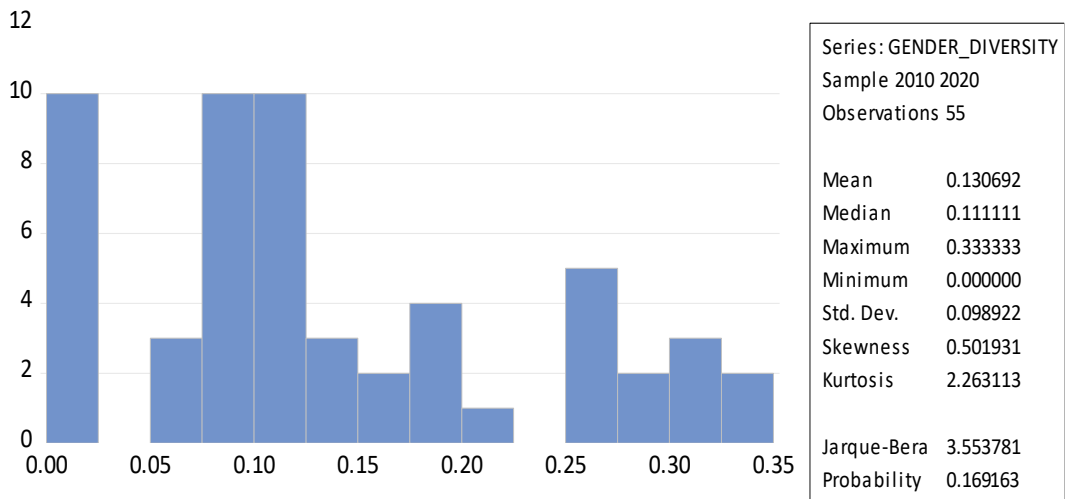
H0: Constant variance

```
      chi2(1) =      0.02
      Prob > chi2 =      0.8950
```

