How is Geographical Diversification, Mortgage Rate, and GDP Growth Affect Indonesian Property Companies' Performance Measured by Tobin's Q with Company Size as the Moderator?

Thesis

By:

Kelvin William – 20111033

Thesis Supervisor:

Prof. Ir. Roy H.M. Sembel, MBA, Ph.D, CSA, CIB, CIIM

Ardo Ryan Dwitanto, SE, MSM, CFP®

BACHELOR OF BUSINESS ADMINISTRATION

IPMI INSTITUTE

JAKARTA

2024

How is Geographical Diversification, Mortgage Rate, and GDP Growth Affect Indonesian Property Companies' Performance Measured by Tobin's Q with Company Size as the Moderator?

Prepared by:

Kelvin William – 20111033

A THESIS

Submitted in a partial fulfilment of the requirements for the degree of Bachelor of Business Administration

CERTIFICATE OF APPROVAL

Name & Student ID: Kelvin William (20111033)

Topic : How is Geographical Diversification, Mortgage Rate, and GDP Growth Affect Indonesian Property Companies' Performance Measured by Tobin's Q with Company Size as the Moderator

We hereby declare that this Thesis is from student's own work, has been read and presented to Sekolah Tinggi Manajemen IPMI's Board of Examiners, and has been accepted as part of the requirements needed to obtain a Bachelor of Business Administration Degree and has been found to be satisfactory.

Jakarta,.....2024

Examined by,

Advisor 1	Advisor 2
Prof. Ir. Roy H.M. Sembel, MBA., Ph.D., CSA., CIB., CIIM	Ardo Ryan Dwitanto, SE., MSM., CFP®
Examiner 1	**Examiner 2**
Prof. Dr. Wiwiek Mardawiyah Daryanto, S.E. Ak., M.M., CMA	Dety Nurfadilah, SE., MBA., CFP®., IFP®

Acknowledge by,

Prof.Dr. Ir. M.Syamsul Maarif, M.Eng, Dipl.Ing.DEA
Director of Academic Affairs

NON-PLAGIARISM DECLARATION FORM

This Thesis is a presentation of our original research work. Wherever contribution of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions.

Also, this work is being submitted in partial fulfillment of the requirements for the Bachelor of Business Administration degree and has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

Jakarta, …….. 2024

Materai 10.000

(Kelvin William)

TABLE OF CONTENTS

List of Tables

List of Figures

ABSTRACT

The purpose of this study is to examine the relationship between geographical diversification, mortgage rate, GDP growth and the moderating effect of firm size on Indonesian property companies' performance measured by Tobin's Q. This study tries to fill the gap in the body of current literature concerning the study context of geographical diversification in property industry and Indonesia as it hasn't received much attention. With a particular focus on the impact of the moderating effect of company size that is often used as a control variable in similar studies. This study examines eight property companies listed on the Indonesia Stock Exchange with the data collection range from 2010 – 2022. Then it was processed with a quantitative research approach and panel data analysis with a total of 104 observations. The Hausman and Lagrange Multiplier test result suggests using the Random-Effect Model (REM) for the parameter estimation. This study discovered that Tobin's Q was only determined negatively by mortgage rate and positively by the moderating effect on mortgage rate suggesting that mortgage rate heavily influences the price of property. Other than that, geographical diversification is found to be insignificant toward Tobin's Q suggesting that companies that diversify may lack value added to the company but reduce risk as explained by Modern Portfolio Theory. GDP growth was also found to be insignificant toward Tobin's Q suggesting that stock performance reflects the information of GDP growth as explained by the Efficient Market Hypothesis. While the moderating effect of firm size on geographical diversification and GDP growth variables' effect toward Tobin's Q were empirically found to be insignificant. Suggesting that regardless of size, the company couldn't take the benefit of geographical diversification and GDP growth toward Tobin's Q. Therefore, to mitigate geographic risks, businesses should aim for geographic diversification and develop strategies for fluctuating mortgage rates. Investors must closely examine how companies handle diversification and mortgage rates. Government action is critical in regulating policies impacting mortgage rates and attract investment creating balanced regional development to enhance diversification and reduce economic disparities.

Keywords: Geographical Diversification, Mortgage Rate, GDP Growth, Tobin's Q, Company Size

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Based on Directorate General of Population and Civil Registration population data report in 2023, Indonesia is the fourth most populous country in the world with a total of 280.73 million people with Java Island accounted for more than half of the nation population making it as the most populous island in the world according to World Bank data in 2020. With over 280 million of people that keep increasing each year, the country has a big consumer market that benefits business with huge demands, one of them is the need for housing.

Based on Indonesia Real Estate National Conference in 2023, Mr President Joko Widodo stated that real estate industry contributed 16% of the total nation GDP as one of the largest contributors among another segment over years, making it one of the key contributors toward country economic growth. Rapid urbanization, demographic change, and economic development have occurred in Indonesia during the past few decades, which have fueled the expansion and transformation of the real estate sector. Where according to Indonesian Central Bureau of Statistics' urbanization report, in 2035, 66.67% of Indonesians will live in urban areas showing an increase of 16.87% from 2010. The need for infrastructure, business, and residential development has increased as a result of the fast urbanization that has given rise to megacity and numerous urban centers.

In the other hand the government's focus on infrastructure development has been a key driver of the property market in Indonesia, The Indonesian government's increased investment in infrastructure, amounting to USD 429.7 billion from 2020 to 2024, marking a substantial 20% rise from USD 359.2 billion allocated during the 2015-2019 period, has significantly influenced the dynamics of the country's property market. Notably, in 2021 alone, infrastructure development received IDR 414 trillion or approximately USD 28.5 billion in the country's state budget,

reflecting a remarkable 47% surge from the previous year's allocation. These investments in infrastructure have further catalyzed growth in the property segment.

With rising urbanization, there is an urgent need for improved infrastructure development in Indonesia's megacity and metropolitan regions. One of the most notable recent developments is the Indonesian New Capital region project, also known as IKN, which is now being developed on the island of Borneo. The goal of this massive project is to create a new economic and administrative center in order to relieve the traffic and crowding in Jakarta, the current capital. Where on December 2023 according to Head of the IKN Authority, this project has achieved the realization of an investment commitment of IDR 41.4 trillion by several prominent companies. including Agung Sedayu Group, one of the leading property companies in Indonesia, is leading a consortium of IKN investors consisting of leading companies in Indonesia from various segments that will focus on building malls, hotels and offices with a total investment of IDR 20 trillion.

Leveraging the momentum, Indonesian property companies are aggressively implementing geographical diversification strategy, seeking new prospects by expanding their operations into advantageous and strategic area for the potential of growing metropolitan centers. Diversification may take many different forms, including product (Yang et al., 2017), brand (Kang and Lee, 2014), segment (Lee et al., 2011), geographical (Kang et al., 2012), and international (Adam et al., 2021) diversification where it is widely regarded as an essential business strategy that enhances a company's competitive advantages and performance. Geographical diversification is a strategic business strategy that provides considerable benefits to firms. Businesses can lessen their dependence on any one place by diversify their activities among the nation's many regions or cities which create risk-reduction effect that is supported by theory of modern portfolio (Markowitz, 1952). This helps in reducing the risks connected to regional occurrences like natural catastrophes, unstable political environments, or downturns in the economy. Moreover, by utilizing the growth potential found in different locations by establishing a foothold, business may strengthen its position in the market, raise its profile, and build its brand's competitiveness, all of which help it boost its revenue and market share. Additionally, according to Resource-Based Theory, a company's reputation creates

economic value via fostering advocacy, loyalty, and support among its stakeholders. Bankers are more willing to provide them credit at a higher rate, customers are more likely to purchase their products, investors are more likely to purchase their shares and influence the firm's worth, and potential workers are more eager to work for reputable organizations (Barney & Hesterly, 2019). That would contribute to the long-term sustainability and profitability of the organization.

When it comes to property market long term sustainability and the profitability of companies, mortgage rate is one of the topics that can't be missed. The interest rates at which people borrow money to buy real estate, or mortgage rates, are crucial in determining how the real estate market behaves. According to survey on residential property price in primary market by Indonesian Central Bank in 4th quarter of 2023, mortgage rate is the 2nd highest factors that undermining residential property sales growth that accounted for 28.07%. Therefore, the ability to understand the complex relationship between changes in mortgage rates and company performance is essential for making well-informed decisions and developing strategic plans.

Mortgage rate can be influenced by several factors. One of those is inflation or can be define as rise of price of goods and services, is one of the factors that could potentially affect the mortgage rate (Maverick, 2023). As it directly erodes the purchasing power of one currency, it affects the net profit of loan or the real return of the loan. Lenders should considerate and adjust accordingly to maintain their interest rate ensuring their return is sufficient to overcome the inflation. In Indonesia, inflation have been declining since the BI rate is aggressively being tighten and it has stayed within the target of the central bank on 2.75% in February 2024 from range of 1.5 – 3.5%. As mentioned previously, the BI rate set by the central bank, which affects mortgage rates in the whole banking industry, has historically been steadily maintained at 6%. However, recent announcements from the central bank show a possible decrease in the second quarter of 2024 where the median forecast showed that there'll be 25 points or 0.25% cut quarterly which mean 5.25% of BI rate at the end of 2024, a move that may affect mortgage rates.

Bank Tabungan Negara (BTN) as one of the major players in Indonesia's mortgage lending market with 40% of market share shows an increased in loans

during 2023 by 12%. BTN's president director pointed out his confidence that the market is and expected to remain strong for the rest of the years alongside with the announcement from the central bank for its BI rate that potentially lowered the mortgage rate. The result of lower mortgage rates often increase demand for property by making homeownership affordable, which increases the price of properties and the volume of sales. For developers of real estate, this growth in demand can result in higher profits and revenues. On the other hand, increased mortgage rates may reduce demand, which would result in fewer sales and possibly a drop in house values.

According to survey on residential property price in primary market by Indonesian Central Bank in 4th quarter of 2023, price increased by 1.74% (yoy) which lower compared to the 3rd quarter on 1.96% (yoy) but the sales increased by 3.27% (yoy) in the 4th quarter compared to the 3rd quarter on -6.59% (yoy). While based on the banking survey by Indonesian Central Bank in 4th quarter of 2023, the distribution of consumer credit is positively growing with mortgage rate is the top priority where it reflects the basic rule of supply and demand. Then, according to Bank Indonesia, during 4th quarter of 2023 Indonesia's economy grew by 5.05% driven by several factors with the increase in investment, especially buildings, is in line with the continued development of the National Strategic Project (PSN) including the Indonesian Capital City (IKN).

The GDP, which is commonly used for measuring economic development, is a key instrument for assessing the general health and growth of an economy. The dynamics of the real estate market are greatly influenced by this growth trend. Higher demand for real estate, which includes both residential and commercial properties, is correlated with a positive GDP growth rate. A growing economy leads to more consumer spending (Jammeh, 2021) and confidence (Malovana et al., 2021), which in turn drives up demand for mortgage loans to finance the purchase of real estate in a variety of industries, including residential, commercial, retail, and industrial. Increased demand for real estate naturally raises property values, benefiting property firms by increasing the overall worth of their portfolios.

But there are drawbacks as well as the spike in demand for home loans. In order to reduce inflationary pressures, central banks may decide to raise interest rates in

reaction to strong economic development. Higher financing costs are the result of this move and furthermore, because there are less funds available for lending, lenders may potentially tighten their lending standards, which would increase borrowing costs. When economic activity begins to decline, the opposite is true (Alper, 2018). Lower employment and income levels result in less consumption, which pushes interest rate lowers and improved affordability that may also increase demand for properties due to a lower financing cost.

Understanding the significance of geographical diversification, mortgage rates, and economic growth is important in a dynamic property market as in the similar study, a crucial aspect is assessing company performance, which is often correlate with how it creates the wealth for the shareholder. In similar studies, company performance measured with several metrics with one of those is Tobin's Q (Kang et al., 2012; Kang and Lee., 2015) that'll also used in this study to see how shareholders in property company values firm, industry and macroeconomic specific factor while also addressing the gap in the literature.

Not only that, a vital but sometimes bypassed variable, the size of the business, is one of these drivers. The size of a firm, which represents a wide range of property businesses, is a critical moderating element that may have a substantial impact on the relationship of geographical diversification, mortgage rates, and economic growth toward the performance of the company. In many different industry sectors, the size of a firm is a critical factor as it has a positive correlation toward profitability (Doğan, 2013) and has greater recovery post crisis period compared to the small size firm (Prasetyantoko et al., 2009) that determines its capabilities, resilience, and competitiveness in the market. To put it simply, a company's size and resources have a significant impact on its capacity to successfully manage risks, seize opportunities, and negotiate market dynamics (Montgomery, 1994). Firm size is particularly important in property companies because it affects the tactics and results related to geographical diversification, mortgage rates, and economic growth.

In the context of geographical diversification, a property firm's size matters in terms of minimizing risks and decreasing reliance on certain market outcomes.

