ANALYZING THE PERFORMANCE AND RISK DIVERSIFICATION BENEFITS BETWEEN REAL ESTATE INVESTMENT TRUSTS AND PUBLIC LISTED PROPERTY COMPANIES IN MALAYSIA

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DECLARATION

We hereby declare that:

(1) This undergraduate FYP is the end result of our own work and that due acknowledgement has been given in the reference to ALL sources of information be they printed, electronic, or personal.

(2) No portion of this FYP has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.

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

(4) The word count of this research report is 11144.

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Dedication

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M-REITs	Malaysia's Real Estate Investment Trusts
M-PPLCs	Malaysia's Public Listed Property Companies
US	United Stated
RM	REIT Manager
SCM	Securities Commission Malaysia
SC	Securities Commision
AHP REIT	Amanah Harta Tanah PNB
AHP	Amanah Harta Tanah PNB
Alaqar REIT	Al-'Aqar Healthcare REIT
Amfirst REIT	Amfirst Real Estate Investment Trust
Amanah REIT	AmanahRaya Real Estate Investment Trust
Atrium REIT	Atrium Real Estate Investment Trust
Axis REIT	Axis Real Estate Investment Trust
CMMT REIT	CapitaLand Malaysia Mall Trust
HEKTAR REIT	Hektar Real Estate Investment Trust
MQREIT	MRCB-Quill REIT
PAV REIT	Pavilion Real Estate Investment Trust
Bhd.	Berhad
LTD.	Limited

LPT	Listed Property Trust
SR	Sharpe Ratio
TR	Treynor Ratio
αi	Jensen's Alpha
Rd	Diversifiability Measure
β	Beta (Market Risk)
MIDA	Malaysian Investment Development Authority
AFC	ASIAN financial crisis

PREFACE

This research project is considered as a fulfilment of the requirement of course of Bachelor of International Business under Faculty of Accountancy and Management in Universiti Tunku Abdul Rahman.

The emerging waves of people in Malaysia to start their investment in REITs and PPLCs are increasing nowadays. The reasons have also been acknowledged by researcher. In the business world, people are tried to focus on whatever methods that are able to provide a benefits and low risk to them. Thus, the information has been extracted and adapted from literature review in order to test against the performance and risk diversification benefits between Real Estate Investment Trusts and Public Listed Property Companies in Malaysia.

Relevant research method and processes have been used and conducted as well. In order to increase the accuracy and reliability, Secondary data collection method has been used to collect data. Besides, relevant data analysis tool also has been used to analyse data. Hopefully, the research contribute to the insight of invest as well as add information to them.

ABSTRACT

The purpose of conducting this research project is to analyse the performance and risk diversification benefits between Real Estate Investment Trusts (REITs) and Public Listed Property Companies (PPLCs) in Malaysia. To acquire the objective of this research project, research questions and five hypotheses are developed as well as tested. Besides, each hypothesis is measure accordingly and results are explained in detail. Furthermore, literature review are included in this research project in order to provide a clearer understanding towards the performance and risk diversification benefits between Real Estate Investment Trusts (REITs) and Public Listed Property Companies (PPLCs) and justification towards the research questions and research problems. Secondary data were collected through Bloomberg financial software. By using the calculation and analytic tools, the result are compute into a table and discussed as well. Last but not least, the implication has been discussed to provide insight and useful information for investors. Besides, the limitation faced in this research will be noted and recommendations will establish to assist future researcher in handling those limitations.

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

In this chapter, it will provide overall description of this research. This research is focus on the performance and risk diversification benefits of Malaysia's Real Estate Investment Trusts and Malaysia's Public Listed Property Companies. This research collect secondary data like weekly share price and used to conduct several financial analytic tools like Beta value, risk diversification benefits, Sharpe Ratio, Treynor Ratio and Jensen' Alpha Measure in order to determine the risk diversification benefits and performance of Malaysia's Real Estate Investment Trusts and Malaysia's Public Listed Property Companies. This chapter includes research background, research problem, research objective, research question and also research significant.

1.1 Research Background

1.1.1 Overview of REITs

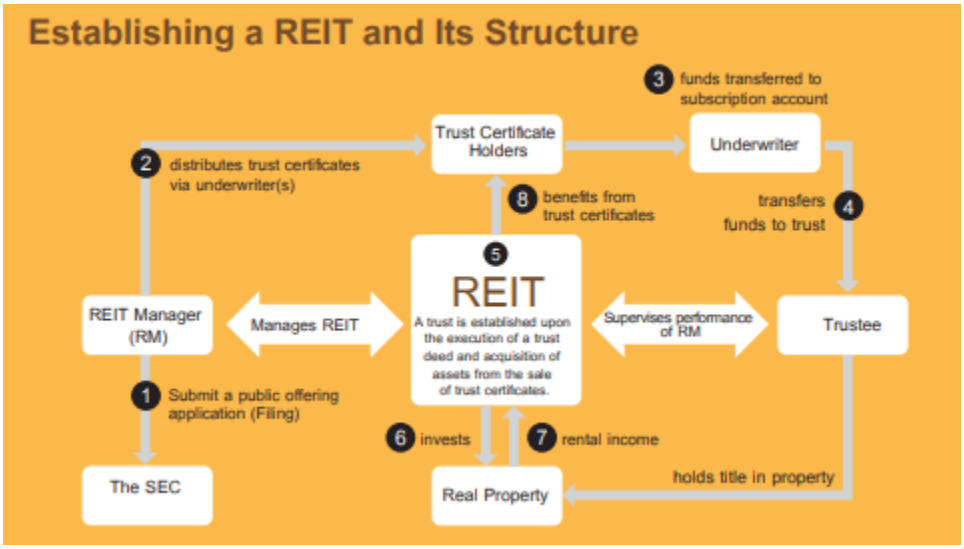
Real estate investment trusts (REITs) were first established in United Stated (US) in 1960s. President Dwight D Eisenhower signed into law the Act about REIT (Legal Herald, 2018). REITs are one type of investment vehicle that offer exposure to the real estate (LAZARD ASSET MANAGEMENT, 2016). REITs are corporate entities

that operate, manage, develop, own or finance real estate. As a REITs, a company able to avoid taxation in the corporate level in exchange by passing 90% or more of its tax income to the shareholders. REITs are a reliable and significant income for investor. Besides, REITs has categories into 3 types which are hybrid REIT, equity REITs and Mortgage REITs. For mortgage REITs is lending to owners or acquire real estate related debt or mortgage-backed securities. For equity REITs is making up of approximately 90% of REITs which is generally own or operate the real estate. For hybrid REIT is the companies normally will apply the investment strategies of both Mortgage REIT and equity REITs.

Originally of REITs is like mutual fund. It is designed as a passive investment vehicle. After reforms of REITs allow it to manage and operate their portfolio (ULI, 2016). REITs are one type of "trust" where a trustee is determining its ownership on behalf of its property or beneficiary. REITs' manager (RM) is a trust settlor who offer trust unit to the public. REITs' Manager will entrust the fund with REITs designated trustee to establish a REIT after REITs' Manager receive capital from the sale of the trust unit. Hence, the trust will assign REITs' Manager to manage the REITs. Trustees are supervising the performances of REITs' Manager and administrate the REITs in the great interest of beneficiary (The Stock Exchange of Thailand, 2015).

The benefit of REITs is the owner of the property able to raise capital from the real property that already generating revenue and use it to invest a new projects. Besides, REITs also provides benefit such like smaller investment that required better confidence in management and offer many ways to invest in real property to investors. REITs are one kind of Investment Company that own asset related to real estate like land, building and real estate securities (Securities and Exchange Commission, 2015).