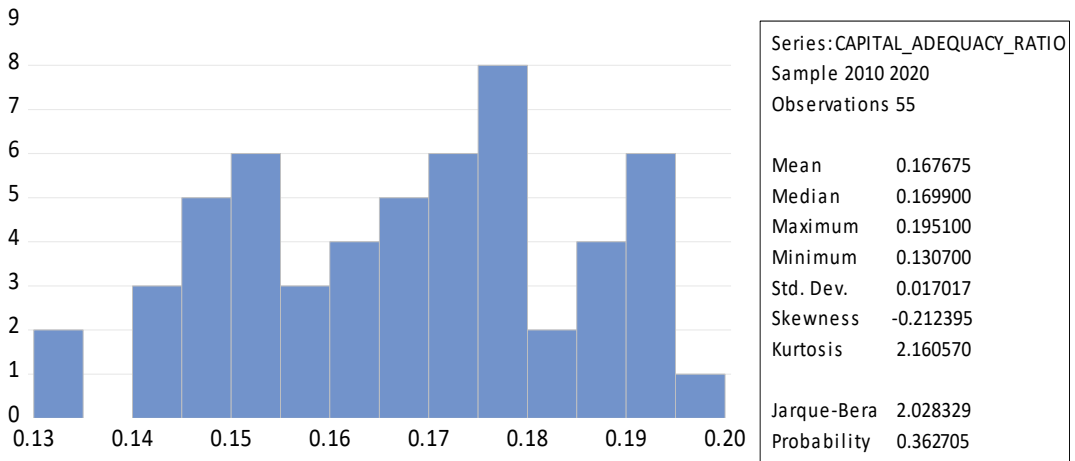

Appendix 7: Descriptive Statistics for Conventional Bank – CEO Remuneration



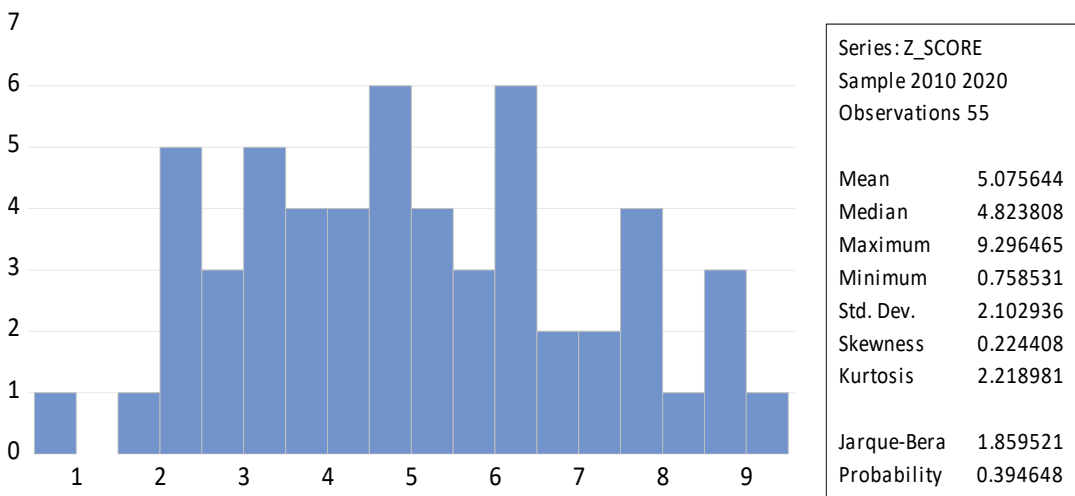
Appendix 8: Descriptive Statistics for Conventional Bank - Gender Diversity



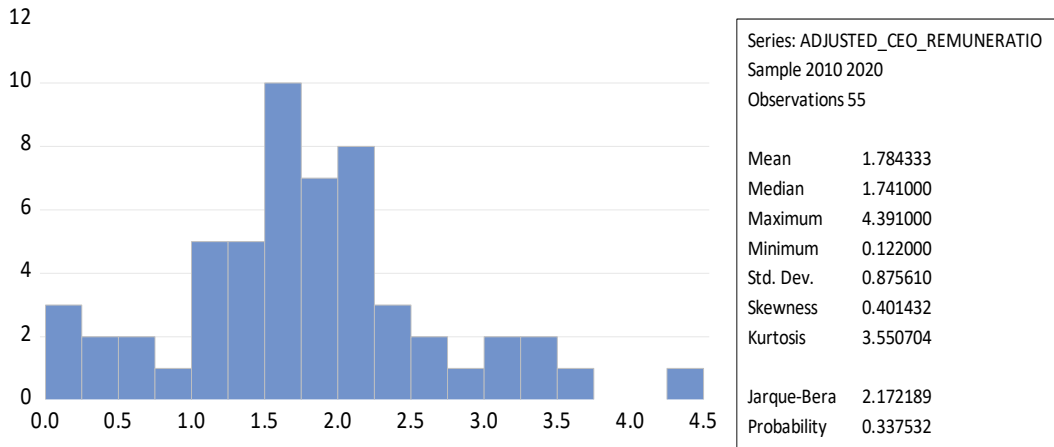
Appendix 9: Descriptive Statistics for Conventional Bank - Capital Adequacy Ratio



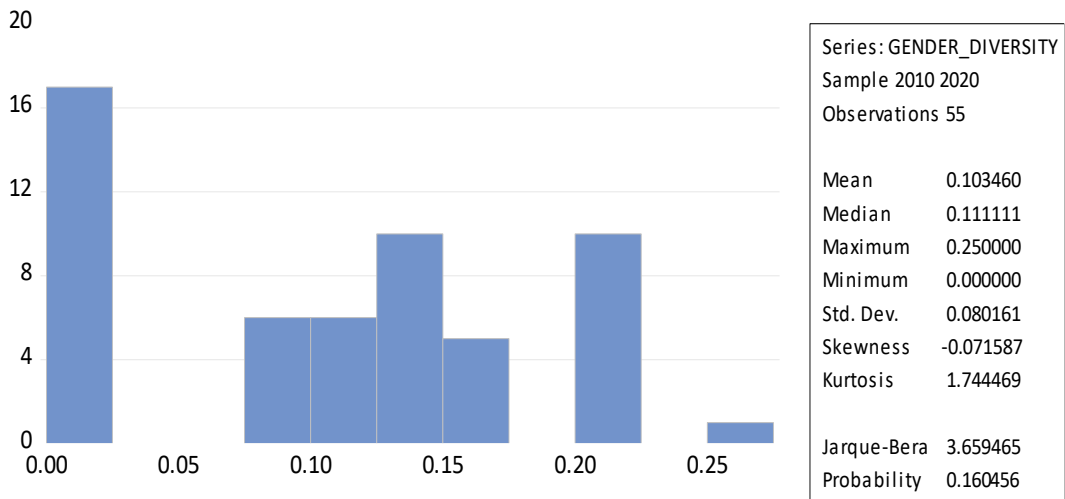
**Appendix 10: Descriptive Statistics of Dependent Variable for Conventional Bank
- Bank Risk-Taking Patterns**