Larger companies are better equipped to distribute risks and improve resilience against localized market volatility because they have the resources and operational capacity to diversify their investment portfolios across many locations. Larger companies may strengthen their overall market position and stability by properly allocating investments, capitalizing on a variety of growth opportunities, and optimizing returns by utilizing their scale. Additionally, as company size allows company to expand its business operations to wide range selection of location, it has a significant positive correlation toward corporate reputation where corporate reputation has a significant positive correlation toward companies' performance (Daromes et al., 2022).

In the case of mortgage rates, the size of the company also offers special advantages, especially when it comes to managing market and economic volatility. Due to their extensive and diversified portfolio of properties, property companies exhibit higher levels of resilience during difficult economic times. Because of their diverse portfolio and resources, these companies are able to modify their sales strategies in reaction to shifting market conditions. Their commercial portions could be able to compensate for the possible decline in sales of residential real estate during the mortgage shocks. On the other hand, because of their limited funds and lack of portfolio diversity, smaller businesses can see a bigger decline in sales. Thus, larger company can retain business continuity, which guarantees steady growth and profitability even in the face of unstable markets.

Moreover, company size matters when the economy expands since bigger property firms can better take advantage of new market trends and efficiently meet expanding demand. Larger businesses are more flexible and responsive when it comes to growing their operations, allocating resources effectively, and meeting the demands of the expanding market during the economic upward trend. They can take advantage of good economic conditions, allocate assets optimally, and promote sustainable growth due to their broad market reach and operational competence, which has helped them maintain their long-term survival and market domination.

In essence, geographical diversity, mortgage rates, and economic growth is important factors that affects company performance in property market with

company size that may influence the factors as bigger size of businesses naturally have unique advantages that contribute to real benefits for businesses. Acknowledging and using the benefits that come from it is critical for businesses looking to prosper in the ever-changing real estate industry. This will enable them to make well-informed strategic choices and secure long-term success.

1.2 Problem Statement

The objective of this research is to look at how geographical diversification, mortgage rate, and economic growth affect the profitability of Indonesian property businesses, with an additional focus on understanding how company size influences these interactions. While various studies have looked at geographic diversification, most of the current research has little attention paid to the property sector and Indonesian setting. It's interesting to note that not much research has been done in this area on Indonesia's property market.

This study contributes significantly to the body of literature by including variables that directly impact the dynamics of the property market, such as economic growth and mortgage rates. Furthermore, including company size as a moderating factor improves the analysis's depth even further. Unlike previous approaches, which frequently consider company size as a control variable, this study emphasizes its relevance as a moderating impact, providing a deeper understanding of how multiple factors interact to affect property business performance.

By taking a thorough approach, the study not only fills a research gap but also enhancing discussions on geographical diversification in the property sector—especially in the context of Indonesia. By offering a thorough analysis of the variables affecting property business performance in Indonesia, taking into account both internal and external causes, and looking at the moderating influence of company size, this study aims to close the gap in the literature. The project is to solve this research challenge to deepen our understanding of the factors that influence the success of Indonesian property companies and to offer insightful information to academics, investors, governments and the industry players.

1.3 Research Questions

Based on the description of the background and also the problem in the literature on related topics, the research question is prepared as follows:

1. How is the effect of geographical diversification toward Indonesian property companies' Tobin's Q?
2. How is the effect of mortgage rate toward Indonesian property companies' Tobin's Q?
3. How is the effect of economic growth toward Indonesian property companies' Tobin's Q?
4. How is the moderating effect of company size influence geographical diversification toward Indonesian property companies' Tobin's Q?
5. How is the moderating effect of company size influence mortgage rate toward Indonesian property companies' Tobin's Q?
6. How is the moderating effect of company size influence GDP growth toward Indonesian property companies' Tobin's Q?

1.4 Research Objective

In dealing with this mentioned problem, the objectives of this research are to analyse the performance of Indonesian companies in property sector with the intention to provide information for those who may concerned that related to the property market which will be useful in decision-making. Analyzing the impact of the variables stated toward the companies' performance are essential to predict how companies in property market react to the related events. Therefore, the research objective is prepared as follows:

1. To analyse geographical diversification effect on companies' Tobin's Q in Indonesia property sector
2. To analyse mortgage rate effect on companies' Tobin's Q in Indonesia property sector
3. To analyse GDP growth effect on companies' Tobin's Q in Indonesia property sector

4. To analyse the effect of company size as the moderating effect toward the influence of geographical diversification to Indonesian property companies' Tobin's Q.
5. To analyse the effect of company size as the moderating effect toward the influence of mortgage rate to Indonesian property companies' Tobin's Q.
6. To analyse the effect of company size as the moderating effect toward the influence of GDP growth to Indonesian property companies' Tobin's Q.

1.5 Scope of Study

This research is limited to property companies in Indonesia that listed on the Indonesia stock exchange. The research method is using quantitative method, followed by the main data collection techniques. This research focused on companies in property sector that listed in Indonesia stock exchange with data collections range from 2010 to 2022.

1.6 Significance of Study

This study examines the impacts of regional diversity, mortgage rates, and economic growth on company performance in the property market, with business size acting as a moderator. The study's relevance is listed below:

1. Providing information to investors, the government, and company boards on the moderating impacts of company size on the variables that are believed to affect the performance of companies in the property industry.
2. Providing information as ideas and suggestions to academics and upcoming researchers.

This research also can add the following contributions:

2.1 Provide academics and researchers with new information to expand their research on the factors and moderating effects on the performance of property companies.

2.2 Support investors in gaining more knowledge and understanding about how real estate firms operate in different circumstances associated with the variables under discussion.

1.7 Thesis Structure

This thesis consists of six chapters as a systematic process with details as follow:

Chapter 1: Introduction

This section lists what is needed before starting a search. It also has several sections, including an introduction, a list of problems, research questions, goals, the scope of the study, and research limitations.

Chapter 2: Literature Review

To direct the research, this portion focused on the theoretical review. Additionally, it displays the concept, context, example, and findings of earlier research. A compilation of books, journals, newspapers, and other information sources that might aid in study is called a literature review.

Chapter 3: Methodology

The procedures for completing the research are described in this section. It is interested in the study methodology, specifically in the step-by-step analysis of the data. In addition, the study's analytical indicators and hypothesis will be included.

Chapter 4: Finding, Analysis and Discussion

The details of the data analysis are covered in this section; it is an essential part of the research. This section presents the data processing process using standard operating procedures, followed by the data processors' output and an analysis of the outcome.

Chapter 5: Conclusion and Recommendations

This part, which serves as the last chapter, provides a summary of the analysis conducted during the whole research. The explanations of the proposals

are intended to assist upcoming scholars, marketers, board members, and researchers.

CHAPTER 2

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Grand Theory (Shareholder Theory)

According to shareholder theory, a firm's primary goal is to maximize shareholder wealth, and corporations should prioritize creating profits and returns for their shareholders above everything else. This point of view claims that businesses may draw in investment, foster innovation, and advance national economic development by concentrating on maximizing shareholder value (Pfarrer, 2013). One of the methods to access firm success to achieve the goal is valuation through Tobin's Q.

2.2 Definitions of Variables

2.2.1 Geographical Diversification

Geographical diversity is a strategic business strategy that by spreading out their operations across the numerous states, regions, and cities in the country (Song *et al*., 2017), businesses may reduce their reliance on any one location. This reduces risk and is backed by the modern portfolio theory (Markowitz, 1952). This lessens the dangers associated with local events such as natural disasters, erratic political situations, or economic downturns.

2.2.2 Mortgage Rate

The mortgage rate is the interest rate imposed by a lender on a mortgage loan, which is used to fund the purchase of real estate (Kagan, 2023). It is usually represented as an annual percentage rate (APR) and shows the percentage of the original loan amount that the borrower must pay as interest over a given period. Mortgage rates can change based on several variables, including the state of the economy, inflation, housing market condition, bond market and others (Maverick, 2023). The cost of borrowing for purchasers and the affordability of homeownership can both be impacted by changes in mortgage rates.

2.2.3 GDP Growth

GDP is the total monetary or market worth of all finished products and services produced inside a nation's boundaries during a certain period that serves as a thorough assessment of the state of the economy in a particular nation by serving as an extensive measure of total domestic production (Fernando, 2024). GDP growth calculates how a nation's economic output changes over time expressed as a percentage rate and shows whether the economy is growing or shrinking. It is an important metric for organizations because it influences investment prospects, business confidence, customer demand, and general market dynamics, all of which have an effect on performance strategies and decision-making processes (Picardo, 2023).

2.2.4 Companies' Performance (Tobin's Q)

Tobin's Q is a key idea in finance that is used as a tool to evaluate the link between a firm's market worth and the cost of replacing its assets (Tobin, 1969). It is calculated as the market capitalization of a company divided by the replacement cost of all of its assets. The market may place a higher value on the company's assets than their replacement cost when Tobin's Q is greater than 1. A high Tobin's Q in this situation may suggest that the business is using its resources efficiently and may even be producing returns greater than the investment expenses. This scenario might show advantageous investment circumstances, effective capital allocation, and robust operational performance, all of which enhance the success of the company as a whole. A Tobin's Q below 1, on the other hand, suggests that the market values the company's assets below their replacement cost. This might be a sign of undervaluation in the market, inefficient use of money, or poor investment choices (Tobin, 1969).

Therefore, Tobin's Q has been used extensively as it offers insightful information on the effectiveness of capital investments and how the market values a company in relation to its physical assets.

2.3 Middle Theory (Resource Based View)

The Resource-Based View (RBV) is a theoretical framework in strategic management that emphasizes the importance of a firm's internal resources and capabilities in achieving sustained competitive advantage. This perspective suggests that a firm's unique bundle of resources, including tangible and intangible assets such as technology, human capital, brand reputation, and organizational culture, are the primary determinants of its performance and success in the marketplace (Penrose, 1959). Moreover, by focusing on internal strengths rather than external factors, the RBV encourages firms to develop sustainable competitive advantages that are difficult for rivals to imitate or replicate.

Research on the RBV has demonstrated its relevance across various industries and organizational contexts. For instance, Barney on his study (1991) have shown how firms can leverage their unique resources to achieve market leadership, innovate more effectively, and adapt to changing market conditions. Furthermore, the RBV framework has been instrumental in explaining why certain firms outperform others, even in highly competitive markets. By identifying and leveraging their core competencies, firms can build barriers to entry, reduce the threat of substitute products or services, and enhance customer loyalty.

Moreover, the RBV offers valuable insights into the relationship between company size and competitive advantage. The RBV suggests that regardless of size, firms that effectively leverage their unique resources and capabilities can achieve competitive success (Montgomery, 1994). However, the specific strategies and tactics employed by firms may vary depending on their size and industry context. Larger firms may focus on economies of scale, market dominance, and diversification, while smaller firms may emphasize niche markets, innovation, and flexibility. Ultimately, the RBV provides a comprehensive framework for understanding how firms of different sizes can create and sustain competitive advantages in dynamic and challenging business environments

2.4 Substantive Theory

2.4.1 Geographical Diversification and Companies' performance

Modern Portfolio Theory is a widely accepted framework in financial economics that aims to maximize the return of a portfolio for a given level of risk. Developed by Harry Markowitz in 1952, the theory revolutionized the way investors approach portfolio construction and risk management. The key idea behind Modern Portfolio Theory is the concept of diversification, which suggests that by spreading investments across different assets, the overall risk of the portfolio can be reduced without necessarily sacrificing returns.

The key concept of this theory namely: First, efficient frontier is a graphical representation of the highest expected return for a given level of risk or the lowest risk for a given level of expected return. Markowitz demonstrated that by actively selecting a combination of assets along the efficient frontier, an investor could achieve the maximum level of return for any given level of risk, or conversely, minimize risk for any level of return. Second, risk and return relationship emphasizes the trade-off between risk and return. It suggests that investors should strive to maximize their expected return for a given level of risk or minimize their risk for a targeted level of expected return.

One of the diversification strategies that businesses view as essential is geographic diversification, which is defined as a grouping or combination of multiple real estate classes situated in different locations (Olaleye et al., 2006) with the goal of increasing the company's revenue. Risk reduction effect from this theory could explain how geographical diversification influence companies' performance. Diversification can stabilize the overall returns of company as the company may show less sensitivity toward economic downturns caused by several factors that fluctuate demand in a several local market. Looking at the formula of:

$$Firm\ value = \frac{FCF}{WACC - g} \tag{2.1}$$

from free cash flow valuation in equation (2.1), when risk reduction applied as explained by the modern portfolio theory, it reduces the risk from:

$$WACC = cost\ of\ equity(Ke) + cost\ of\ debt\ (Kd) \qquad (2.2)$$

The WACC as explained in equation (2.2) and as it achieved through diversification, the risk reduction affects systematic risk from cost of equity associated with Beta. Therefore, the firm value increase.