Figure 1.1: Structure of REITs



Adapted from: Securities and Exchange Commission Malaysia (2019)

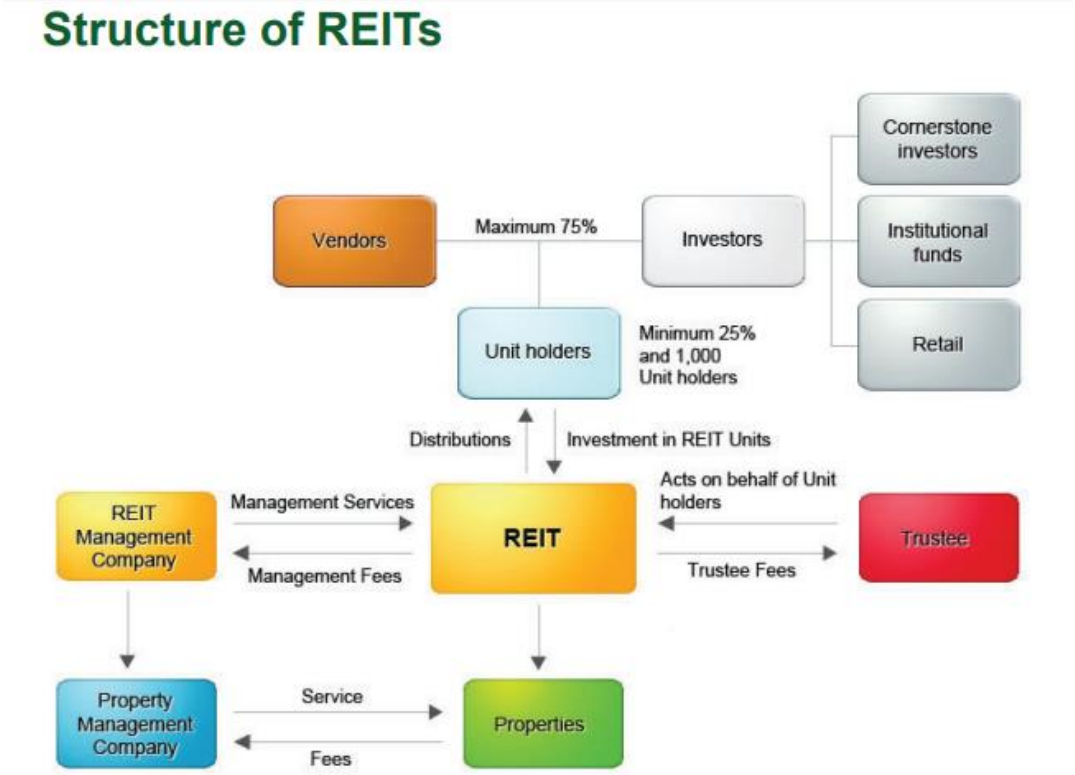
Diagram 1.1 shown the structure and the procedure to establish a REIT. The purpose of REITs is generating income for unit holder. REITs are less requires management fees and operating expenses. REITs assets are professionally managed and rentals are collected. It will distribute quarterly as dividend to unit holder (Suet Fun, 2010). REITs allow investor to own a share without the brick and mortar. Hence, it is better decision for retail investor with limited funds to own a portion of chunky assets (Lion Global Investors Ltd, 2017). For individual investors who own a large portfolio able to access real property asset and share benefit and risk. REIT's equity can be trade publicly like shares and have a regular payout such like bond. The different of REITs unit holder collectively own the underlying asset and it is not the debts or Property Company.

1.1.1.1 REITs of Malaysia

According to Legal Herald (2018), the history of REIT can be traced back to 2 decades ago. REIT was started in 1989 at Malaysia. REITs were call as "property trust" at the time and listing in Amanah Harta Tanah PNB 2. Property trusts were followed by the Arab Malaysian First Property Trust (AMFPT). Property trusts were continuing carry until today. But in 2005, Property trust were rebranding to "REITs". Malaysia's Securities Commission Malaysia (SCM) has introduce a guideline that provide a legal and regulation framework for better and easy monitoring the newly REITs.

Compare with Asian countries, the earliest country that public list property trust was Malaysia (Newell, Ting and Acheampong, 2002). Malaysia had become the world's first developer of Islamic Real Estate Investment Trust in August 2006. Even REITs had been proved that as a successful and popular investment vehicle in countries such like United Stated and Australia but Malaysia still do not truly involve itself into it. Based on Ong (2011), investors perceive Malaysia REITs as unfavorably. There are lacks of awareness of REITs among Malaysia's citizen demand. Although Malaysia are the first country that public property trust but the market capitalization of Malaysia Real Estate were behind many countries.

Figure 1.2: Structure of REITs in Malaysia



Adapted from: Bursa Malaysia Securities Berhad (2019)

Figure 1.2 shown that the structure of REITs in Malaysia. REITs of Malaysia are legalizing by Securities Commissions (SC). It has issued as a "Guidelines on Real Estate Investment Trusts" and pursuant to s 377 of Capital Market and Services Act 2007.

1.1.2 Overview of Public Listed Property Company

Nowadays, economic of the world had globalized. People are involving themselves into investment sector. One of the common investments is property investment. Based on Nurul Afiqah Binti Azmi(2018), Property investment has categories into 2 types which are direct property investment and indirect property investment. Direct investment is involving unsecurities physical asset. Direct investment is made through the tangible and real asset and also enjoy with a stable flow from income of rental. Indirect property investment involves securities investment backed by property. Indirect investment like property share are assume as property relate which return receive from direct property.

The types of indirect investment also can categories into 2 types. First is listed property securities which are consist of listed property companies and real estate investment trust. In additional, listed property company is made out of shares which quote on stock market. Second is unlisted property company. Listed Property Company can define as listed real estate operating company. The company are engaged involve in real estate investment and development activities or property share.

According to Nurul Afiqah Azmi, Ahmah Tajuddin Rozman and Muhammad Najib Razali (2015), the ASIAN listed property company investment remains strong in 2015. During 2014, the sizes of Property Company in Asia have 821. It is the highest amount among Europe and Americas.

1.1.2.1 Public Listed Property Company in Malaysia

According to Hishamuddin Mohd Ali (2015), listed property company has been established about 28 years ago in Malaysia. There are more than 70 of property company list on Bursa Malaysia in 9 January 2019. Fourty-Four of the company are practice property development as their core business. The oldest listed property company was listed on Bursa Malaysia in 2nd January 1986. Most of the companies are active property Development Company. For listed property company in Malaysia are concentrate in urban area. For example, Putrajaya, Klang Vally, Johor Bahru and Penang. Urban has been targeted due to the high population and employment opportunities.

In Malaysia, township is common among property developers. It is a mix of housing that ranging from lowest cost to highest cost. Basically, developer will take advantage of the opportunity to launch high cost of residential unit during the buoyant economic condition. Besides, developer will market medium cost housing when the growth of economic is slow. According to Table 1.1 shown, KLCC property holding had the highest market capitalization and followed by IOI properties group which are 11987.41 MYR billion and 8453.82 MYR Million respectively. SP Setia was listed in 1993 and had the third highest market capitalization which is 8351.11 MYR Million.

Table 1.1: Market Capitalization in Malaysia

	Company Name	Year Listed	Market Capitalization at 2014 (MYR Million)
1	KLCC Property Holdings	2004	11987.41
2	IOI Properties Group	2013	8453.82
3	SP Setia	1993	8351.11
4	UEM Sunrise	2008	7713.63
5	Sunway	2011	5712.27
6	IJM Land	1991	4995.99
7	IGB	1986	3916.97
8	MAH Sing Group	1992	3497.42
9	UOA Development	2011	3006.67
10	Eastern and Oriental	1986	2875.18

Source: Hishamuddin Mohd Ali (March 2015). Listed Proeprty Trusts in Malaysia.