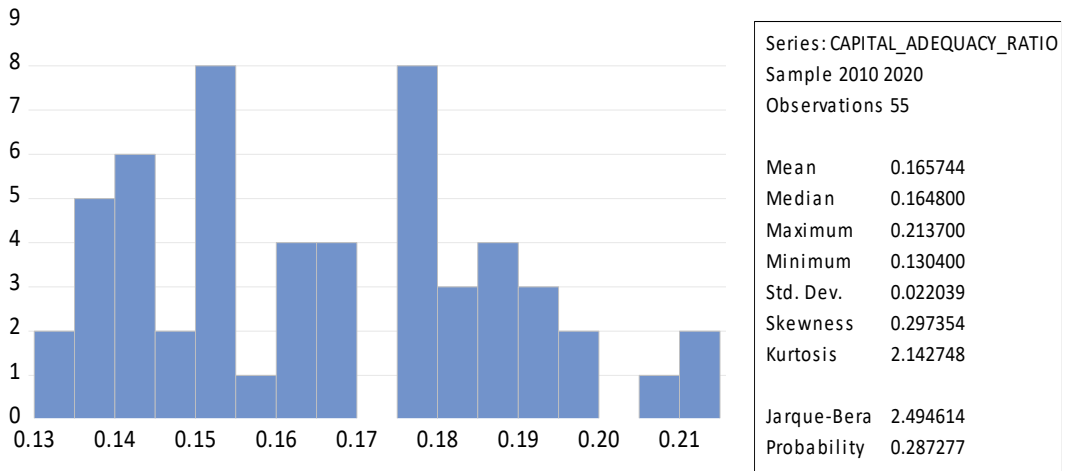
Appendix 11: Descriptive Statistics for Islamic Bank – CEO Remuneration



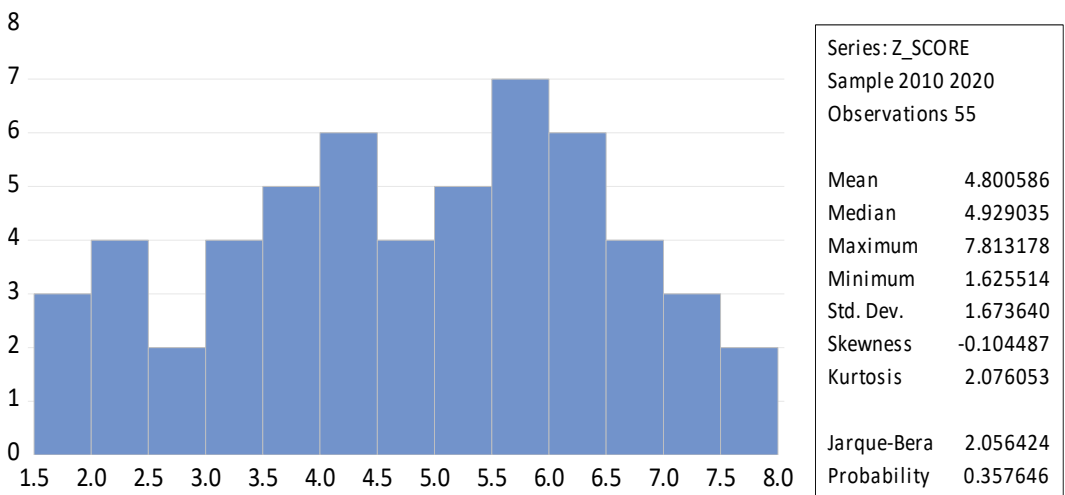
Appendix 12: Descriptive Statistics for Islamic Bank – Gender Diversity



Appendix 13: Descriptive Statistics for Islamic Bank – Capital Adequacy Ratio



Appendix 14: Descriptive Statistics of Dependent Variable for Islamic Bank - Bank Risk-Taking Patterns



Appendix 15: Pooled OLS Model for Conventional Bank

Dependent Variable: Z_SCORE
 Method: Panel Least Squares
 Date: 04/12/24 Time: 02:12
 Sample: 2010 2020
 Periods included: 11
 Cross-sections included: 5
 Total panel (balanced) observations: 55