2.4.2 Mortgage Rate and Companies' performance

To explain the relation of mortgage rate and companies' performance, the theory of income effects can provide useful insight. Income effect is a fundamental idea in microeconomics, explains how changes in real income or buying power cause changes in the demand for products and services (Graaff, 1950). A rise in the demand for normal goods—those whose demand increases as income rises—usually correlates with a consumer's perception of an increase in income. On the other hand, as customers' purchasing power declines, they often change their consumption habits, which lowers the demand for normal goods.

Furthermore, changes in price cause the income and substitution effects to interact. When a good's price drops, customers think it's more inexpensive than alternatives, which leads to a rise in demand that is fueled by both impacts. On the other hand, as prices rise, demand declines as a result of these factors. Thus, the interplay between income and substitution effects shapes customers' purchasing preferences as prices shift.

Looking at the equation (2.1) and the consumer behaviour explained by the income effect. The equation of free cash flow:

$$free\ cash\ flow = Net\ Income + Depreciation\ and\ Amortization - Capital\ Expenditure. \quad (2.3)$$

Explained that changes in mortgage rate can influence customers decision to take mortgage loan and it directly affect the net income within the equation (2.3), Therefore influencing firm value.

2.4.3 GDP Growth and Companies' performance

To explain the relation of GDP and companies' performance, Keynesian theory of multiplier effect can provide useful insight. Multiplier effect by Keynesian explain if there's an increase of spending it directly contribute to the GDP growth that can lead to larger changes in overall economic output. An initial increase in spending results in increased income for workers and firms, leading to additional rounds of spending as individuals and businesses use their increased income to purchase goods and services (Keynes, 2008). This cycle of increased spending, production, income, and spending continues, resulting in a cumulative increase in economic output that is larger than the initial increase in spending, creating a multiplier effect. The multiplier effect shows that the total increase in GDP is larger than the initial increase in spending. This is because each round of spending leads to additional rounds of spending, resulting in a cumulative increase in economic output. Conversely, a decrease in autonomous spending can lead to a decrease in economic activity through a similar process in reverse, known as the reverse multiplier effect.

Looking at the equation (2.1) that explain the creation of firm value and equation (2.3) it explains how changes in GDP can influence customers and firm decision to spend more, where it directly affects the net income within the equation (2.3), therefore influencing firm value.

2.4.4 Company Size Moderating Geographical Diversification toward Companies' performance

The Resource-Based View (RBV) theory offers a significant perspective on the relationship between company size and the performance results of geographically diversified real estate enterprises. RBV states that companies may obtain a competitive edge by making use of their unique combination of resources and abilities (Penrose, 1959). Larger real estate companies have access to more resources in the real estate industry, such as financial capital, physical assets, human capital, and operational capability. They are able to handle the challenges of geographical diversity with the help of these resources. Larger companies can spread risks and lessen the effect of regional market volatility by diversifying their assets across many locations thanks to their bigger financial resources.

Furthermore, its organizational structure and huge human capital enable the successful administration of many kinds of portfolios, guaranteeing the best utilization of resources and operational efficiency (Ji et al., 2020) across various geographic locations. As a result, company size plays an important role in magnifying the positive effect of geographic diversity on the performance of real estate companies since larger firms are better equipped to succeed in a variety of markets (Montgomery, 1994).

2.4.5 Company size Moderating Mortgage Rate toward Companies' performance

Consumer purchasing power declines during high mortgage rate times, which may impair the operations of real estate firms by reducing demand for houses. However, larger real estate companies are better suited to handle these difficulties due to their huge assets and organizational structures as explained by RBV theory (Penrose, 1959). Due to their capabilities advantage, well-established market position, and well-known brand, they are able to modify their strategies and lessen the negative impacts of changes in mortgage rates (Daromes et al., 2022; Prasetyantoko et al., 2009). Bigger companies can

counteract the negative effects of increasing mortgage rates on sales by using their resources to provide buyers with attractive financing choices or incentives.

To compensate for any fall in sales of residential real estate, they may also look into alternate sources of income and investment possibilities thanks to their broad portfolios and efficient operations (Ji et al., 2020). Because larger firms are better able to innovate and adjust to shifting market conditions, maintaining their competitive advantage in the real estate market, company size is crucial in reducing the negative effects of mortgage rate fluctuations on real estate companies' performance.

2.4.6 Company size Moderating GDP toward Companies' performance

An increase in GDP propels economic activity and consumer spending, drives up demand across a number of industries (Keynes, 2008). Due to rising consumer confidence and spending power, there are more options for property companies to profit from this increasing demand. Bigger property firms are in a unique position to take advantage of this increase in demand as they have more organizational skills and a wealth of resources. They can react quickly to the increased market activity by acquiring properties, starting new development projects, and modifying their investment plans to suit changing customer preferences because of their significant liquidity and operational flexibility.

Furthermore, bigger businesses can effectively scale their operations to meet the increasing demand thanks to their size advantage, which also helps them draw both investors and tenants by utilizing their established networks and market presence (Daromes et al., 2022). As a result, company size plays a crucial role in magnifying the positive effect of GDP growth on real estate business performance, as larger firms are better able to take advantage of the increased demand for real estate brought about by economic expansion by efficiently utilizing their resources and skills as explained in RBV theory (Penrose, 1959).

2.5 List of Previous Studies

2.5.1 Geographical Diversification and Companies' performance

In the topic of relation between geographical diversification and companies' performance, some studies show that diversification may increase a company's profitability, while other studies highlight potential drawbacks. Recent research by Rajesh (2023) found that regional diversification has a significant influence on the profitability of IT businesses in India, supporting the argument that it positively impacts company performance. Based on 350 listed South Asian manufacturing enterprises, Shira's (2023) study additionally shows the beneficial effects of regional diversification on the performance of the companies. Furthermore, Judy et al. (2022) conducted a study on this subject with 35 commercial banks in Kenya, and they recommend that businesses diversify geographically more since it has a significant favorable impact on their financial performance.

On the other hand, several research demonstrates how regional diversification has negative associations with business performance. According to Kang et al. (2012), diversification has a detrimental impact on business performance in US casino firms because the industry's unique characteristics may make it difficult to implement a diversification strategy. They brought up the worry that, as corporate diversification of agency perspective increases, there would be more agency difficulties, as suggested by Montgomery (1994) with two justifications. First, a manager may direct the company's diversification in a way that increases the demand for the management team's specialized skills. The second argument is based on the idea that, whereas shareholders may successfully diversify their assets, managers cannot do so regarding job risk. As a result, managers may seek diverse expansion to lower overall firm risk, strengthening their positions at the expense of the company's owners. While Ajao et al., (2021) on their studies found out that diversification negatively affect companies' performance measured by Tobin's Qand the profitability decreased as the diversification increased.

2.5.2 Mortgage Rate and Companies' performance

In the topic relation mortgage rate and companies' performance, there are several studies that shows a positive relation on this. In Kenya, Kioko's (2012) research with 392 respondents focusing on mortgage financing toward real estate market shows that mortgage financing is vital access toward real estate for investing activities with positive relation. The activity was made successful by a commercial banking service that provided respondents with a transparent calculation of the mortgage loan they would take out and provided various products tailored to the respondents' abilities. The various mortgage products that respondents consider to be a solution for buying a house provide an illustration of how important the mortgage interest rate is in the decision to buy a house, which directly affects the performance of property companies. Correlation test resulting in higher mortgage rates shows positive relation with real estate market. Another study from Nugroho et al. (2018) in Indonesia that focus on the relation of LTV Ratio, GDP, demographic, and mortgage rate toward residential property price index from several regions supported the result from Kioko's research, where mortgage rate is significantly affect housing prices with positive relation that directly would influence consumption of mortgage financing as mortgage rate will influence demands that determine the affordability of one property.

Another study in Asia based on Taipei, Taiwan by Ming Yu et al. (2018) on causes of housing prices shows that mortgage rate is the most significant factor toward the housing affordability with negative relation where in their research they estimated that an increase of mortgage rate by only 1% will reduces housing prices from 5% up to 17% reflecting the theory of demand. When the mortgage rate is low, people can afford to consume or invest in property therefore the imbalance between demand and supply due to the spike of demand will increase the price of the property and vice versa. Therefore, an increase or decrease in mortgage rate heavily influence the performance of real estate in Taiwan.

2.5.3 GDP Growth and Companies' performance

In the topic of examining the relation between GDP and companies' performance, certain studies propose that GDP as one of the macroeconomic factors is significantly affecting the performance of company while others underscore the potential drawbacks. Issah et al. (2018) on their study in UK consisting of 116 listed companies -excluding financial firms- shows that GDP as one of the macroeconomic factors applied is significantly affect companies' performance in a positive relation, suggesting that macroeconomic variables should be count when predicting future companies' performance. This result also supported by Dewi et al. (2019) in Indonesia consisting of FMCG (fast moving consumer good) companies listed in Indonesia Stock Exchange (IDX) on the influence of macroeconomics factors on companies' profitability shows that only GDP that has a significant influence toward companies' profitability in a positive relation which share the same result with Candradewi et al. (2023) in Indonesia focusing on company listed in Indonesia Stock Exchange LQ45. Another study done by Cheong et al. (2020) on the impact of macroeconomic factors on corporate profitability in Hongkong also supported the result of a significant influence by GDP with a positive correlation toward corporate profitability.

While on the other hand, Cheong et al. (2020) study on Singapore resulting in a converse setting. It shows that GDP or macroeconomic factors doesn't has a significant influence toward corporate profitability. In Malaysia study by Wahid et al. (2019) on the determinants of firm profitability consisting several Malaysian property companies shows that macroeconomic factors have a negative relationship. Wahid et al. further explained that the movement of GDP whether positive or negative doesn't affect the consumption in the property market.

2.5.4 Company size as the Moderator

In the existing research, company size is often used as a variable in studies related to company profitability as explained by Whited (1992) in her study that

firm with a large size has the advantageous of economies of scale and lower cost of capital. Company size can be determined by calculating the ratio of its market value to account for market expectations and potential growth prospects (Dang et al., 2018).

Various research has proved that company size is important determinant of company profitability. Cheong et al. (2020) study on the impact of firm-specific factors on corporate profitability in Hongkong and Singapore shows that company size is significant predictors of companies' performance that has positive relations with ROA, ROE, and Tobin's Q as proxies for firm profitability. Another previous study from Khan et al (2018) on panel Data Analysis of Profitability Determinants: Evidence from Indian Telecom Companies listed on National Stock Exchange (NSE) also shows that company size is significant predictors with positive relation toward firm profitability. In Nigeria, Akinlo et al. (2012) on their studies of profitability and leverages with sample of non-financial firm listed on the Nigerian Stock Exchange (NSE) shows that company size is the major determinant of profitability as it has a significant positive relation with profitability.

2.6 Hypothesis Development

Based on the previous studies in geographical diversification relation with companies' performance, several conclude a positive (Rajesh, 2023; Shira, 2023; Judy et al., 2022) and negative relation (Kang et al, 2012; Montgomery, 1994). Therefore, the hypothesis is developed as.

H1: Geographical diversification is positively influencing companies' performance

In previous studies, mortgage rate is significantly influencing real estate market price with result that vary in positive (Kioko, 2012; Nugroho et al., 2018) and negative relation (Ming Yu et al., 2018). Therefore, the hypothesis is developed as.

H2: Mortgage rate is negatively influencing companies' performance.

In previous studies, GDP growth is significantly influencing real estate market with result that vary in positive (Issah et al., 2018; Dewi et al., 2019; Cheong et al., 2020) and negative relation (Cheong et al., 2020; Wahid et al., 2019). Therefore, the hypothesis is developed as.

H3: GDP growth is positively influencing companies' performance.

In previous studies, company size is usually used as dependent variable toward companies' performance resulting in a significant positive relation (Whited, 1992; Dang et al., 2018; Cheong et al., 2020; Khan et al., 2018; Akinlo et al., 2012). In this study, it is attempted to used company size as moderator influencing dependent variable of geographical diversification toward companies' performance as one of the contributions on the study of how geographical diversification affects companies' performance.

H4: Company size magnifies the positive effect of geographical diversification toward companies' performance

In previous studies, company size is usually used as dependent variable toward companies' performance resulting in a significant positive relation (Whited, 1992; Dang et al., 2018; Cheong et al., 2020; Khan et al., 2018; Akinlo et al., 2012). In this study, it is attempted to used company size as moderator influencing dependent variable of mortgage rate toward companies' performance as one of the contributions on the study of how mortgage rate affects companies' performance.

H5: Company size reduces the negative effect of mortgage rate toward companies' performance

In previous studies, company size is usually used as dependent variable toward companies' performance resulting in a significant positive relation (Whited, 1992; Dang et al., 2018; Cheong et al., 2020; Khan et al., 2018; Akinlo et al., 2012). In this study, it is attempted to used company size as moderator influencing dependent variable of mortgage rate toward companies' performance as one of the contributions on the study of how GDP growth affects companies' performance.