Based on Muhammah Najib Mohamed Razaili (2015), Malaysia economy has rebounded from a contraction of negative 1.7% in 2009. This is because of the impact from Global financial crisis. Hence, in 2010, Malaysia start enjoys a positive growth of economy which is 7.2%. Due to the unstable of global economic situation, other countries have decrease in GDP growth. This has allowed Malaysia to carry foreign direct investment which mainly contributes in manufacturing services sector, financial sector and electronic sector (Bank Negara, 2012).

Next, the property market of Malaysia has a significant growth. In 2010, USD $2.9 billion in property transaction volume has been recorded by Malaysia and rank as eighth amongst Asia. In 1997-1998, Asian Financial Crisis happened (AFC). After recovery form AFC, Malaysia's government developed a new investment friendly policies which are try to encourage foreign and local investment in Malaysia listed property sector. Hence, this made Malaysia listed property companies increasing nowadays. For example, MIDA (Malaysia Government Agency).

1.2 Research Problems

With the popularity in Asian countries like Hong Kong, Japan, and Singapore, the Real Estate Investment Trusts (REITs) is brought into the Malaysian market as a new alternative to invest in property in the form of trust fund in year 2005 (Alias & Soi, 2011). Also, investors are starting to invest in REITs rather than in listed property companies like they used to in the past due to the benefits and returns provided by REITs (The Star, 2018). This study will investigate whether it is a myth or reality on whether REITs can perform better than listed property companies and whether this movement is beginning to become a global trend especially in Malaysia.

There is also a lack of information or investigations that analyze and compare the REITs and listed property companies in terms of their returns performance and risk diversification benefits. Despite having studies like Glascock et al, 1992 that suggest investors to invest in REITs rather than property companies, there is still a lack of quantitative results provided by researchers on the comparison of REITs and listed property companies in Malaysia. Therefore, this study will provide information for the investors on which investment vehicles have the better performance and lesser risks in Malaysia.

1.3 Research Objectives

1.3.1 General Objectives

(i) To evaluate and compare the performance between Malaysia's Real Estate Investment Trusts and Public Listed Property Companies.

(ii) To determine and compare the risk diversification benefits between Malaysia's Real Estate Investment Trusts and Public Listed Property Companies.

1.3.2 Specific Objectives

The specific objectives are addressed below:

i. To calculate the performance measurements between M-REITs' and M-Property Public Listed Company index using Sharpe ratio.

ii. To calculate the performance measurement between M-REITs' and M-Property Public Listed Company index based on Treynor Ratio.

iii. To calculate performance measurement between M-REITs' and M-Property Public Listed Company' index according to Jensen's Alpha Measure.

iv. To calculate and compare the Beta value, total risk, R-square, systematic risk and unsystematic risk for both of each M-REITs' and M-Property Public Listed Company.

v. To calculate and compare risk diversification benefits using diversifiability measure between M-REITs' and M-Property Public Listed Company.

1.4 Research Questions

i. Are the Sharpe Ratios lower with M-REITs' compared to M-Property Public Listed Companies?

ii. Are the Treynor Ratios lower with M-REITs' compared to M-Property Public Listed Companies?

iii. Are the Jensen's Alpha measureS lower with M-REITs' compared to M-Property Public Listed Companies?

iv. Are the beta values higher with M-REITs compared to the M-Property Public Listed Companies?

v. Are the risk diversification benefits lower with M-REITs' compared to M-Property Public Listed Companies?

1.5 Hypotheses of Study

Hypothesis 1

To analyse the performance measurement between M-REITs' and M-Property Public Listed Company index using Sharpe ratio.

H_o: M-REITs'' Si < M-PPLCs'' Si (M-REITs' have lower Sharpe ratio compared to M-PPLCs)

H_1: M-REITs'' Si > M-PPLCs'' Si (M-REITs' have higher Sharpe ratio compared to M-PPLCs)

Hypothesis 2

To analyse the performance measurement between M-REITs' and M-Property Public Listed Company index based on Treynor Ratio.

H_o: M-REITs'' Ti < M-PPLCs'' Ti (M-REITs' have lower Treynor ratio compared to M-PPLCs)

H_2: M-REITs'' Ti > M-PPLCs'' Ti (M-REITs' have higher Treynor ratio compared to M-PPLCs)

Hypothesis 3

To analyse performance measurement between M-REITs' and M-Property Public Listed Company' index according to Jensen's Alpha.

H_o: M-REITs'' αi < M-PPLCs'' αi (M-REITs' have lower Jensen's Alpha compared to M-PPLCs)

H_3: M-REITs'' αi > M-PPLCs'' αi (M-REITs' have higher Jensen's Alpha compared to M-PPLCs)

Hypothesis 4

To compare the Beta value for both of each M-REITs' and M-Property Public Listed Company.

H_o : M-REITs'' β > M-PPLCs'' β (M-REITs' have higher Beta [market risk] compared to M-PPLCs)

H_4: M-REITs'' β < M-PPLCs'' β (M-REITs' have lower Beta [market risk] compared to M-PPLCs)

Hypothesis 5

To compare risk diversification benefits between M-REITs' and M-Property Public Listed Company.

H_o: M-REITs'' Rd < M-PPLCs'' Rd (M-REITs' have lower risk diversification benefits compared to M-PPLCs')

H_5: M-REITs'' Rd > M-PPLCs'' Rd (M-REITs' have higher risk diversification benefits compared to M-PPLCs')

1.6 Significance of Study

The core of the study is to evaluate and compare between the performance of REITs and Public Listed Property Company in Malaysia. Besides, the noticeable phenomenon of REITs and Public Listed Property Company are facing a rapid growth and increasing interest of public that urges the need for this kind of study. Investors will also find it difficult to differentiate the benefits of REITs and listed property companies as both investment vehicles are from the property sector.

Hence, this study will educate the investors on the performance and risk diversification benefits between the REITs and listed property companies so that they are able to make better informed investment decisions. All of the calculation method from the study can also serve as a reference for investors when they are deciding on the differential advantage of their investment. As a result, it can increase the possibility of an investor to lower its risk. These can enable the investors to gain an advantageous position to earn and increase its profit from the investment sector.

1.7 Conclusion

In summary, basic understanding for M-REITs and M-PPLCs had providing in Chapter 1.Hence, in chapter 2 will discuss about the past studies has been done by other researchers.

CHAPTER 2: REVIEW OF LITERATURE

2.0 Introduction

This chapter includes the literature review. It covers the financial analytic tools and methods that used by past studied which are journal and the result of their finding. This chapter involves the finding from literatures and development hypotheses and followed by a chapter summary.

2.1 Overview

There has been a limited empirical study that did by people on the performance analysis about REITs and Public Listed Property Companies in Malaysia before this.

In the year 2005, Securities Commission (SC) issued new guidelines and provides a legal framework for better controlling the stock of REIT. Previously, REITs is considering as Property trust fund in Malaysia. Unfortunately, the property trust fund was not successful and popular by institutional investor. This is because there is no tax transparency provided in the regulation framework (Newell, 2006). Based on guidelines of Real Estate Investment Trust Which issued by Securities Commission Malaysia (SCM), Malaysia's REITs (M-REIT) only able to invest in real estate, real

estate related assets, single purpose companies, non-real estate-related assets, deposit, cash and money market instrument.