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.798417	2.836081	0.281521	0.7794
ADJUSTED_CEO_REMUNERATIO				
N	-0.033495	0.105801	-0.316586	0.7528
GENDER_DIVERSITY	-8.989727	3.011226	-2.985404	0.0043
CAPITAL_ADEQUACY_RATIO	33.59404	17.43532	1.926781	0.0596
Root MSE	1.908587	R-squared		0.161041
Mean dependent var	5.075644	Adjusted R-squared		0.111690
S.D. dependent var	2.102936	S.E. of regression		1.982021
Akaike info criterion	4.276058	Sum squared resid		200.3488
Schwarz criterion	4.422046	Log likelihood		-113.5916
Hannan-Quinn criter.	4.332513	F-statistic		3.263204
Durbin-Watson stat	0.271365	Prob(F-statistic)		0.028750

Appendix 16: FEM Model for Conventional Bank

Dependent Variable: Z_SCORE
 Method: Panel Least Squares
 Date: 04/12/24 Time: 19:13
 Sample: 2010 2020
 Periods included: 11
 Cross-sections included: 5
 Total panel (balanced) observations: 55

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.251507	1.419979	6.515244	0.0000
ADJUSTED_CEO_REMUNERATIO				
N	0.111377	0.066177	1.683011	0.0990
GENDER_DIVERSITY	-1.948408	1.473367	-1.322418	0.1924
CAPITAL_ADEQUACY_RATIO	-26.97042	9.495035	-2.840476	0.0066

Effects Specification

Cross-section fixed (dummy variables)

Root MSE	0.767318	R-squared	0.864397
Mean dependent var	5.075644	Adjusted R-squared	0.844201
S.D. dependent var	2.102936	S.E. of regression	0.830057
Akaike info criterion	2.599079	Sum squared resid	32.38275
Schwarz criterion	2.891055	Log likelihood	-63.47467
Hannan-Quinn criter.	2.711988	F-statistic	42.80017
Durbin-Watson stat	1.137366	Prob(F-statistic)	0.000000

Appendix 17: REM Model for Conventional Bank

Dependent Variable: Z_SCORE
 Method: Panel EGLS (Cross-section random effects)
 Date: 04/12/24 Time: 02:14
 Sample: 2010 2020
 Periods included: 11
 Cross-sections included: 5
 Total panel (balanced) observations: 55
 Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.112596	1.835214	4.965413	0.0000
ADJUSTED_CEO_REMUNERATIO				
N	0.106340	0.065757	1.617167	0.1120
GENDER_DIVERSITY	-2.078369	1.469485	-1.414352	0.1633
CAPITAL_ADEQUACY_RATIO	-25.87855	9.455068	-2.737003	0.0085
Effects Specification				
			S.D.	Rho
Cross-section random			2.609876	0.9081
Idiosyncratic random			0.830057	0.0919
Weighted Statistics				
Root MSE	0.791334	R-squared		0.308047
Mean dependent var	0.484502	Adjusted R-squared		0.267344
S.D. dependent var	0.960077	S.E. of regression		0.821781
Sum squared resid	34.44152	F-statistic		7.568159
Durbin-Watson stat	1.062997	Prob(F-statistic)		0.000279
Unweighted Statistics				
R-squared	-0.076821	Mean dependent var		5.075644
Sum squared resid	257.1518	Durbin-Watson stat		0.142372

Appendix 18: Hausman Test for Conventional Bank

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	1.993959	3	0.5737

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
ADJUSTED_CEO_REMUNERATIO				
N	0.115936	0.110868	0.000055	0.4936
GENDER_DIVERSITY	-1.964247	-2.092493	0.010943	0.2202
CAPITAL_ADEQUACY_RATIO	-27.216646	-26.125084	0.750637	0.2077

Cross-section random effects test equation:

Dependent Variable: Z_SCORE

Method: Panel Least Squares

Date: 04/12/24 Time: 21:42

Sample: 2010 2020

Periods included: 11

Cross-sections included: 5

Total panel (balanced) observations: 55

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.271524	1.416846	6.543776	0.0000
ADJUSTED_CEO_REMUNERATIO				
N	0.115936	0.065934	1.758375	0.0852
GENDER_DIVERSITY	-1.964247	1.466418	-1.339486	0.1869
CAPITAL_ADEQUACY_RATIO	-27.21665	9.476988	-2.871867	0.0061

Effects Specification

Cross-section fixed (dummy variables)

Root MSE	0.765329	R-squared	0.865100
Mean dependent var	5.075644	Adjusted R-squared	0.845008
S.D. dependent var	2.102936	S.E. of regression	0.827905
Akaike info criterion	2.593888	Sum squared resid	32.21509
Schwarz criterion	2.885864	Log likelihood	-63.33191
Hannan-Quinn criter.	2.706797	F-statistic	43.05787
Durbin-Watson stat	1.154604	Prob(F-statistic)	0.000000