H6: Company size magnifies the positive effect of GDP growth toward companies' performance

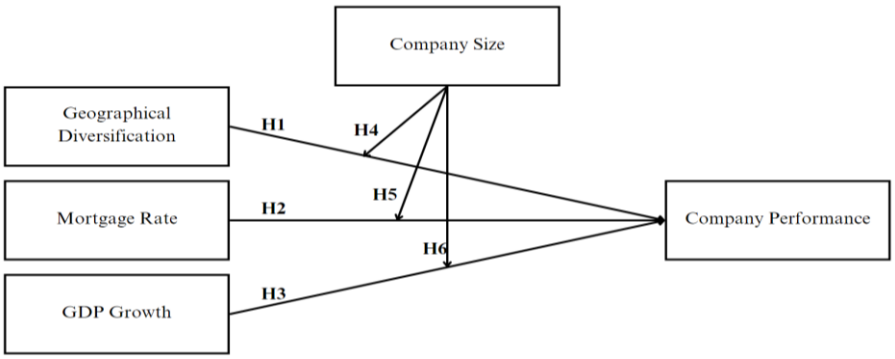


Figure 1. Research Framework

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Research Design

To examine how geographical diversification, mortgage rate, and GDP growth toward Indonesian property companies' performance with the moderating effects of company size, quantitative research design is used. As per Sukamolson (2007) there are 4 types of quantitative research which are exploratory, descriptive, causal or hypothesis testing, and case study. Causal types of quantitative research used to analyze how is geographical diversification, mortgage rate, and GDP growth affect Indonesian property companies' performance with company size as the moderator.

3.2 Operational Variable

3.2.1 Geographical Diversification (HHI)

Geographical diversification measured from revenue by geographic taken from companies' annual report that further calculated with Herfindahl-Hirschman Index (HHI) formula:

$$HHI: S1^2 + S2^2 + S3^2 + \ldots Sn^2 \quad (3.1)$$

Where:

S: Individual company's revenue shares within the specified geographic

Then, revenue by geographic shares measured from the total revenue then will be squares and add all the squares together (Kang et al., 2012) with the data collection range from 2010 to 2022.

3.2.2 Mortgage Rate (MG)

Mortgage rate measured from the average data of 5 major banks in Indonesian mortgage lending market such as Bank Tabungan Negara (BTN), Bank Central

Asia (BCA), Bank Negara Indonesia (BNI), Bank Mandiri, and Bank Rakyat Indonesia (BRI). With the data collection range from 2010 to 2022.

3.2.3 GDP Growth (GDP)

GDP growth data is collected from Indonesian Central Bureau of Statistics report on annual GDP growth with the data collection range from 2010 to 2022 with the formula shown as follow (Candradewi et al., 2023):

$$GDP\ Growth: \frac{GDP_t - GDP_{t-1}}{GDP_{t-1}} \quad (3.2)$$

Where:

GDP_t: Current GDP

GDP_{t-1}: Previous GDP

3.2.4 Company Performance (Tobin Q)

Tobin's Q as proxy of company performance with the equation shown as follow:

$$Tobin\ Q: \frac{Total\ Assets - Total\ Liabilities + Market\ Capitalization}{Total\ Asset\ Value} \quad (3.3)$$

Total market value is measure by total outstanding shares times the price per shares for each of the end of the reporting period, while the total assets value can be collected from companies' annual report (Kang et al., 2012). The data collection ranges from 2010 to 2022 that will be stated in cardinal number.

3.2.5 Company size (SIZE)

Company size is measured by the log of total assets (Kang et al., 2012) that can be collected from companies' annual report with the data collection range from 2010 to 2022.

3.2.6 Control Variables

Leverage, ROA, and dividend payment are used as control variables. Leverage is measured by debt-to-asset ratio from company's annual report. ROA is taken from company's annual report. While, dividend payment is a dummy variable that measured by 1 if a company paid dividends, and 0 if it's not.

3.3 Sampling Method

To achieve research objective better, purposive sampling is used to have a better fit. The population of this research is property companies listed in Indonesia Stock Exchange (IDX) from 2010 to 2022 that disclose their geographical revenue segment, and actively traded or liquid (200 per day). Then, the final sample of this research consist of several companies that has all the samples needed by the author.

Table 1. List of Companies

1	BAPA	Bekasi Asri Pemula Tbk.
2	KIJA	Kawasan Industri Jababeka Tbk.
3	MDLN	Modernland Realty Tbk.
4	PWON	Pakuwon Jati Tbk.
5	APLN	Agung Podomoro Land Tbk.
6	OMRE	Indonesia Prima Property Tbk.
7	BIPP	Bhuwanatala Indah Permai Tbk
8	PUDP	Pudjiadi Prestige Tbk.

3.4 Data Collection Method

The data of geographical diversification, company size, and company performance is collected from company annual report on its official website. For mortgage rate

the data collected from 5 major banks in mortgage lending market in Indonesia such as Bank Tabungan Negara (BTN), Bank Central Asia (BCA), Bank Negara Indonesia (BNI), Bank Mandiri, and Bank Rakyat Indonesia (BRI). While, GDP growth collected from Indonesian Central Bureau of Statistics report on annual GDP growth. Furthermore, control variable is collected from the company annual report that is available on its official website.

3.5 Data Analysis Method

The Eviews software application was utilized to divide the data before they were examined using a panel data regression approach. Panel data refers to statistical techniques that combine time series and cross-section data in a regression model utilizing panel data, also known as pooled data.

3.5.1 Multicollinearity Test

According to Suliyanto (2011), multicollinearity indicates an almost perfect correlation between independent variables. The partial correlation approach between independent variables is used in this test. There is no multicollinearity in the model if the correlation matrix has no value more than 0.90. Additionally, the Variant Inflation Factor (VIF) value can be used to test for multicollinearity. If the VIF value is greater than 10, it indicates that multicollinearity exists in the regression model; if the VIF value is less than 10, it indicates that multicollinearity does not exist in the regression model.

3.5.2 Estimation of Panel Data Regression Model

The following formula represents the general panel data regression model:

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 (X_1 * Z)_{it} + \beta_5 (X_2 * Z)_{it} + \beta_6 (X_3 * Z)_{it} + \beta_7 Z_{it} + \varepsilon_{it} \quad (3.4)$$

Where:

Y_{it}: Dependent variables

X_{it}: Independent variables

Z: Moderating effects

α: Constant

β_1, β_2, β_n: Coefficients Regressions

i: $_i$th entity

t: $_t$th entity

The Common Effects Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM) are three analytical techniques for panel data analysis. The Common Effect Model (CEM) combines all data without taking into account persons or time, resulting in a single set of data that includes the independent and dependent variables. Thus, this model is equivalent to all other linear regression models. Ignoring the site and time dimensions of the panel data, the Common Effect Model (CEM) uses the OLS Regression Estimation and has non-different (constant) intercept and slope coefficients (Gujarati, 2004). The following is the model statement for the panel data regression model with the common effects technique (Gujarati, 2003):

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \ldots + \beta_n X_{nit} + \varepsilon_{it} \quad (3.5)$$

In this case, the n stands for the total number of cross-sectional data sets, the i for the i-th individual, and the t for the t-th time.

The term "fixed effects model" (FEM) refers to a type of model where the cross-section (in this example, the company) determines the variation or change in the intercept. Even though intercepts vary from company to company, none of them alter over time (Gujarati, 2004). This estimate is transformed into a General Least Square Fixed Effect by the OLS estimation, producing objective and reliable data. Changing the intercept value while keeping the slope constant in a panel data regression model is one method to take note of the heterogeneity of the cross-sectional unit. The equation for this model, which goes by the name Fixed Effect Model (FEM), is shown as follows:

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \ldots + \beta_n X_{nit} + \alpha_{it} + \varepsilon_{it} \quad (3.6)$$

while εit is the error term and αi is the unobserved time-invariant individual effect.

As per Gujarati (2004), the Random Effects Model (REM) is a model that has a fixed slope but random or variable intercepts that change according to the cross-section (the company in this example). In the fixed effect model, individual differences are represented by the intercept or constants; in the random effects model, individual differences are taken into account by the individual error terms. As a result, the random effect model makes the assumption that each person's intercept differs. Thus, the overall residual and the individual residual are the two residual components. The residual of each cross-section unit is the individual residual, and the combined residual of the time series and cross-section is the overall residual. Regression model for panel data using the random effects model is shown as follows:

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \ldots + \beta_n X_{nit} + \varepsilon_{it} + u_{it} \quad (3.7)$$

In this case, εit is the error component of the time series unit and uit is the error component of each cross-section unit

3.5.3 Selection of Panel Data Regression Model

3.5.3.1 Chow Test

A Fixed Effect Model (FEM) or a Common Effect Model (CEM) should be applied, depending on the results of the Chow test. The following theories guided the execution of this experiment:

Ho: Probability > 0.05, the Common Effect Model (CEM) can be applied.

Ha: Probability < 0.05, the Fixed Effect Model (FEM) can be applied.

3.5.3.2 Hausman Test

A Fixed Effect Model (FEM) or a Random Effect Model (REM) should be applied, depending on the results of the Hausman test. The following theories guided the execution of this experiment

Ho: Probability > 0.05, the Random Effect Model (FEM) can be applied.

Ha: Probability < 0.05, the Fixed Effect Model (REM) can be applied.

3.5.3.3 Lagrange Multiplier Test

A Common Effect Model (CEM) or a Random Effect Model (REM) should be applied, depending on the results of the Hausman test. The following theories guided the execution of this experiment

Ho: Probability > 0.05, the Common Effect Model (CEM) can be applied.

Ha: Probability < 0.05, the Random Effect Model (REM) can be applied.

3.5.3.4 Coefficient of Determination (Adjusted R2)

The coefficient of determination is a test that may be used with both independent and dependent variables. Then, based on predefined standards, the efficacy of such components is assessed. The requirements are as follows: When the value is between 0 and 1, it will be clear that it is the cause of the dependent variable's existence. A range with a value around zero indicates that the independent variable has little power to affect the dependent variable. According to Sugiyono (2013), the coefficient interval gauges how accurate the regression line is in relation to a sample's estimate.

3.5.3.5 Hypothesis Testing

A panel data regression analysis model, which uses t and f test to predict the degree of the strength of the effects of independent factors on dependent variables, was used to test the hypothesis.

3.5.3.6 Model Feasibility (F-Test)

The F test is used to determine if independent variable influences the dependent variable simultaneously If the F value is < 0.1, the independent variable affects the dependent variable. The F exam has to fulfill the following requirements:

1. A significant value of F less than 0.1 indicates the approval of Ha and the rejection of H0. This will demonstrate how the dependent variable is impacted by each independent component.
2. In the event that F exhibits a significant value of F >0.1, H0 will be granted approval, whereas Ha will be rejected. This will demonstrate that the independent variable has no effect either on any of the dependent variables.

With the hypothesis equation as follows:

H0: $\beta_1 = \beta_2 = \beta_3 = \ldots \beta_n = 0$

Ha: Other than H0

3.5.3.7 Partial Test (T-Test)

According to Ghozali (2013), the T-test is used to show the distinct impacts of each independent variable on the dependent variable. After calculating each independent variable's coefficient of determination for the dependent variable, the t-test will be run to determine the degree to which each independent variable affects the dependent variable. The choice is based on the P-values of the findings. If the P-value substantially is <0.1, it will be

demonstrated that the independent variables have a positive effect on the dependent variable. If the P-value significantly surpasses >0.1, it will also be demonstrated that the independent variable has no influence on the dependent variable. With the hypothesis equation as follows:

H0: $B_n = 0$

Ha: Other than H0

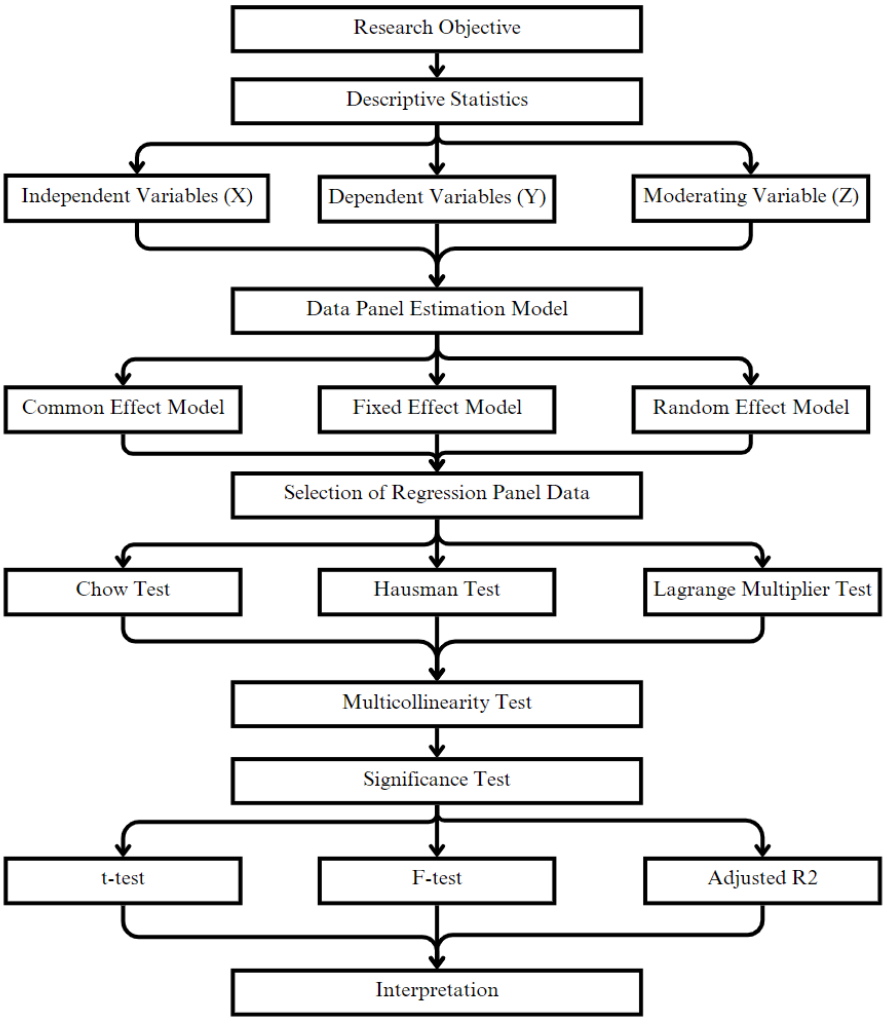


Figure 2. Data Processing Flowchart

CHAPTER 4

FINDINGS, ANALYSIS, AND DISCUSSION

4.1 Finding and Analysis

4.1.1 Descriptive Statistics Analysis

Descriptive statistics involve gathering, presenting, and summarizing data to offer a thorough analysis. The values of the mean, maximum, and standard deviation provide an illustration or explanation of the data. It is displayed in the following table:

Table 2. Descriptive Statistics Analysis from 2010 - 2022

	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
Tobin Q	1.012093	0.974151	1.941381	0.327231	0.365714	104
HHI	0.615376	0.555997	1	0.342914	0.207963	104
MG	9.950414	10.38317	10.8795	7.24085	1.155022	104
GDP	4.694061	5.069786	6.169784	-2.065512	2.058874	104
SIZE	12.45166	12.62158	13.48575	11.13173	0.784636	104

Note:
Tobin Q = Company Performance proxy
HHI = Geographical Diversification proxy
MG = Mortgage Rate proxy
GDP = GDP Growth proxy
SIZE = Company Size proxy

Source: Own Findings by Eviews 13

The data given in Table 2 is analyzed with the help of Eviews Software version 13. The data shows observation of 104 which is a total of 8 Indonesian property companies listed in IDX with the data collection from 2010 – 2022.

The dependent variable, or Tobin's Q, has a mean of 1.012 that indicate on average company is fairly valued by the market and a median of around 0.974 that indicate several companies isn't fairly valued by the market. With a range of 0.327 minimum by Modern Land Realty in 2020 to the maximum of 1.941 by Pakuwon Jati in 2014. A standard deviation of 0.365.

Geographical diversification that represented by HHI in this study has a mean of 0.615 that indicate on average company is more concentrated and median around 0.555 that indicate several companies is more spread than the mean indicates. While the maximum value is 1 that indicate company is fully concentrated and the minimum value is 0.342 by Pudjiadi Prestige in 2018 with standard deviation of 0.207.

Source: Own Findings

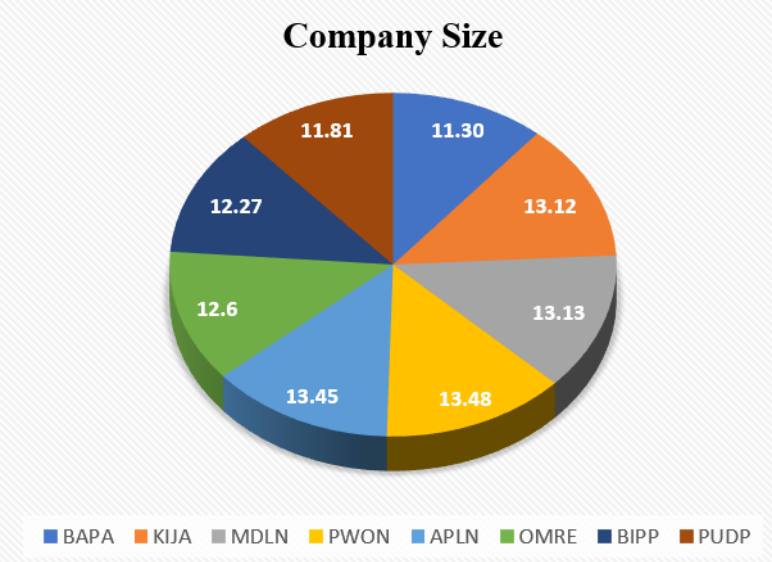
Figure 3. Total Development Project in Indonesia

Given the figure above on the total development project in Indonesia differentiated by the 7 big islands, the data gathered from the number of operations based on geography by each company used as the sample in this study. This shows that development has not been evenly distributed in Indonesia, as can be seen from the total company operations which are still focused on the island of Java, accounting for up to 70%. Followed by Nusa Tenggara Islands, especially in Bali by 10%. Then, 7% each for Sumatra and Sulawesi islands with another small percentage of 3% each distributed for Kalimantan and Maluku islands. The 0% in this figure represented by Papua islands. Proving the fact of Java Centric Development that creating disparities between regional making it unfavourable to operate outside of Java.

Mortgage rate that represented by MG in this study has a mean of 9.945 and median around 10.38. While the maximum value is 11.01 in 2011 and the minimum value is 7.240 during 2022 due to several reason. BI rate in the first half of 2022 is held low on 3.5% which expected to boost credit leading to economy recovery. While the BI rate increased drastically in the end of the rest 2022 up to 5.75% responding to the uncertainty in the global economy due to geopolitical issue and US Inflation. Mortgage rate doesn't affect as according to Assessment of the Transmission of Policy Interest Rates to Basic Banking Credit Interest Rates in May 2022 by Indonesian Central Bank, commercial banks hold their prime lending rate low for a whole year to sustain the credit business. Then the standard deviation of the mortgage rate is 1.160.

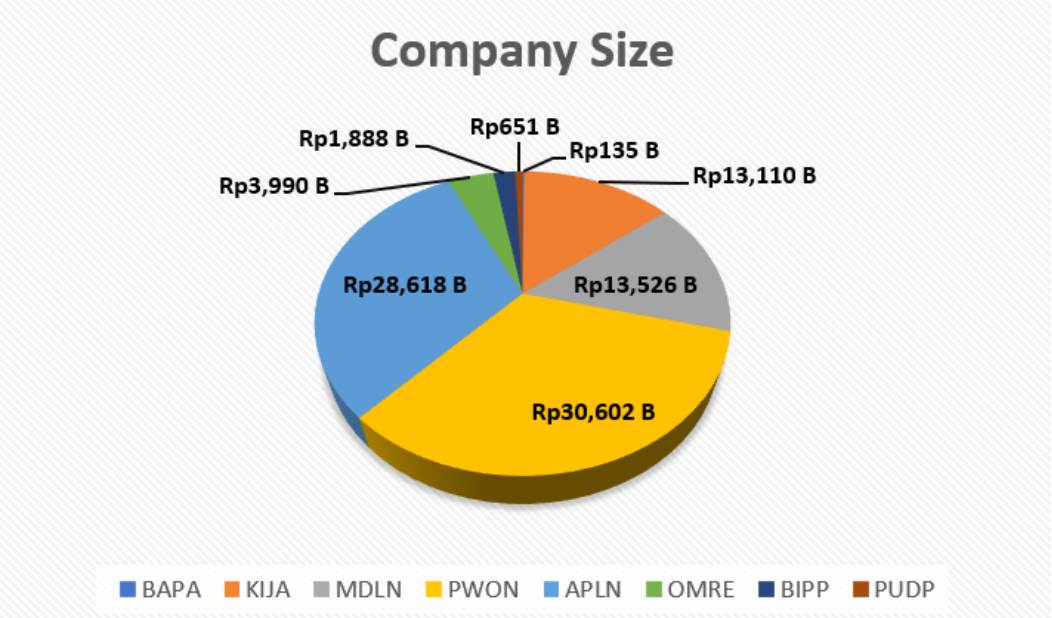
GDP growth that represented by GDP in this study has a mean of 4.694 and median around 5.069, while the maximum value is 6.169 in 2011 and the minimum value is -2.605 where it happened in 2020 during the global pandemic of Covid-19. Indonesian economy was greatly impacted by the pandemic from the lockdown imposed globally that disrupt the flow of goods and services leading to a decline of economic activity. Then, last data of GDP with standard deviation of 2.058.

Firm size that represented by SIZE in this study has a mean of 12.451 and median around 12.621, while the maximum value is 13.48 by Pakuwon Jati in 2022 and the minimum value is 11.13 by Bekasi Asri Pemula in 2010 with standard deviation of 0.784.



Source: Own Findings

Figure 4. Company Size by log10 of Total Assets in 2022



Source: Own Findings

Figure 5. Company Size by Total Assets in 2022

Looking at the Figure 4 and 5 above, it's a pie chart that compare the companies used as sample in this study by its size measured with total assets and log10 of its total assets in 2020. It shows differences in company size, with the 4 largest companies are Pakuwon Jati (PWON), Agung Podomoro Land

(APLN), Modern Land Realty, and Kawasan Industri Jabebeka (KIJA). While the remaining companies are smaller.

Table 3. Correlation Coefficient Matrix

	Tobin Q	HHI	MG	GDP	Size
Tobin Q	1				
HHI	0.074094	1			
MG	0.151529	0.023832	1		
GDP	0.16203	0.152349	0.119864	1	
SIZE	-0.069748	-0.325232	-0.08573	-0.124572	1

Note:
Tobin Q = Company Performance proxy
HHI = Geographical Diversification proxy
MG = Mortgage Rate proxy
GDP = GDP Growth proxy
SIZE = Company Size proxy

Source: Own Findings by Eviews 13

In addition to the mean, maximum, minimum, and standard deviation, the correlation coefficient is another statistic employed in this study as a component of descriptive statistics. The correlation coefficient is utilized to determine the relationship amongst linear variables. Based on Table 3, there is no significant linear relationship among the data.

4.1.2 Selection of Panel Data Regression Model

The Chow Test, Hausman Test, and Lagrange Multiplier Test (LM) are the three tests that can be used to determine which panel data model is best. When comparing the Common Effect Model to the Fixed-Effect Model, the Chow test is used to evaluate which one is preferable. In the meanwhile, the Hausman Test is used to evaluate whether the Random-Effect Model is preferable than the Fixed-Effect Model and the Lagrange Multiplier Test is used to evaluate whether the Common Effect Model is preferable than the Random-Effect Model. The estimation model for this study's displayed in the Table 4.

Table 4. Result of Panel Data Model Selection

Test	Compared Model	Model 1	Model 2	Model 3
Chow	CEM FEM	FEM	FEM	FEM
Hausman	FEM REM	REM	REM	REM
Lagrange Multiplier Test	CEM REM	REM	REM	REM
Note: CEM = Common-Effect Model FEM = Fixed-Effect Model REM = Random-Effect Model *The reason of having 3 models lies within each equations. The 1st equation only limited to independent variables; the 2nd add control variables; the 3rd add moderating variables and remove control variables.				

Source: Own Findings by Eviews 13

Based on Table 4, the preferable model is the Random-Effect Model (REM) as Hausman and Lagrange Multiplier Test resulted with Random-Effect Model is more preferable compared to Common Effect Model (CEM) and Fixed-Effect Model (FEM).

4.1.3 Multicollinearity Test

A classical assumption test should be conducted before applying multiple linear regression to assess the research hypothesis. The classical assumption test is used to assess the relationship between variables. Given that this study uses panel data and that there are more than two independent variables, the multicollinearity test is the proper classical assumption test to run.

A multicollinearity test is conducted to determine the correlation or strong association between variables. Amongst several independent variables in a regression model. Suppose the results of the multicollinearity test indicate that the Variance Inflation Factors (VIF) have a value of less than 10. In that case, it signifies the absence of any multicollinearity issue among the independent

variables in the regression model. However, suppose the results of the multicollinearity test indicate a Variance Inflation Factor (VIF) value of 10 or more. In that case, it indicates the presence of multicollinearity among the independent variables in the regression model. The outcome of the multicollinearity examination in this investigation is presented in Table 5.

Table 5. Multicollinearity Test

Variable	VIF
HHI	1.023795
MG	1.014610
GDP	1.038129

Note:
Tobin Q = Company Performance proxy
HHI = Geographical Diversification proxy
MG = Mortgage Rate proxy
GDP = GDP Growth proxy
SIZE = Company Size proxy

Source: Own Findings by Eviews 13

Based on Table 5, multicollinearity doesn't exist within variable in the regression model. Because the VIF value of each variable doesn't exceed 10 therefore, multicollinearity doesn't exist.