Besides, it must have at least 50 percent of total assets value should invest in property or single purpose companies. Malaysia REITs able to exclude from tax charge when they distribute at least 90 percent of total income to their shareholder. Based on the purpose of our research, ten M-REIT companies, and ten Malaysia's Listed Property Companies have been taken to conduct our research. Table 2.1 show the Malaysia's Real Estate Investment Trusts and Malaysia's Public Listed Property Companies of our research.

Table 2.1: List of Malaysia's Real Estate Investment Trusts and Malaysia's Public Listed Property Companies.

	Type of Company	Companies
1.	Malaysia's Real Estate Investment Trusts (M-REITs)	Amanah Harta Tanah PNB (AHP REIT)
		Al-'Aqar Healthcare REIT(Alaqar REIT)
		Amfirst Real Estate Investment Trust(Amfirst REIT)
		AmanahRaya Real Estate Investment Trust(Amanah REIT)
		Atrium Real Estate Investment Trust(Atrium REIT)
		Axis Real Estate Investment Trust(Axis REIT)
		CapitaLand Malaysia Mall Trust(CMMT REIT)
		Hektar Real Estate Investment Trust(HEKTAR REIT)
		MRCB-Quill REIT(MQREIT)
		Pavilion Real Estate Investment Trust(PAV REIT)

2.	Malaysia's Public Listed Property Companies	Daiman Development Bhd.
		Damansara Realty Bhd.
		Eastern & Oriental Bhd.
		Ecofirst Consolidated Bhd.
		Focal Aims Holdings Bhd.
		Glomac Bhd.
		Global Oriental Bhd.
		GSB Group.
		Guocoland Malaysia
		OSK Holdings Bhd.

Source: Developed for the research

2.1.1 Beta value, total risk, R-squared, systematic risk and unsystematic risk

Beta value is used to measure the volatility of each portfolio and compare with the market risk. Based on Ivana Bestvina Bukvic(2014), Beta value that show a negative value indicate it is a negative correlation with market. In other hand, beta value that shows a positive figure mean it is correlation with market.

For total risk, it is and assessment that try to identify the risk factor (Margaret, 2012). Total risks are a combination of the systematic risk and unsystematic risk. The reason we examine the total risk is to make a better decision that will lead to a good outcome.

Systematic risk is used to describe the threats for a market or economic segment. It also is a category of risk. Systematic risks are definitely important for many sector such like interconnected institution and financial institution. Besides, for unsystematic risk, it is a hazard to a business or industry. Although it is hazard, people can reduce it by multiple their investment in a diversified portfolio and investment.

R-square is an analytic tool that uses to examine the market movement of a portfolio. It can be predicted by the movement of the portfolio benchmark. It has a interrelated relation between systematic risk and total risk. The larger the value of R-square, the portfolio more move along with its market index.

2.1.2 Sharpe ratio, Treynor ratio and Jensen' Alpha

For Sharpe ratio, it is used to measure the performance of a portfolio. Based on Sharpe (1966), it is used to compute the return generate by a portfolio in excess of risk of free rate return for every unit of standard deviation. It also able to calculate the profit and risk it will take. According to Schmid and Rafael S. (2009), they have concluded that the larger the Sharpe ratio, the return and risk it will take also higher.

Based on Treynor (1965), Treynor ratio is a performance method to determine the return can earn by each unit of risk taken of a portfolio. The difference of Treynor and Sharpe ratio are Treynor is use beta value to measure the volatility instead of standard deviation used by Sharpe ratio.

For Jensen' Alpha measure, it is an abnormal return evaluation tool that utilizes from the capital asset pricing model. It is use to determine the return base on market volatility by measuring the beta of portfolio with the market benchmark (Jensen, 1968).A further discussion of performance features and risk feature are show in chapter 3.

2.2 Malaysia's Real Estate Investment Trusts context-Performance and Risk

Findings by Newell, Ting and Peter Acheampon (2002), they have investigate 4 Malaysia REIT companies annual return from 1991 to 2000 in order to examine their performance. They have used Maybank Property Trust Fund One, First Malaysia Property Trust, Amanah Harta Tanah PNB and Arab Malaysian First property Trust to conduct their research. The result show that the REIT company Amanah Harta Tanah PNB (AHP) has significant outperformed in the KLCI which is Kuala Lumpur Composite Index. The result of Amanah Harta Tanah PNB (AHP) annual return is higher than market return. The SD which is standard deviation of Maybank Property Trust Fund One, First Malaysia Property Trust and Amanah Harta Tanah PNB are relative higher than market risk.

Kok and Khoo (1995) examined that the performance of property trust in Malaysia by selected three REIT companies which are Amanah Harta Tanah PNB, Arab Malaysian First Property Trust and First MALAYSIA Property Trust in the period 1991 to 1955. They also have conduct Sharpe, Jensen and Treynor Index measurement. They have concluded that the property trust in Malaysia are generally performed well during a falling market but underperformed during a rising market.

Based on Olusegun Olanrele (2014), he has examined the analysis about what factor will affect the performance of Malaysia REITs. He has used quantitative approach to carry this research. REIT Company such as AMFIRST REIT that registered on board of Bursa Malaysia Securities Commission. This period of year to examine is from 2007 to 2013. He has collect data of the size, share price, portfolio value, leverage, Net Asset Value and Dividend to conduct its calculation such as adjusted R square. Olusegun Olanrele has concluded that the performance of AMFIRST REIT is good and above expected return.

Nor Nazihah Chuweni (2018) has analyzed the performance of Real Estate Investment Trusts in Malaysia. The objective of her research is analyzed the effectiveness of REITs perform among the developed property investment sector. In order to achieve her objective; she has employed mixed method approach which are use literature review with empirical evidence and survey. Nor Nazihah Chuweni (2018) also used Herfidahl-Hirschman Index to measure the property sector. She concludes that REITs good investment in Malaysia with stable performance and risk diversifications benefits.

A study made by Chai et al. (2011) uses the Sharpe measurement to analyze the performance of 14 publicly listed M-REITs from year 2001 to 2010. This is to observe the pre, during, and post financial crisis period caused by the U.S subprime

mortgage effects. The results from the study indicate that the performance of M-REITs is lower before and after the period of crisis, but is higher during the time of crisis. The study also concluded that M-REITs have lower risk or volatility if compared to property market.

Another study by Ahmad et al. (2015) evaluates the risk-adjusted performance analysis and correlation analysis of Islamic REITs in a mixed asset portfolio in Malaysia. The research compared 16 I-REITs companies in a period from November 2008 to December 2014 in a mixed asset portfolio which is consists of bonds and shares. The study will also evaluate the risk-adjusted returns by using the Sharpe ratio analysis while the portfolio diversification benefit will also be calculated by using correlation analysis between the Islamic REITs and other assets classes. The overall findings from Ahmad et al. (2015) suggested that Islamic REITs outperformed the bonds and shares market in a mixed asset portfolio.

Studies made by Low and Anwar (2014) assess the risk and performance of 12 M-REIT companies from year 2007 to 2012 by using performance standard measurement vehicles such as Sharpe, Treynor, and Jensen measures. The studies also utilized an additional measure which is the M-squared measures the leverage factors of an optimal REIT performance. Risk can also be quantified by the M-squared and Sharpe measures by using standard deviation of return which can in turn give a more accurate evaluation than the Jensen and Treynor measurements. The overall findings provide managers with good insights in the REITs performance while considering REITs as a potential investment vehicle for the investors.

According to Kim Hiang Liow (2001), He has examined the long term investment performance of Singapore real estate and property stock. This research includes the analysis of Singapore REITs and listed property companies. Kim evaluates the result

of performance based on the using Sharpe index, coefficient of variation and time varying Jensen Abnormal Return Index. Further analysis that did by Kim also includes time-varying Jensen Index Reveals. He concluded that the performance of property companies in Singapore is better than the performance of Real Estate Investment Trust which is outperformance.