Appendix 19: Breusch-Pagan Lagrange Multiplier Test for Conventional Bank

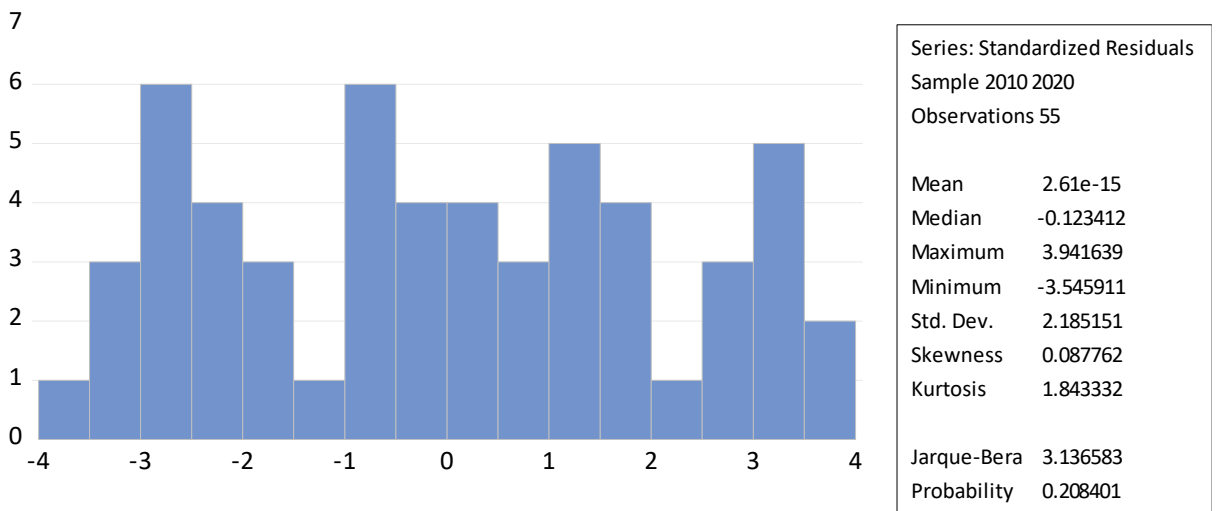
Lagrange Multiplier Tests for Random Effects

Null hypotheses: No effects

Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	120.5954 (0.0000)	1.665972 (0.1968)	122.2613 (0.0000)
Honda	10.98159 (0.0000)	-1.290725 (0.9016)	6.852477 (0.0000)
King-Wu	10.98159 (0.0000)	-1.290725 (0.9016)	8.591217 (0.0000)
Standardized Honda	14.78078 (0.0000)	-1.069546 (0.8576)	5.354444 (0.0000)
Standardized King-Wu	14.78078 (0.0000)	-1.069546 (0.8576)	8.134265 (0.0000)
Gourieroux, et al.	--	--	120.5954 (0.0000)

Appendix 20: Jarque-Bera Test for Regression Model - Conventional Bank



Appendix 21: Pooled OLS Model for Islamic Bank

Dependent Variable: Z_SCORE
 Method: Panel Least Squares
 Date: 03/12/24 Time: 19:57
 Sample: 2010 2020
 Periods included: 11
 Cross-sections included: 5
 Total panel (balanced) observations: 55

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.839481	1.644723	4.766444	0.0000
CEO_REMUNERATION	3.24E-07	2.50E-07	1.292752	0.2019
GENDER_DIVERSITY	5.721897	2.713153	2.108948	0.0399
CAPITAL_ADEQUACY_RATIO	-25.38972	9.827721	-2.583480	0.0127
Root MSE	1.510016	R-squared		0.170898
Mean dependent var	4.800586	Adjusted R-squared		0.122127
S.D. dependent var	1.673640	S.E. of regression		1.568114
Akaike info criterion	3.807572	Sum squared resid		125.4081
Schwarz criterion	3.953560	Log likelihood		-100.7082
Hannan-Quinn criter.	3.864026	F-statistic		3.504110
Durbin-Watson stat	0.837679	Prob(F-statistic)		0.021793

Appendix 22: FEM Model for Islamic Bank

Dependent Variable: Z_SCORE
 Method: Panel Least Squares
 Date: 03/12/24 Time: 20:09
 Sample: 2010 2020
 Periods included: 11
 Cross-sections included: 5
 Total panel (balanced) observations: 55