4.1.4 Hypothesis Testing

As Random-Effect Model is the preferable model to used in this study that resulted from the selection of regression model. Generally, the equation of Random-Effect Model in this study is shown as below:

$$Tobin's\ Q_{it} = \alpha + \beta_1 HHI_{1it} + \beta_2 MG_{2it} + \beta_3 GDP_{3it} + \beta_{4(}HHI_1 * SIZE)_{it} + \beta_{5(}MG_2 * SIZE)_{it} + \beta_{6(}GDP_3 * SIZE)_{it} + \beta_7 SIZE_{it} + \varepsilon_{it} + u_{it} \quad (4.1)$$

Where:

Tobin's Q_{it}: Dependent variables

HHI_{it}, MG_{it}, GDP_{it}: Independent variables

$SIZE_{it}$: Moderating effects

α: Constant

β_1, β_2, β_n: Coefficients Regressions

i: $_i$th entity

t: $_t$th entity

εit: error component of the time series unit

uit: error component of each cross-section unit

But to have a more comprehensive understanding of the relationship amongst variables, the author created 3 different model thus resulting in 3 different regression analysis that later will be summarized in Table 9.

4.1.4.1 Regression Model without Control and Moderating Variables

The 1st model computed in Eviews Software version 13 is an equation that only limited to dependent variable which Tobin's Q and independent variables consisting geographical diversification (HHI), mortgage rate (MG), and GDP growth (GDP) that shown in Table 6.

Table 6. Regression Model without Control and Moderating Variables Result

Variables/Model	1
Independent Variable	
HHI	0.085617
	[0.551365]
MG	0.042352
	[2.001232]**
GDP	0.024616
	[2.033007]**
Adjusted R-squared	0.066965
F-statistic	[3.464127]**
Estimation Model	REM
Note: Dependent Variable: Tobin Q t-statistic in parentheses *Level of significance at 10% **Level of significance at 5% ***Level of significance at 1%	

Source: Own Findings by Eviews 13

This regression shows the individual effect of independent variables toward dependent variable providing basic understanding of each independent variables direct effect.

Based on Table 6, the Adjusted R-squared value for model 1 is 0.066965 it means that only 6.7% of Tobin's Q can be explained by HHI, MG, and GDP that means there are another additional factor that is not included in the equation that accounted for the remaining 93.3%

The F value for model 1 is 3.464127 with the Prob significance value (F-statistic) of 0.019119 that means it's significant as it's < 0.1 and independent variables such as HHI, MG, and GDP jointly influences the dependent variable, which is the Tobin's Q.

For the t test or partial test resulting in HHI positive regression coefficient at the 0.085617 with t-statistic value of 0.551365 which is insignificant. MG shows positive regression coefficient at the 0.042352 with

t-statistic value of 2.001232 which is significant. Same with MG variable, GDP shows positive regression coefficient at the 0.024616 with t-statistic value of -2.033007 which is significant.

The result of this testing shows that geographical diversification (HHI), mortgage rate (MG) and GDP growth (GDP) positively influences companies' performance (Tobin's Q). However, HHI is not empirically significant.

4.1.4.2 Regression Model with Control Variables

The 2nd model computed in Eviews Software version 13 is an equation that consisting the 1st model and also add control variables into the equation such as LEVERAGE, ROA, and DIVIDEND that shown in Table 7.

Table 7. Regression Model with Control Variables Result

Variables/Model	2
Independent Variable	
HHI	0.079084
	[0.571437]
MG	0.034039
	[1.733974]*
GDP	0.02111
	[1.877118]*
Control Variables	
LEVERAGE	-0.009334
	[-4.673645]***
ROA	0.004594
	[1.319491]
DIVIDEND	0.155413
	[2.382512]**
Adjusted R-squared	0.212265
F-statistic	[8.272884]***
Estimation Model	REM
Note: Dependent Variable: Tobin Q t-statistic in parentheses *Level of significance at 10% **Level of significance at 5% ***Level of significance at 1%	

Source: Own Findings by Eviews 13

This regression shows the individual effect of independent variables toward dependent variable with control variables that assists in taking into consideration any potential variables or confounding factors that might affect how the independent and dependent variables are related. Control variables help to isolate the influence independent variables of interest, resulting in more accurate estimates.

Based on Table 7, the Adjusted R-squared value for model 2 is 0.212265 it means that 21.22% of Tobin's Q can be explained by HHI, MG, and GDP

that means there are another additional factor that is not included in the equation that accounted for the remaining 78.78%.

The F value for model 2 is 8.272884 with the Prob significance value (F-statistic) of 0 that means it's significant as it's < 0.1 and independent variables such as HHI, MG, and GDP jointly influences the dependent variable, which is the Tobin's Q.

For the t test or partial test resulting in HHI positive regression coefficient at the 0.079084 with t-statistic value of 0.571437 which is insignificant. MG shows positive regression coefficient at the 0.034039 with t-statistic value of 1.733974 which is significant. GDP also shows positive regression coefficient at the 0.02111 with t-statistic value of 1.877118 which is significant. Control variables such as LEVERAGE and DIVIDEND is significant while ROA is insignificant.

The result of this testing shows that geographical diversification (HHI), mortgage rate (MG), and GDP growth (GDP) positively influences companies' performance (Tobin's Q). However, HHI is not empirically significant.

4.1.4.3 Regression Model with Moderating Variables

The 3rd model computed in Eviews Software version 13 is an equation that consisting the 1st model and also add SIZE moderating variable into the equation that shown in Table 8.

This regression shows the individual effect of independent variables toward dependent variable with moderating variable that help to examine if the degree of the moderating variable affects the connection between the independent factors and the dependent variable. It assists in determining if particular conditions or circumstances affect the direction or intensity of the link between the independent and dependent variables.

Table 8. Regression Model with Moderating Variables Result

Variables/Model	3
Independent Variable	
HHI	-3.167758
	[-1.243839]
MG	-0.88404
	[-2.658211]***
GDP	0.024985
	[0.134512]
Moderating Variables	
SIZE	-0.946474
	[-3.025568]***
SIZE_HHI	0.259758
	[1.237622]
SIZE-MG	0.073063
	[2.77341]***
SIZE_GDP	-0.000143
	[-0.009687]
Adjusted R-squared	0.10409
F-statistic	[2.709556]**
Estimation Model	REM
Note: Dependent Variable: Tobin Q t-statistic in parentheses *Level of significance at 10% **Level of significance at 5% ***Level of significance at 1%	

Source: Own Findings by Eviews 13

Based on Table 8, the Adjusted R-squared value for model 3 is 0.10409 it means that 10.4% of Tobin's Q can be explained by HHI, MG, GDP and the moderating effect of SIZE_HHI, SIZE_MG, and SIZE_GDP that means there are another additional factor that is not included in the equation that accounted for the remaining 89.6%

The F value for model 3 is 2.709556 with the Prob significance value (F-statistic) of 0.013155 that means it's significant as it's < 0.1 and independent variables such as HHI, MG, GDP with moderating variables

SIZE_HHI, SIZE_MG, and SIZE_GDP jointly influences the dependent variable, which is the Tobin's Q.

For the t test or partial test resulting in HHI negative regression coefficient at the -3.167758 with t-statistic value of -1.243839 which is insignificant. MG shows negative regression coefficient at the -0.88404 with t-statistic value of -2.658211 which is significant. GDP in the opposite shows positive regression coefficient at the 0.024985 with t-statistic value of 0.134512 which is insignificant. On the other hand, SIZE_HHI resulting in positive regression coefficient at the 0.259758 with t-statistic value of -1.237622 which is insignificant. SIZE_MG resulting in positive coefficient 0.073063 with t-statistic value of 2.77341 which significant. SIZE_GDP resulting in negative coefficient at the -0.000143 with t-statistic value of -0.009687 which is insignificant.

The HHI result of this testing shows that geographical diversification (HHI) is not empirically significant toward companies' performance (Tobin's Q). Therefore, it suggests that company that diversify doesn't mean it'd lead to a greater performance of the property company. Another result from moderating effect on HHI companies' performance (Tobin's Q) also not empirically significant. Therefore, it suggests that larger size company doesn't necessarily benefiting more from diversification compared to smaller company.

The MG result of this testing shows that mortgage rate (MG) is negatively influence companies' performance (Tobin's Q). Therefore, it suggests that the movement of mortgage rate is highly crucial on property companies' performance as a higher mortgage rate is detrimental to property market. While another result from moderating effect on MG shows that it positively influence companies' performance (Tobin's Q). Therefore, it suggests that, larger size company has indicated that they could manage to have a better resilience from the fluctuation of mortgage rate compared to smaller size company.

The GDP result of this testing shows that GDP growth (GDP) is not empirically significant toward companies' performance (Tobin's Q). Therefore, it suggests that growth of GDP doesn't mean it'd lead to a greater performance of the property company. While another result from moderating effect on GDP shows that it doesn't empirically significant toward companies' performance (Tobin's Q). Therefore, it suggests that larger size company has indicated that being a larger company doesn't necessarily benefit more from GDP growth compared to smaller company.

4.1.4.4 Panel Regression Model Summary Result

Table 9 summarize the previous 3 models by comparing results of multiple models, and assess any consistency or stability of variables toward Tobin's Q.

Table 9. Robustness Check

Variables/Model	1	2	3
Independent Variable			
HHI	0.085617	0.079084	-3.167758
	[0.551365]	[0.571437]	[-1.243839]
MG	0.042352	0.034039	-0.88404
	[2.001232]**	[1.733974]*	[-2.658211]***
GDP	0.024616	0.02111	0.024985
	[2.033007]**	[1.877118]*	[0.134512]
Control Variables			
LEVERAGE		-0.009334	
		[-4.673645]***	
ROA		0.004594	
		[1.319491]	
DIVIDEND		0.155413	
		[2.382512]**	
Moderating Variables			
SIZE			-0.946474
			[-3.025568]***
SIZE_HHI			0.259758
			[1.237622]
SIZE-MG			0.073063
			[2.77341]***
SIZE_GDP			-0.000143
			[-0.009687]
Adjusted R-squared	0.066965	0.212265	0.10409
F-statistic	[3.464127]**	[8.272884]***	[2.709556]**
Estimation Model	REM	REM	REM
Note: Dependent Variable: Tobin Q t-statistic in parentheses *Level of significance at 10% **Level of significance at 5% ***Level of significance at 1%			

Source: Own Findings by Eviews 13

Based on Table 9, we can see the consistency of the independent variables toward Tobin's Q. HHI and MG consistently has a positive influence toward Tobin's Q until the 3rd model. While GDP consistently has a positive result toward Tobin's Q during all models. But during 3rd model when moderating variable is being introduced, SIZE_HHI and SIZE_MG are positively influence Tobin's Q while SIZE_GDP is negatively influence Tobin's Q.

In terms of significance, only HHI that is insignificant during all models while GDP is significant during 1st and 2nd model and MG is significant during all model. In the 2nd model, control variables have more

significance toward Tobin's Q. During the 3rd model when moderating variable is being introduced, only MG and SIZE_MG that is significant with the Prob for t-statistic of MG at the 0.0092 and 0.0067. On the other hand, the Prob for t-statistic of HHI and SIZE_HHI around 0.21 and Prob for t-statistic of GDP and SIZE_GDP at the 0.89 and 0.99. It shows that the interaction effect changes the significance of GDP and doesn't change the significance of HHI.

Adjusted R-squared in the other hand, reached its peak during the 2nd model with 21.22% compared to previous results from other models which were low 6.7% from the 1st model and 10.4% from the 3rd model. And same as F-statistic where it scored a higher value during 2nd model with 8.272884 compared to previous results from other models which were low, 3.464127 from the 1st model and 2.709556 from the 3rd model. The Prob of F-statistic also scored a higher significance with 0 during 2nd model, compared to previous results from other models which were lower, 0.019 from the 1st model and 0.013 from the 3rd model. Therefore, by comparing the results from each model, during 3rd model the moderating effect of firm size doesn't show a strong indication that it has successfully moderate all variables' effect toward Tobin's Q.

4.2 Discussion

This study findings found that geographical diversification is insignificant toward company performance that measured with Tobin's Q, an opposite result from similar studies (Rajesh, 2023; Shira, 2023; Judy et al., 2022). It suggests that HHI as firm specific factor doesn't affect the shareholder wealth and isn't a crucial resource-based value as other companies also pursue diversify. Instead, this finding is well explained by the theory of Modern Portfolio Theory (Markowitz, 1952) that explain diversification is pursued to reduce risk instead of influencing performance as diversification has a better influence toward risk reduction. Where this result is supported by Kang at el., (2012) and Kang and Lee. (2015) study findings. The

result suggests the possibility that other firm-specific variables may have a greater impact on firm performance

This study findings found that mortgage rate has negative significant relation toward company performance measured by Tobin's Q. It suggests that MG as industry specific factor negatively affect shareholder wealth and this finding is well explained by the theory of income effect (Graaf, 1950) where any changes from mortgage rates affect the affordability to finance a house which influence consumer spending and confidence therefore affecting the performance of property company. Where this result is supported by Kioko (2012) and Nugroho et al. (2018) study findings.