Ann (2013) examined the structure, performance, and strategic investment implications for Singapore 26 listed REITs companies during the year 2003 to 2012 by using Sharpe ratio and reward-to-risk ratio, correlation coefficient, and regression analysis. During this period, the S-REITs are determined as having better average returns than listed property companies. The standard deviation of property companies is also the highest followed by S-REITs, which indicates that S-REITs are more volatile than listed property companies as well. Based on the correlation coefficient results, S-REITs are implied as having better diversification benefits among the mixed assets portfolio as well.

Wu (2011) evaluated the development of REITs in Asia which includes 21 S-REITs from July 2002 to November 2009. The findings are consistent with the results from Ann (2013) which indicates that the average return for S-REITs is the highest in Singapore, followed by listed property companies, shares, and bonds. In term of Sharpe ratio, REITs can also be seen having the best risk-adjusted performance comparing to the other assets portfolio. To conclude, REITs in Singapore produce higher return, but lower risks than the listed property companies.

Newell, Pham, and Ooi (2015) examined the performance and significance of S-REITs in a mixed asset portfolio which included 16 of the listed REITs companies in Singapore from year 2003 to 2013. The study uses reward-to-risk ratio and Sharpe ratio to assess the risk adjusted return, while using correlation analysis to determine

the diversification benefits among the mixed asset portfolio. As result, S-REITs can be seen delivering strong risk-adjusted returns among the other asset classes, but have little portfolio diversification benefit in the period. However, the risk or volatility of S-REITs is lower than the other asset classes.

Cheok, Sing, and Tsai (2011) examined the impact of diversification strategies on the performance of REITs in Singapore in terms of cash flows, expenses, risks, and returns. The study evaluated 17 S-REITs companies from the period of year 2002 to 2007 by using weighted least square regressions, significant variations model, and analysis on the descriptive statistics on cash flows, expenses, and risk-return variables. The findings concluded that there is no significant effect of diversification by real estate types on risk premium, cash flows, and expenses on the S-REITs. However, higher risks premiums are founded in regionally diversified REITs companies in Singapore.

2.3 Malaysia's Public Listed Property Company-Performance and Risk

Besides, a research about performance of Malaysia listed property companies has been conduct by Abdullah and Wan Zahari in 2008. They have investigated the performance during crisis, pre-crisis and post-crisis. They have used Sharpe, Adjusted Sharpe, adjusted Jensen, Jensen and Treynor Index to examine the performance. The market benchmarks that used by them are KLPI and KLCI which are Kuala Lumpur Property Index and Kuala Lumpur Composite Index. The conclusion they made is listed property companies are more outperformed the market portfolio.

Anuar Alias and Soi Tho C.Y. (2011) have investigated the performance analysis of M-REIT and listed Property Company. They have used five types of data to conduct their research which are total revenue, net income, dividend, total return and price earnings ratio. He claimed that these five elements are the main financial component to measure the performance of the companies as well. It able to investigate the profitability of company, investor return and the share value of the particular company. He concludes that the REIT in Malaysia is showing a better performance compare with Public Listed Property Company.

Next, Chong S.E., Geh J.W., Tan Q.S., The C.H., Yap K.T.(2014) have analyzed the risk adjusted performance of Listed Property Companies in Malaysia. The methods that they used for measure the performance of Listed Property Companies are Sharpe Index, standard deviation, return and Pearson's Correlation Coefficient. Three results they obtained from this research are Malaysia listed property companies are underperform aggregate market index across pre-, during and post-crisis. Public listed company only outperform during the crisis. Malaysia listed property companies also do not outperform and serve as substitute for direct investment. It also not going to provide diversification benefit because of the expectation in long term economic growth and large real estate component.

According to Ting Kien Hwa (2002), he had examined a comparative performance analysis of listed property companies in Malaysia. The study of the research is to determine whether the listed property companies is achieved higher risk adjusted return than shares and direct investment in resident properties, and whether listed property companies could act as substitute for direct residential property investment. The risk return analysis of Ting (2002) is concluding with the calculation of Sharpe Index.

Table 2.2 below show the Average annual risks and return of investment option that conduct by Ting.

Table 2.2: Average annual risks and returns of investment options

Investments Options	Average Annual Return (%)	Annual Risk (%)	Sharpe Index	Risk adjusted ranking	Risk/ Return Ratio
Property Development Companies					
Sime Prop	18.86	55.90	0.188	2	2.96
I & P	5.77	46.87	-0.055	17	8.12
IOI Prop	57.21	142.06	0.344	1	2.48
HL Prop	32.17	142.21	0.168	5	4.42
Bandar Raya	21.02	80.64	0.157	6	3.84
Property Investment Companies					
Selangor Prop.	8.29	38.24	-0.002	15	4.61
IGB	3.90	43.98	-0.101	19	11.28
Lien Hoe	27.17	147.46	0.128	8	5.43
Selangor Dredging	18.35	102.16	0.098	9	5.57
AP Land	14.07	66.23	0.086	10	4.71
Listed Property Trusts					
AMFPT	7.75	59.22	-0.010	16	7.64
FMPT	25.01	129.29	0.129	7	5.17
AHP	38.90	181.54	0.168	4	4.67
Shares					
KLCI	9.57	40.38	0.03	13	4.22
EMAS Index	11.47	51.96	0.06	12	4.53
Second Board Index	19.78	63.68	0.179	3	3.22
Property Sector	9.90	71.52	0.022	14	7.23
Plantation Sector	14.34	73.64	0.081	11	5.14
Direct Residential Property					
Malaysian House Price Index	7.65	10.12	-0.069	18	1.32

Adapted from: Ting (2002). Listed Property Companies in Malaysia : A Comparative Performance Analysis.

Based on the table 3 of Sharpe Index and risk adjusted ranking for the investment options, the result of it show that the property development companies is totally performs better than listed property trust(REITs) and property investment companies. The risk return ratio of Listed property trust is 7.64, 5.17 and 4.67 are relative higher compare with the company of property development companies which are 2.48, 4.42

and 3.84. In conclusion, the research of Ting (2002) concludes that the performance of property development companies is better than the REIT companies in Malaysia.

According to Amidu Abdul-Rasheed and Aluko B. Tajudeen(2006), an analysis about the performance of Listed property company and Real Estate Investment Trust from year 1998 to 2005. They examine the performance with a view of the comparative and competitive advantage in attracting Investment. They used Sharpe ratio to assess the risks performance of companies. Return analysis of REITs and listed property company have been calculation in order to generate the accurate result. They conclude that the performance of listed property companies is lower than other investment such like Real estate Investment Trust.

In year 2018, a research has been done by Nurul Afiqah Binti Azmi. Based on Nurul Afiqah Binti Azmi (2018), she has examined the significant and performance analysis of Malaysia Listed Property Companies in international mixed asset portfolio strategies. She claims that the Malaysia listed property company (M-LPCs) is emerging and entering global market. It play and important role in the economic growth of the country. She realizes that Malaysia nowadays is being target by foreigner and consider as a profitable investment in long term. Hence, she has carry out few analyses such as risk adjusted analysis, potential of diversification, unit root test, VECM granger causality and efficient frontier and optimal asset allocation to examine the performance of listed property company. This analysis cover 20 year which from 1994 to 2014. It investigate Malaysia, Asian and developed countries. In overall, she found that the M-LPCs result in low performance and less diversification.