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.210861	1.234466	4.221146	0.0001
CEO_REMUNERATION	2.34E-07	1.85E-07	1.268932	0.2107
GENDER_DIVERSITY	-1.490881	2.532286	-0.588749	0.5588
CAPITAL_ADEQUACY_RATIO	-4.068634	7.092296	-0.573670	0.5689

Effects Specification

Cross-section fixed (dummy variables)

Root MSE	0.929345	R-squared		0.685950
Mean dependent var	4.800586	Adjusted R-squared		0.639176
S.D. dependent var	1.673640	S.E. of regression		1.005332
Akaike info criterion	2.982236	Sum squared resid		47.50254
Schwarz criterion	3.274212	Log likelihood		-74.01150
Hannan-Quinn criter.	3.095146	F-statistic		14.66536
Durbin-Watson stat	1.957533	Prob(F-statistic)		0.000000

Appendix 23: REM Model for Islamic Bank

Dependent Variable: Z_SCORE
 Method: Panel EGLS (Cross-section random effects)
 Date: 03/12/24 Time: 20:10
 Sample: 2010 2020
 Periods included: 11
 Cross-sections included: 5
 Total panel (balanced) observations: 55
 Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.307321	1.169891	5.391376	0.0000
CEO_REMUNERATION	2.50E-07	1.74E-07	1.437929	0.1566
GENDER_DIVERSITY	2.452379	2.133962	1.149214	0.2558
CAPITAL_ADEQUACY_RATIO	-13.31811	6.747351	-1.973828	0.0538
Effects Specification				
			S.D.	Rho
Cross-section random			0.402555	0.1382
Idiosyncratic random			1.005332	0.8618
Weighted Statistics				
Root MSE	1.209640	R-squared	0.072176	
Mean dependent var	2.887677	Adjusted R-squared	0.017598	
S.D. dependent var	1.267383	S.E. of regression	1.256182	
Sum squared resid	80.47765	F-statistic	1.322435	
Durbin-Watson stat	1.184395	Prob(F-statistic)	0.277271	
Unweighted Statistics				
R-squared	0.126924	Mean dependent var	4.800586	
Sum squared resid	132.0596	Durbin-Watson stat	0.721775	

Appendix 24: Hausman Test for Islamic Bank

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	31.626254	3	0.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
CEO_REMUNERATION	0.000000	0.000000	0.000000	0.7945
GENDER_DIVERSITY	-1.490881	2.452379	1.858680	0.0038
CAPITAL_ADEQUACY_RATIO	-4.068634	-13.318110	4.773912	0.0000

Cross-section random effects test equation:

Dependent Variable: Z_SCORE

Method: Panel Least Squares

Date: 03/12/24 Time: 20:12

Sample: 2010 2020

Periods included: 11

Cross-sections included: 5

Total panel (balanced) observations: 55

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.210861	1.234466	4.221146	0.0001
CEO_REMUNERATION	2.34E-07	1.85E-07	1.268932	0.2107
GENDER_DIVERSITY	-1.490881	2.532286	-0.588749	0.5588
CAPITAL_ADEQUACY_RATIO	-4.068634	7.092296	-0.573670	0.5689

Effects Specification

Cross-section fixed (dummy variables)

Root MSE	0.929345	R-squared	0.685950
Mean dependent var	4.800586	Adjusted R-squared	0.639176
S.D. dependent var	1.673640	S.E. of regression	1.005332
Akaike info criterion	2.982236	Sum squared resid	47.50254
Schwarz criterion	3.274212	Log likelihood	-74.01150
Hannan-Quinn criter.	3.095146	F-statistic	14.66536
Durbin-Watson stat	1.957533	Prob(F-statistic)	0.000000

Appendix 25: Breusch-Pagan Lagrange Multiplier Test for Islamic Bank

Lagrange Multiplier Tests for Random Effects

Null hypotheses: No effects

Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided
(all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	55.10272 (0.0000)	1.768455 (0.1836)	56.87117 (0.0000)
Honda	7.423121 (0.0000)	-1.329833 (0.9082)	4.308605 (0.0000)
King-Wu	7.423121 (0.0000)	-1.329833 (0.9082)	5.562856 (0.0000)
Standardized Honda	10.70038 (0.0000)	-1.170125 (0.8790)	2.248262 (0.0123)
Standardized King-Wu	10.70038 (0.0000)	-1.170125 (0.8790)	4.342073 (0.0000)
Gourieroux, et al.	--	--	55.10272 (0.0000)

Appendix 26: Jarque-Bera Test for Regression Model - Islamic Bank