This study findings found that GDP growth is insignificant toward company performance measured by Tobin's Q, an opposite result from (Cheong et al., 2020; Issah et al., 2018; Dewi et al., 2019; Candradewi et al., 2023). It suggests that GDP growth as macroeconomic factors doesn't affect shareholder wealth and this finding is not in-line with the theory of Keynesian Multiplier Effect (Keynes, 2008) where an increase in GDP affects consumer spending and confidence which in the end benefiting companies; performance from sales. This phenomenon potentially could be explained by Efficient Market Hypothesis (Downey, 2024) as EMH suggest price of stock reflect all the information within the market not excluded to GDP growth. Therefore, Tobin's Q that also determined by the price of stock won't change significantly in response GDP growth news as the price already adjusted to the new information. Where this study also shared the similar finding from previous studies (Cheong et al., 2020; Wahid et al., 2019).

This study findings found that the moderating effect of firm size on geographical diversification toward company performance measured by Tobin's Q is insignificant. It suggests that it doesn't affect shareholder wealth and this finding is not in-line with the theory of RBV (Penrose, 1959) where bigger firm with extensive resources can expand further to serve demand. Instead, as explained by Modern Portfolio Theory (Markowitz, 1952) previously above that geographical diversification is pursued to reduce risk instead of boosting performance. Therefore,

in this phenomenon regardless of size, company couldn't benefit from geographical diversification.

This study findings found that the moderating effect of firm size on mortgage rate toward company performance measured by Tobin's Q is significant positively. It suggests that it affect shareholder wealth positively and this finding is in-line with the theory of RBV (Penrose, 1959) where bigger firm with greater financial capabilities thrive better during harsh times due to changes of mortgage rate.

This study findings that the moderating effect of firm size on GDP growth toward company performance measured by Tobin's Q is insignificant. It suggests that it doesn't affect shareholder wealth and this finding is not in-line with the theory of RBV where bigger firm with extensive resources can serve demand better due to its supply. Instead, as explained by the Efficient Market Hypothesis (Downey, 2024) previously above that price of stock reflect all the information within the market not excluded to GDP growth. Therefore, regardless of size company couldn't benefit from GDP growth.

The study concludes that geographical diversification and GDP growth have no empirically significant effects on the performance of businesses, demonstrating that geographical diversification is pursued to reduce risk and the effect of Efficient Market Hypothesis (EMH). The insignificance of the moderating effects of business size on GDP growth and HHI indicates that larger enterprises benefit less from these factors. As evidenced by the income effect theory, on the other hand, performance is strongly influenced by the mortgage rate (MG) and is greatly moderated by business size. Although hypotheses two and five are accepted, hypotheses one, three, four, and six are rejected.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

This study initiated due to research gap of the previous studies that doesn't put many attentions in Indonesia setting and property market with firm size often used as control variable instead of mediating variables. Therefore, this study focuses on geographical diversification, mortgage rate, and GDP growth effect toward Indonesian property companies' performance that measured by Tobin's Q with firm size as the mediator. As geographic diversification provides opportunities for growth and better management of risk. Mortgage rates affect property demand and revenues because they are influenced by inflation and central bank policy. The demand for real estate could be driven by economic growth, which benefits businesses by boosting sales and profitability. In contrast to smaller businesses, larger corporations exhibit more resilience and market domination, utilizing resources to manage economic volatility and profit from market trends.

This study found that geographical diversification (HHI) is empirically insignificant toward companies' performance (Tobin's Q) due to the lack value added perceived by the market/investors and the uneven development project in Indonesia. Meanwhile, mortgage rate (MG) is negatively influenced companies' performance (Tobin's Q) with an excellent significance showcasing the movement of mortgage rate is crucial toward property market. GDP growth (GDP) also found to be empirically insignificant toward companies' performance (Tobin's Q) due to the increase of GDP could be explained by the efficient market hypothesis, where GDP changes already reflected in stock return to measure Tobin's Q therefore there's no significant changes. On the other hand, the moderating effect on geographical diversification (SIZE_HHI) and GDP growth (SIZE_GDP) also found out to be empirically insignificant that shows company size doesn't have a correlation to help moderate the effect of the variable toward the companies' performance (Tobin's Q). In the opposite, the moderating effect on mortgage rate (SIZE_MG) appeared to be positively significant toward companies' performance

(Tobin's Q), supporting the argument that larger companies have a better market resilience when mortgage rates soar.

5.2 Limitations

Limitations of this study lies in the variable of geographical diversification. As the data is unique and only can be found in the company annual report revenue note with many companies undisclosed the data, resulting in a small number of companies used as the sample in this research.

5.3 Theoretical Implications

The following theoretical implications for certain theorems for particular populations and settings may be applied based on the study's findings.

1. This study considers the generally accepted view that geographical diversification promotes company performance. The advantages of diversification may be more closely associated with risk mitigation than with actual performance improvement in this study context. This supports the Modern Portfolio Theory by emphasizing risk management is important to diversification plans.
2. The negative correlation between mortgage rates and business performance shows the property companies' sensitivity to fluctuations in financing costs. This is consistent with the income effect theory, which shows how mortgage rates affect price leading to consumer confidence and spending, which in turn affects business performance. The result in this study shows the significance of industry-specific variables in determining company performance.
3. This study considers the generally accepted view that GDP growth promotes company performance. It implies that the link between GDP growth and company performance may be mediated by other variables. Although GDP growth is expected to have a beneficial effect on business performance according to the Keynesian Multiplier Effect, the outcome suggests that Efficient Market Hypothesis has a better explanation toward the insignificant result. This implies that expectations for GDP growth may have been priced

in by the market. This research suggests that macroeconomic variables may not have as much of an impact on a company's success as previously thought and expands the use of EMH in the Indonesian property market.

4. The lack of a significant moderating impact indicates that the advantages of geographical diversity do not differ considerably with company size. This calls into question the Resource-Based View's claim that bigger businesses are better equipped to take advantage of diversification possibilities. Rather, the outcome implies how crucial risk management is to diversification plans, regardless of the size of the company.
5. Larger businesses are more resilient to the negative impacts of rising mortgage rates, as seen by the strong positive moderating effect. This is consistent with the Resource-Based View's claim that company size offers benefits for overcoming challenges specific to a given industry. It implies how crucial resilience and strength of finances are to sustain company performance during poor market conditions.
6. The lack of a significant moderating effect implies that business size does not magnify the influence of GDP growth on performance. This question the Resource-Based View's claim that larger businesses have a greater ability to benefit from macroeconomic growth. Instead, the outcome can be explained by the Efficient Market Hypothesis, which states that market prices already include GDP growth forecasts, hence company size has no extra explanatory power. This implies the need to reconsider how macroeconomic variables and firm-specific variables interact to influence company performance.

5.4 Practical Implications

5.4.1 For Companies

The result from this study could suggest that companies should be aware of any changes in mortgage rates as it is significantly influenced the property market. Financial planning on financing and marketing strategy should be apply as their strategic decision to respond to the changes of mortgage rate that influence the affordability for housing. Geographical diversification in the other hand may be

pursued to reduce risk instead of boosting performance as diversify helps to protect from the regional market risk and economic downturns.

5.4.2 For Investors

As mortgage rate is the significant result in this study, therefore investors should pay more attention toward the property company strategic decision on financing and marketing strategy when it comes to mortgage rate fluctuation. Due to its significant relation toward company performance, company that could effectively manage the issue are likely to perform better. In the other hand, investors also need to pay attention toward company that diversified as it's more likely to sustain better due to its protection toward regional market risk.

5.4.3 For Government

Government and the related authorities should pay more attention on their policies that may influence the mortgage rate as it's one of the crucial factors in the property sector such as controlling inflation, currency exchange rates, economic growth, etc. In the other hand, with the fact that most of the development project in Indonesia is heavily being done in Java Island, government should encourage a balanced growth within Indonesia. Investing in infrastructure development in other islands or giving other benefits to company may encourage company to diversify thus improving connectivity, attract investment, and closing the disparities gap between islands in Indonesia.

5.5 Recommendation

The upcoming researcher can adapt geographical diversification variable toward other industry or country to generalizability the findings or instead focusing on how it could reduce company risk. Future researcher can also explore additional variables of diversification, firm-specific, industry-specific, and macroeconomic factors that may influence the context under this study investigation.

REFERENCES

Websites

Alex. (2023, April 26). The World's Most Populated Islands. Vivid Maps. Retrieved March 15, 2024, 7PM, from https://vividmaps.com/most-populated-islands/

Anjani, A. O. (2023, January 9). Bunga KPR Menurun di Tengah Tren Kenaikan Suku Bunga. Kompas.id. Retrieved March 15, 2024, 7.15PM, from https://www.kompas.id/baca/ekonomi/2023/01/09/bi-rate-meningkat-suku-bunga-kpr-justru-menurun

Bank Indonesia. (n.d.). Survei Perbankan Triwulan III 2023. Www.bi.go.id. Retrieved March 16, 2024, 7PM, from https://www.bi.go.id/id/publikasi/laporan/Pages/Survei-Perbankan-TwIII_2023.aspx

Bank Indonesia. (2022, May). Asesmen Transmisi Suku Bunga Kebijakan Kepada Suku Bunga Dasar Kredit Perbankan. Www.bi.go.id. Retrieved March 15, 2024, 8.27PM, from https://www.bi.go.id/id/publikasi/ruang-media/newsrelease/Documents/Lampiran_3_Asesmen_Transparansi_SBDK_RDG_Mei_2022.pdf

Bank Indonesia. (2022, January 20). BI 7-Day Reverse Repo Rate Tetap 3,50%: Arah Baunan Kebijakan Bank Indonesia Tahun 2022 Untuk Menjaga Stabilitas Dan Memperkuat Pemulihan Ekonomi Nasional. *Siaran Pers*. Www.bi.go.id. Retrieved March 16, 2024, 8.29PM, from https://www.bi.go.id/id/publikasi/ruang-media/newsrelease/Pages/sp_241522.aspx

Bank Indonesia. (2023a, November 16). Survei Harga properti Residensial di Pasar Primer - Triwulan III 2023. Www.bi.go.id. Retrieved March 15, 2024, from 7.47PM, https://www.bi.go.id/id/publikasi/laporan/Pages/SHPR_Tw_III_2023.aspx

Bank Indonesia. (2023b, December 21). BI-Rate Held at 6.00%: Synergy Maintaining Stability and Reviving Growth. Www.bi.go.id. Retrieved March 15, 2024, 7.59PM, from https://www.bi.go.id/en/publikasi/ruang-media/newsrelease/Pages/sp_263324.aspx

Bank Indonesia. (2024a, January 23). Survei Perbankan Triwulan IV 2023: Penyaluran Kredit Baru Terindikasi Meningkat. Www.bi.go.id. Retrieved March 16, 2024, 9.24PM, from https://www.bi.go.id/id/publikasi/laporan/Pages/Survei-Perbankan-TwIII_2023.aspx

Bank Indonesia. (2024b, February 5). Pertumbuhan Ekonomi Indonesia Triwulan IV 2023 Meningkat. Www.bi.go.id. Retrieved March 16, 2024, 9.45PM, from https://www.bi.go.id/id/publikasi/ruang media/newsrelease/Pages/sp_262324.aspx

Bank Indonesia. (2024c, February 19). Survei Harga Properti Residensial di Pasar Primer - Triwulan IV 2023. Www.bi.go.id. Retrieved March 16, 2024, 10PM, from https://www.bi.go.id/id/publikasi/laporan/Pages/SHPR__Tw_IV_2023.aspx

Downey, L. (2024). Efficient Market Hypothesis (EMH): Definition and Critique. Investopedia. Retrieved May 23, 2024, 9.25 PM, from https://www.investopedia.com/terms/e/efficientmarkethypothesis.asp

Fernando, J. (2024, February 29). *Gross domestic product (GDP): Formula and How to Use it*. Investopedia. Retrieved March 18, 2024, 7.18PM, from https://www.investopedia.com/terms/g/gdp.asp

Jefriando, M. (2023, September 21). *Dipimpin Aguan, Ini 10 Perusahaan yang Investasi di IKN*. CNBC Indonesia. Retrieved March 17, 2024, 9.21PM, from https://www.cnbcindonesia.com/market/20230921203846-17-474582/dipimpin-aguan-ini-10-perusahaan-yang-investasi-di-ikn

Kagan, J. (2023, July 23). What Is a Mortgage Rate? Investopedia. Retrieved March 16, 2024, from https://www.investopedia.com/terms/m/mortgage-rate.asp

Maverick, J. B. (2019). The Most Important Factors that Affect Mortgage Rates. Investopedia. Retrieved March 16, 2024, 7.13PM, from https://www.investopedia.com/mortgage/mortgage-rates/factors-affect-mortgage-rates/

Mordor Intelligence. (n.d.*). Infrastructure Sector in Indonesia | 2021 - 26 | Industry Share, Size, Growth - Mordor Intelligence*. Www.mordorintelligence.com. Retrieved March 18, 2024, 8.29PM, from https://www.mordorintelligence.com/industry-reports/infrastructure-sector-in-indonesia