Finding by Muhammad Najib Mohamed Razali(2015), He has examine the Performance of Malaysia listed property companies in pan-Asian property portfolios. He investigates the performance of Malaysia from January 1998 to August 2013. Few

methods has used by Najib (2015) to analysis the performance of listed property companies which are total return, risk analysis, correlation analysis, risk-return ratio, Sharpe ratio, efficient frontier and causality tests. In overall of the study, he found that the performances of listed property companies in Malaysia over the 14 years are low. This is because the Malaysian listed property companies have a less important role in mixed asset portfolios.

Another analysis by Liow, Muhammad, and Huang (2005) examined the influence of macroeconomic risk on the property stock market by using principal component analysis, generalized autoregressive conditional heteroscedasticity (GARCH), and generalized method of moments (GMM) to model the risk variables of macroeconomic. As result, the volatility of property stocks market excess return is related to the macroeconomic factors. For instance, when the volatilities for the GDP growth and unexpected inflation are high, the volatilities of the property stock market risk will be higher as well.

Yahaya and Mahmood (2011) evaluated the analyzed 27 Malaysian property companies in terms of their Economic Value Added (EVA) performance metric. According to Yahaya and Mahmood (2011), the EVA is proposed by Stern Steward Management Services which eliminates the financial and accounting distortions to provide a true measure of a company to provide shareholders' values. These studies are based on 27 of Malaysian property companies from the year 1997 to 2006. The overall findings suggested that most property companies fail in creating corporate wealth due to low performance.

Razali (2013) examined the returns and risks of the listed property companies in Malaysia from the period of year 1998 to 2012. The research used 3 measures which is the risk-adjusted performance analysis like the Sharpe Index to evaluate the

performance of these listed property companies, as well as the GARCH model which is used to determine the time-varying conditional variances and covariance, along with the ARCH modelling to capture clustering and predict volatility. The overall findings shows that the investment in listed property companies have high risks level, which is expected during the research period due to the Asian financial crises, global financial crisis, and the Euro zone debt crisis.

Lai, Abdul, and Chan (2014) examined the effect of year 2008 global financial crisis on the performance of 32 listed property companies during the year 2005 till 2010. The analysis is conducted by using Altman's Z-Index and a content analysis to determine the impact of the global financial crisis. Throughout the study, the findings show that the only impact of the crisis is that it reduced the profitability of these companies. The total assets and revenues of the listed property companies still continued to grow which is caused by the increase of demand for construction in year 2007 due to the large investment program started by the Malaysian government to reduce the effect of the financial crisis.

Another study made by Liow (2015) examined the return performance of Singapore property companies between the periods of year 1990 to 1999, which is when there is a strong economic growth, Asian economic crisis, and anti-speculation curbs on residential real estate market. The study included the measure of Sharpe index, Treynor index, and Jensen return index on 17 listed property companies. The overall findings show that most property company display a negative normal return in their performance over time due to the financial crisis and anti-speculation measures on residential real estate sector. Liow (2015) also found out that the coefficient for inflation for the property stock portfolio is negative which means that most real estate companies did not have protection against inflation.

2.4 Hypotheses Development

Hypothesis 1: M-REITs'' Si > M-PPLCs'' Si (M-REITs' have higher Sharpe ratio compared to M-PPLCs)

In order to analyse the performance of M-REITs and M-PPLCs, Sharpe Ratio has been used in our study. Based on Sharpe (1966), Sharpe Ratio is a way to calculate the return earned in excess of the risk of free rate per unit of the total risk. It is also a way to accurately calculate the profit able to earn and risk will take. According to Jaksa Cvitanic, Ali Lazrak and Tan Wang (2007), they conclude that Sharpe ration is an effective way to indicate the performance of a portfolio. Besides, past studies did by Friedrich Schmid and Rafael Schmidt (2009) also made research about the Sharpe Ratio. In general, the higher the Sharpe Ratio of a portfolio the higher the return and adjusted for the level of risk taken.

Hypothesis 2: M-REITs'' Ti > M-PPLCs'' Ti (M-REITs' have higher Treynor ratio compared to M-PPLCs)

For Treynor Ratio, it is a performance method to determine how much return can earn by each unit of risk taken by a portfolio (Treynor, 1965). It contains few similarities with Sharpe ratio which is used to accurately determine the profit may earn and the risk may take. The differences are it is use Beta value which is market risk to measure the volatility instead of use Standard deviation. There are few past studied did by Milena Jaksic, Miljan Lekovic and Marina Milanovic(2014) and Zadalah Fathi and Hamed Ahmadinia(2012) has decide to use Treynor Ratio as the first choice to

conduct their research. In overall, the higher the Treynor Ratio, the greater the return of the portfolio.

Hypothesis 3: M-REITs'' αi > M-PPLCs'' αi (M-REITs' have higher Jensen's Alpha compared to M-PPLCs)

Based on Jensen (1968),Jensen' Alpha Measure is use to determine the abnormal return on each M-REITs and M-PPLCs over an expected or required return as determine by CAPM which is capital asset pricing model and given the M-REITs and M-PPLCs beta value and average market return. In fact, there were several of studies show that Jensen' Alpha are suitable to conduct in the research about determine the performance of certain portfolio. For example, Michael C. Jensen (1967) and Naliniprave Tripathy (2017) who has conduct her research in India. Hence, in general Jensen's Alpha used to determine the return for each portfolio and how much return it generates in the excess of return that predicted by CAPM.

Hypothesis 4: M-REITs'' β < M-PPLCs'' β (M-REITs' have lower Beta [market risk] compared to M-PPLCs)

Beta value is considered as a metric to determine the risk of a portfolio. In order to calculate the systematic risk of M-REITs and M-PPLCs, beta value has been calculated to measure the volatility of each portfolio and compare with the market risks. Beta value with a positive figure shown that it is correlation with market and negative figure indicate it is negative correlation with market. The lower the beta, the lower the risk of the portfolio. Past studied such like Chris Tofallis (2011) and Domagoj Karacic and Ivana Bestvina Bukvic(2014) prove that Beta is suitable to estimate the systematic risk of a portfolio.

Hypothesis 5: M-REITs'' Rd > M-PPLCs'' Rd (M-REITs' have higher risk diversification benefits compared to M-PPLCs')

Nowadays, every investor is purposely to earn in their investment. Some of them are risk averse. Hence, risk diversification of a company is significant for them before they invest. Risk diversification benefits are a metric to determine the capability of a company to allocate its capital in order to reduce the exposure to risk. If the value of risk diversification benefits is large than 0, it mean the higher the unsystematic risk can be diversified away. In contrast, if the value is near to 0 indicate the portfolio has a high possibility to exposure to risk. Past studied that did by Sovan Mitra (2009) and Yusuke Uchiyama, Takanori Kadoya and Kei Nakagawa (2018) concluded that risk diversification benefits are an effective way to indicate the risk of a portfolio.

2.5 Conclusion

Malaysia is a developing country. The status of Malaysia which is an emerging country increases the interest of investor to invest in Malaysia. Hence, the different of the performance and risk diversification benefits for M-REITs and M-PPLCs are important for those investors. Based on the previous studied above, the different of geographic, years, number of portfolio to study and also the ways to conduct research will receive different of result in their finding. The hypotheses of this chapter will proceed in Chapter 3.

CHAPTER 3 : RESEARCH METHODOLOGY

3.0 Introduction

Chapter 3 of our research is describes and specifies the entire method and process that used in systematically collecting data. This chapter start with explaining the chosen design, data collection method used followed by sampling design which are cover all the elements that used in sampling part. Besides, chapter also include research instruments and constructs management in detail.

3.1 Research Design

Research design has two forms which are qualitative and quantitative research. The research design that used by our study is quantitative based research. There are only secondary data that used by us to carried this study. It consist the secondary data that obtained from Bloomberg Financial Software. The chosen REITs and Public Listed Property companies are selected from Bursa Malaysia.

Based on Joseph Alex Maxwell (2004), causal research is a quantitative in nature like preplanned and structure in design. Hence, the design of our study is causal research.

Causal is trying to explain the effect relationship between variable. It also describe the relation is causal though an experimentation.

Based on our study, our chosen research design is justified because there is enough of research based on performance analysis of REITs and Public Listed Property Companies in few countries and also Malaysia. The reason we choose causal research because our research is regarding the comparison of performance analysis of REITs and Public Listed Property Companies in Malaysia. In order to find the answer, weekly share price has been collected to discover this research.

Besides, another unknown subject is risk diversification benefits of REITs and Public Listed Property Companies. In order to justify this subject, a measure called Diversifiability Measure has been used in our study to determine the diversification of REITs and Public Listed Property Companies in Malaysia.

3.2 Data Collection Methods

Since all our research question and hypotheses are quantitative-measure, secondary data collection method has been used in our study. Data are collect from Bloomberg financial software and used to calculate the mathematical formulas to obtain the significant data.

3.2.1 Secondary Data Collection

Based on our study, 10 REITs and 10 Public Listed Property Companies has been chosen in our research. The stock prices of all the companies are collect in weekly basic form year 2013 until 2018 which is 6 year. The stock prices are collect from Bloomberg financial software terminal from University Tunku Abdul Rahman (UTAR) Sungai Long Computer Laboratory. The REITs and Public Listed Property Companies are chosen from Bursa Malaysia and collect data from Bloomberg.

Bloomberg is significant financial software which provides all the data include stock prices of every listed and non-listed company around the world. Besides, we also collect Malaysia property Index which is FBM Kuala Lumpur Property Index stock prices in weekly basic. We used the weekly share price of REITs and Public Listed Property Companies to compare with FBM Kuala Lumpur Property Index in our research. Since there is an absence of REITs index in Malaysia, the most suitable alternative for us to choose is FBM Kuala Lumpur Property Index.

The weekly returns of 10 REITs and Public Listed Property Companies are calculated using the following formulas as below:

1) $Rt = \frac{P_t - P_{t-1}}{P_{t-1}} \times 100$

Where,

Rt = M-REIT/M-PPLC stock price for week t

Pt = Closing share price of M-REIT/M-PPLC at the chosen day of week t

Pt-1 = Closing share price of M-REIT/M-PPLC at the chosen day of week before week t

The weekly returns for FBM Kuala Lumpur Property Index were calculated as follows:

2) R index = $\frac{I_t - I_{t-1}}{I_{t-1}}$ x 100

Where,

R index = Index for week t

It = Closing index value at the chosen day of week t

It-1 = Closing index value at the chosen day of week before week t

3.2.2 Calculating REITs and Public Listed Property Companies Risk Features

In order to determine the volatility and risk of each REITs and Public Listed Property Companies, standard deviation has been compute first. After that, it was used to determine the volatility of REITs and Public Listed Property Companies against the FBM Kuala Lumpur Property Index. Standard deviation is a statistical measure of the volatility of the sample of weekly return for each REITs and Public Listed Property Companies.

If an investment portfolio has a lower standard deviation compare with its benchmark value, are preferable for risk averse investor because low standard deviation indicate low risk and vice versa. The below is the formula of standard deviation:

3) $\sigma = \sqrt{\frac{\sum_{i=1}^{n}(X_i - \mu)^2}{n-1}}$

Where,

Xi = weekly return of M-REITs/M-PPLCs

μ = the mean return of M-REITs/M-PPLCs for the year (%)

n = sample period (years)

Besides, Total risk also has been compute for each 10 REITs and Public Listed Property Companies which include the systematic risk and unsystematic risk. The formula for total risk as below:

4) $\sigma_i^2 = \beta_i^2 . \sigma_m^2 + \sigma_e^2$

Where,

σ_i^2 = Total risk for M-REITs/M-PPLCs

β_i^2 = Square of Beta of M-REITs/M-PPLCs

σ_m^2 = Variance of return of the market portfolio

$\beta_i^2 \sigma_m^2$ = Systematic risk of M-REITs/M-PPLCs

σ_e^2 = Unsystematic risk of M-REITs/M-PPLCs

Next, there are 2 methods to calculate the diversification measure of REITs and Public Listed Property Companies. Based on Joe Cheung (2014), diversification means a process that allocating the capital in order to decrease the exposure of itself toward risk. Based on investor perspective, diversification is the ways which companies can decrease its risk by invest in more than one types of assets.

This first method to find the diversification is dividing the unsystematic risk with total risk. If the ratio or answer is close to zero, its implies that the unsystematic risk of of REITs and Public Listed Property Companies is less significant and vice versa.

The following is the formula of diversifiability measure:

5) $$Diversifiability\ Measure = \frac{\sigma_e^2}{\sigma_i^2}$$

Where,

$\sigma_e{}^2$ = Unsystematic Risk of M-REITs/M-PPLCs

$\sigma_i{}^2$ = Total Risk of M-REITs/M-PPLCs

The second method of diversification measure is one minus R-squared. If the value is close to zero, this mean there are less more systematic risk and less unsystematic risk which indicate cannot easily be diversify. In other ways, if the value is high meaning the diversification opportunities and risk diversification benefit is relative high. Besides, if the value is near to one, this mean the portfolio can be diversifying and mainly of unsystematic risks. The formula as below:

6) $$Diversifiability\ Measure = 1 - R^2$$

Where,

R^2 = R-squared

The formula for calculating the R-Squared value of M-REITs/M-PPLCs is shown below:

7) $$R^2 = \frac{\beta_i^2 . \sigma_m^2}{\sigma_i^2}$$

Where,

R^2 = R-Squared

$\beta_i{}^2$ = Square of portfolio's beta

$\sigma_m{}^2$ = Variance of return of the market portfolio

$\beta_i^2 . \sigma_m^2$ = Systematic risk component of M-REITs/M-PPLCs

σ_i^2 = Total risk

R-square is to examine the market movement of a portfolio that can be predicted by the movement of the portfolio benchmark. R-square has a strong relationship between total risk and systematic risk. It is explaining the degree of total risk affected by systematic risk. The higher the value of R-square indicates the inherent total risk within a REITs and Public Listed Property Companies is aggressively affected by systematic risk. In other words, if the value of R-square is low indicate the portfolio is not move along with the market index. The higher the value of R-square, the portfolio move along with its market index.

3.2.3 Calculating REITs' and Public Listed Property Companies' Performance (Sharpe Ratio, Treynor Ratio and Jensen's Alpha Measure)

For this research, our study has included Sharpe Ratio, Treynor Ratio and Jensen's Alpha Measure to measure the risk adjusted performance of REITs and Public Listed Property Companies. These formulas used to determine how the REITs and Public Listed Property Companies are performing against the risk estimated and also identify the possible excess return from each REITs and Public Listed Property Companies against the market index.

First, Sharpe ratio is used to calculate the excess return earned in the excess of free rate of return per unit of standard deviation in an investment portfolio. There are 3 main components in this formula which are average return of portfolio, free rate of

return and standard deviation or volatility. Besides, standard deviation has used to present the diversity of return over a sampling period. The formula of Sharpe Ration as below:

8) $$SR = \frac{r_i - r_f}{\sigma_i}$$

Where,

SR = Sharpe Ratio

r_i = average return of M-REITs/M-PPLCs

r_f = risk free rate of return

σ_i = standard deviation of M-REITs/M-PPLCs

If the value of Sharpe Ratio with a negative value, this represent that the portfolio is generate lesser return against the risk of free rate. Otherwise, the higher value of Sharpe Ratio indicate that the portfolio generate a greater return against the portfolio benchmark.