Pambudi, R. L. (2024, April 27). *Dinaikkan BI Jadi 6,25%, Apa itu Suku Bunga Acuan?* Detikjogja. Retrieved March 16, 2024, 9.27PM, from https://www.detik.com/jogja/bisnis/d-7313670/dinaikkan-bi-jadi-6-25-apa-itu-suku-bunga-

Picardo, E. (2021). *The GDP and its Importance*. Investopedia. Retrieved March 18, 2024, 10.12PM, from https://www.investopedia.com/articles/investing/121213/gdp-and-its-importance.asp

Prabowo, K. W. (2023, August 9). *Jokowi Sebut Sektor Properti Salah Satu Penyumbang PDB Terbesar Indonesia*. Www.metrotvnews.com. Retrieved March 15, 2024, 9.38PM, from https://www.metrotvnews.com/read/bVDCOz8g-jokowi-sebut-sektor-properti-salah-satu-penyumbang-pdb-terbesar-indonesia

Putri, C. A. (2022, December 26). *Dunia Putar Arah! Suku Bunga Acuan BI Loncat Jadi 5,5%.* CNBC Indonesia. Retrieved March 17, 2024, 9.57PM, from https://www.cnbcindonesia.com/market/20221226071747-17-399979/dunia-putar-arah-suku-bunga-acuan-bi-loncat-jadi-55

Rizaty, M. A. (2024, March 4). *Data Jumlah Penduduk Indonesia Berdasarkan Usia pada 2023 - Dataindonesia.id*. Dataindonesia.id. Retrieved March 15, 2024, 10.24PM, from https://dataindonesia.id/varia/detail/data-jumlah-penduduk-indonesia-berdasarkan-usia-pada-2023

Santika, E. F. (2024, April 24). *Perkuat Rupiah, BI Naikkan Suku Bunga Acuan Jadi 6,25% per April 2024 | Databoks*. Databoks.katadata.co.id. Retrieved March 17, 2024, 9.58PM, from https://databoks.katadata.co.id/datapublish/2024/04/24/perkuat-rupiah-bi-naikkan-suku-bunga-acuan-jadi-625-per-april-2024

Tani, S. (2021, February 5). *Indonesia Economy Shrinks in 2020 for First Time in Two Decades*. Nikkei Asia. Retrieved March 19, 2024, 8.56PM, from https://asia.nikkei.com/Economy/Indonesia-economy-shrinks-in-2020-for-first-time-in-two-decades

Toriano, G. K. (2024, April 2). *Emerging stronger: Indonesia's Residential Market Soars Amid Global Economic Flux*. Asia Property Awards. Retrieved March 17, 2024, 7.49PM, from https://www.asiapropertyawards.com/en/emerging-stronger-indonesias-residential-market-soars-amid-global-economic-flux/

Valenta, E. (2024, February 23). *Indonesia Residential Market to See Solid Demand in 2024 Despite Delay to Interest Rate Cuts: Analysts*. The Business Times. Retrieved March 20, 2024, 11.27PM, from https://www.businesstimes.com.sg/international/asean/indonesia-residential-market-to-see-solid-demand-in-2024-despite-delay-to-interest-rate-cuts-analysts

Walfajri, M., & Caturini, R. (2021, December 8). *Tren Bunga KPR di 2022 Ikuti Tren Bunga Acuan*. PT. Kontan Grahanusa Mediatama. Retrieved March 17, 2024, from https://insight.kontan.co.id/news/tren-bunga-kpr-di-2022-ikuti-tren-bunga-acuan

World Bank. (n.d.). *World Bank Open Data*. World Bank Open Data. Retrieved March 15, 2024, 11.19PM, from https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2022&locations=ID&start=1967

Journal

Ajao, M. G., & Kokumo-Oyakhire, G. A. (2021). Corporate Diversification and

Financial Performance of Conglomerate Firms in Nigeria. *Journal of Business Studies and Management Review*, *5*(1), 91–101. https://doi.org/10.22437/jbsmr.v5i1.16665

Akinlo, O., & Asaolu, T. (2012). *Profitability and Leverage: Evidence from Nigerian Firms*. Papers.ssrn.com. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1945956

Alper, A. (2018). The Relationship of Economic Growth with Consumption, Investment, Unemployment Rates, Saving Rates and Portfolio Investments in The Developing Countries. *Gaziantep University Journal of Social Sciences*, *17*(3), 980–987. https://doi.org/10.21547/jss.342917

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, *17*(1), 99–120. https://doi.org/10.1177/014920639101700108

Barney, J., & Hesterly, W. (2019). Strategic Management and Competitive Advantage Concepts and Cases Fifth Edition Global Edition. Harlow: Pearson Education Limited https://students.aiu.edu/submissions/profiles/resources/onlineBook/j4N9K5_Strategic%20Management%20and%20Competitive%20Advantage%20Concepts%20and%20Cases%20-%20William%20Hesterly.pdf

Candradewi, M. R., & Rahyuda, H. (2023). The Effect of Macroeconomic Indicators on Profitability and Firm Value. *Ekuitas: Jurnal Pendidikan Ekonomi*, *11*(2), 171–184. https://doi.org/10.23887/ekuitas.v11i2.68672

Cheong, C., & Hoang, H. V. (2021). Macroeconomic Factors or Firm-Specific Factors? An Examination of The Impact on Corporate Profitability Before, During, and After the Global Financial Crisis. *Cogent Economics & Finance*, *9*(1), 1959703. https://doi.org/10.1080/23322039.2021.1959703

Dang, C., Frank) Li, Z., & Yang, C. (2018). Measuring Firm Size in Empirical Corporate Finance. *Journal of Banking & Finance*, *86*(C), 159–176. https://ideas.repec.org/a/eee/jbfina/v86y2018icp159-176.html

Daromes, F. E., Jao, R., Lukman, L., & Wiasal, R. (2022). An Investigation of How Firm Size Affects Firm Value through Corporate Reputation. *AKRUAL: Jurnal Akuntansi*, *13*(2), 187–200. https://doi.org/10.26740/jaj.v13n2.p187-

200

Dewi, V. I., Tan Lian Soei, Catharina, & Surjoko, Felisca Oriana. (2019). The Impact of Macroeconomic Factors on Firms Profitability (Evidence from Fast Moving Consumer Good Firms Listed on Indonesian Stock Exchange). *Unpar.ac.id*, *23*(1), 1–6. https://doi.org/1096-3685

Doğan, M. (2013). *Does Firm Size Affect the Firm Profitability? Evidence from Turkey*. *Research Journal of Finance and Accounting 4(4):53-59.* https://core.ac.uk/download/pdf/234629457.pdf

Ghozali, I. (2013). Aplikasi Analisis Multivariate dengan Program IBM SPSS 21 Update PLS Regresi. Badan Penerbit Universitas Diponegoro.

Graaf, J. de V. (1950). Income Effects and the Theory of the Firm. *The Review of Economic Studies*, *18*(2), 79–86. https://ideas.repec.org/a/oup/restud/v18y1950i2p79-86..html

Issah, M., & Antwi, S. (2017). Role of Macroeconomic Variables on Firms' Performance: Evidence From the UK. *Cogent Economics & Finance*, *5*(1), 1405581–1405581. https://ideas.repec.org/a/taf/oaefxx/v5y2017i1p1405581.html

Jammeh, I. Y. (2022). The Effects of Annual GDP growth on Consumption Spending: Evidence from West African Countries. *Indonesian Journal of Economics, Social, and Humanities*, *4*(3), 167–181. https://doi.org/10.31258/ijesh.4.3.167-181

Ji, H., & Yan, J. (2020). How Team Structure Can Enhance Performance: Team Longevity's Moderating Effect and Team Coordination's Mediating Effect. *Frontiers in Psychology*, *11*(1). Frontiersin. https://doi.org/10.3389/fpsyg.2020.01873

Judy, O. B., Mulwa, J. M., & Manduku, G. O. (2022, October 11). *Vol 4 No 1 (2022): African Development Finance Journal | African Development Finance Journal*. Uonjournals.uonbi.ac.ke. https://uonjournals.uonbi.ac.ke/ojs/index.php/adfj/issue/view/150

Kang, K.H., Lee, S., 2015. The Effects of Diversification Strategies on US Restaurant Firms' Performance. Tourism Econ. 21 (4), 807–831.

Kang, K. H., & Lee, S. (2014). The Moderating Role of Brand Diversification on The Relationship Between Geographic Diversification and Firm Performance in The US Lodging Industry. *International Journal of Hospitality Management*, *38*, 106–117. https://doi.org/10.1016/j.ijhm.2013.01.001

Keynes, J. M. (2008). The General Theory of Employment, Interest, and Money. New Delhi: Atlantic Publisher & Distributors

Kioko, N. (2014). The Effect on Mortgage Financing on Performance on Real Estate Market in Kenya [Master Thesis, University of Nairobi]. University of Nairobi Digital Repository. http://erepository.uonbi.ac.ke/bitstream/handle/11295/75111/Ndinda_The%20Effect%20of%20Mortgage%20Financing%20on%20Performance%20of%20Real%20Estate%20Market%20in%20Kenya.pdf?sequence=2

Lee, S., Xiao, Q., & Kang, K. H. (2011). An Examination of US Hotel Segment Strategy: Diversified, Concentrated or Balanced? *Tourism Economics*, *17*(6), 1257–1274. https://doi.org/10.5367/te.2011.0086

Malovaná, S., Hodula, M., & Frait, J. (2021). What Does Really Drive Consumer Confidence? *Social Indicators Research*, *155*(3), 885–913. https://doi.org/10.1007/s11205-021-02626-6

Markowitz, H. (1952). Portfolio Selection. *The Journal of Finance*, *7*(1). https://doi.org/10.2307/2975974

Montgomery, C. A. (1994). Corporate Diversification. *Journal of Economic Perspectives*, *8*(3), 163–178. https://doi.org/10.1257/jep.8.3.163

Nugroho, A. A., Purnama, M. Y. I., & Fauzia, L. R. (2018). Monetary Policy and the Housing Market in Indonesia: Evidence from Selected Regions. *Jurnal Keuangan Dan Perbankan*, *22*(4). https://doi.org/10.26905/jkdp.v22i4.2515

Olaleye, A. (2008). Property Market Nature and The Choice of Property Portfolio Diversification Strategies: The Nigeria experience. *International Journal of Strategic Property Management*, *12*(1), 35–51. https://doi.org/10.3846/1648-715x.2008.12.35-51

Pfarrer, M. D. (2010). What Is The Purpose of The Firm? : Shareholder and Stakeholder Theories. *Good Business: Exercising Effective and Ethical Leadership*. New York: Routledge, ISBN 978-0-415-87997-2. - 2010, p. 86-93,z https://www.econbiz.de/Record/what-is-the-purpose-of-the-firm-shareholder-and-stakeholder-theories-pfarrer-michael/10003981196

Prasetyantoko, A., & Parmono, R. (2012). Does Firm Size Matter? An Empirical Study of Firm Performance in Indonesia. *International Research Journal of Business Studies*, *2*(2). https://doi.org/10.21632/irjbs.2.2.331

Rajesh, R. (2023). Corporate Diversification and Firm's Financial Performance: An Empirical Evidence from Indian IT Sector. *International Journal of Business and Globalisation*, *34*(1), 1–16. https://ideas.repec.org/a/ids/ijbglo/v34y2023i1p1-16.html

Shira, R. K. (2023). Connection Between Corporate Diversification, CSR and Firm Performance in South Asia. Journal of Economic and Administrative Sciences; Advance online publication. https://doi.org/10.1108/JEAS-07-2022-0164

Song, S., Park, S., & Lee, S. (2017). Impacts of Geographic Diversification on Restaurant Firms' Risk: Domestic vs. International Diversification. *International Journal of Hospitality Management*, *61*, 107–118. https://doi.org/10.1016/j.ijhm.2016.11.011

Tobin, J. (1969). A General Equilibrium Approach to Monetary Theory. *Journal of Money, Credit and Banking*, *1*(1), 15–29. https://doi.org/10.2307/1991374

Wahid, N. N., Ahmad, F. W., & Azhan Bin Abdul Aziz, M. A. (2018). The Determinants of Firm Profitability and Risk on Real Estate Industry. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3300487

WHITED, T. M. (1992). Debt, Liquidity Constraints, and Corporate Investment: Evidence from Panel Data. *The Journal of Finance*, *47*(4), 1425–1460. https://doi.org/10.1111/j.1540-6261.1992.tb04664.x

Yang, Y., Cao, Y., & Yang, L.-T. (Grace). (2017). Product Diversification and Property Performance in The Urban Lodging Market: The Relationship and Its Moderators. *Tourism Management*, *59*(C), 363–375.

https://ideas.repec.org/a/eee/touman/v59y2017icp363-375.html

Yu, C.-M., & Chen, P.-F. (2018). House Prices, Mortgage Rate, and Policy: Megadata Analysis in Taipei. *Sustainability*, *10*(4), 926. https://doi.org/10.3390/su10040926