Second calculation to indicate the performance is Treynor Ratio. Based on Treynor(1965), Treynor is a performance metric for determining the return earn for each unit of risk taken of a portfolio. The calculation of Treynor shown below:

9) $$TR = \frac{r_i - r_f}{\beta_i}$$

Where,

TR = Treynor Ratio

r_i = average return of M-REITs/M-PPLCs

r_f = risk free rate of return

βi = beta of portfolio

Treynor Ratio is a measurement of return that generate from a portfolio on a risk-adjusted basis. In order to justify the performance of M-REITs/M-PPLCs, a Treynor Ratio with a positive value indicates a preferable in M-REITs/M-PPLCs market. If the value of Treynor is negative, it means the performance of M-REITs/M-PPLCs is not optimistic. In other hand, the higher value of Treynor Ratio means the portfolio is generating a greater return against the portfolio benchmark.

The third calculation to determine the performance of M-REITs/M-PPLCs is Jensen alpha' Measure. It is an abnormal return evaluation tool that utilizes from the CAPM which is capital asset pricing model. It is use to estimate the rate of return on the basis of market volatility (standard deviation) by measuring the M-REITs/M-PPLCs' beta and compare with the market beta.

The given beta value of portfolio denotes the volatility of M-REITs/M-PPLCs. Besides, it also represents the risk of portfolio which may arise along the market movement. The higher the value of Jensen Alpha' Measure indicate the portfolio generating a greater performance and vice versa. The formula for calculating Jensen's Alpha is shown below:

10) $$\alpha_i = R_i - [R_f + \beta_i(R_m - R_f)]$$

Where,

α_i = Jensen's Alpha for M-REITs/M-PPLCs

R_i = return of M-REITs/M-PPLCs

R_f = risk free rate

β_i = beta of portfolio

R_m = return of portfolio market

3.3 Conclusion

This chapter has provided an overview on methodology. The research design, data collection method and financial analytic tools are specific in this chapter. This method has been utilized in our research and result will state in following chapter.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

This chapter will begin by analyzing all the data which includes the weekly share price of M-REITs and M-PPLCs that has been collected from Bloomberg financial software. By using the methods and calculation as mentioned in this chapter, data has been analyzed with the results being classified into two categories which are risk diversification benefits (risk features) and performance (Sharpe, Treynor and Jensen's Alpha Ratio).

4.1 Empirical Findings

4.1.1 Risk Features of M-REITS and M-PPLCs

Based on the result of our finding, the overall average weekly return of the 10 M-REITs is calculated at approximately 0.198% and the average return of all M-REITs is performed better than the FBM Kuala Lumpur Property Index which is -0.04%. Besides, the overall average weekly return of 10 M-PPLCs is calculating approximately 0.368% which also generates excess return against the FBM Kuala

Lumpur Property Index which is -0.04%. By comparing the average return of M-REITs and M-PLCs, M-REITS with 0.368% are slightly higher than M-PPLCs which are 0.198%.

This mean investor will generate higher return if invest in M-REITs. The overall rate of return generate by M-PPLCs is low than M-REITs because some of the M-PPLCs such as Global Oriental Berhad and Glomac Bhd. are showing a negative value of average weekly return. Although there are few negative value of average weekly return for few M-REITs and M-PPLCs companies, but it still showing a positive overall average weekly return and outperformed compare with FBM KL Property Index. The average standard deviation of M-REITs is 0.0023 lower than M-PPLCs which are 0.0079.

Table 4.1: Risk Features of M-REITs'

No	REITs	Beta (β)	R-square	Total risk	Systematic risk	Unsystematic risk	Diversification measure
1	Amanah Harta Tanah PNB (AHP REIT)	**0.0215**	**0.0029**	**0.018**	**0.00001**	**0.018**	**0.9971**
2	Al-'Aqar Healthcare REIT(Alaqar REIT)	**0.2019**	**0.1282**	**0.0377**	**0.0048**	**0.0329**	**0.8718**
3	Amfirst Real Estate Investment Trust(Amfirst REIT)	**0.2204**	**0.1321**	**0.0436**	**0.0058**	**0.0378**	**0.8679**
4	AmanahRaya Real Estate Investment Trust(Amanah REIT)	**0.2547**	**0.135**	**0.057**	**0.0077**	**0.0493**	**0.865**

5	Atrium Real Estate Investment Trust(Atrium REIT)	**0.1647**	**0.3686**	**0.0087**	**0.0032**	**0.0055**	**0.6314**
6	Axis Real Estate Investment Trust(Axis REIT)	**0.2929**	**0.1661**	**0.0612**	**0.0102**	**0.0511**	**0.8339**
7	CapitaLand Malaysia Mall Trust(CMMT REIT)	**0.3117**	**0.0412**	**0.2797**	**0.0115**	**0.2682**	**0.9588**
8	Hektar Real Estate Investment Trust(HEKTAR REIT)	**0.2236**	**0.2574**	**0.0230**	**0.0059**	**0.0171**	**0.7426**
9	MRCB-Quill REIT(MQREIT)	**0.2606**	**0.2037**	**0.0395**	**0.0081**	**0.0315**	**0.7963**
10	Pavilion Real Estate Investment Trust(PAV REIT)	**0.1567**	**0.0303**	**0.0961**	**0.0029**	**0.0932**	**0.9697**
	Average	**0.2109**	**0.1466**	**0.0665**	**0.006**	**0.0605**	**0.8535**

Source: Developed for the research

Table 4.2: Risk Features of M-PPLCs'

No	M-PPLCs'	Beta (β)	R-square	Total risk	Systematic risk	Unsystematic risk	Diversification measure
1	Daiman Development Bhd.	**0.6914**	**0.1888**	**0.3001**	**0.0567**	**0.2434**	**0.8112**
2	Damansara Realty Bhd	**1.4397**	**0.1508**	**1.63**	**0.2457**	**1.384**	**0.8492**
3	Eastern & Oriental Bhd.	**1.0711**	**0.7004**	**0.1942**	**0.136**	**0.0582**	**0.2996**
4	Ecofirst Consolidated Bhd.	**0.6805**	**0.4104**	**0.1338**	**0.0549**	**0.0789**	**0.5896**
5	Focal Aims Holdings Bhd.	**2.1757**	**0.0791**	**7.098**	**0.5612**	**6.536**	**0.9209**
6	Glomac Bhd.	**0.7939**	**0.3641**	**0.2052**	**0.0747**	**0.1305**	**0.6359**
7	Global Oriental Bhd.	**1.3498**	**0.3242**	**0.6663**	**0.216**	**0.4503**	**0.6758**
8	GSB Group.	**0.9517**	**0.3953**	**0.2729**	**0.1074**	**0.1655**	**0.6065**
9	Guocoland Malaysia	**1.1064**	**0.6299**	**0.2304**	**0.1451**	**0.0853**	**0.3701**
10	OSK Holdings Bhd.	**0.5583**	**0.33**	**0.112**	**0.037**	**0.075**	**0.67**
	Average	**1.0818**	**0.3571**	**1.0843**	**0.1635**	**0.9207**	**0.6429**

Source: Developed for the research

Besides, the total risk of each portfolio is calculated using the square of the average return volatility. According to Table 4.1 and 4.2 above, the total risk of M-REITs and M-PPLCs are approximately 0.0665 and 1.0843 respectively. This show that the total risks of M-PPLCs is higher than the M-REITs. Although M-PPLCs is higher but it also show that M-REITs and M-PPLCs still exist with risk when invest on it. The risk

of M-PPLCs is almost 2 times of M-REITs. For systematic risks, it is part of total risk. Based on table 4.1 and 4.2, the average systematic risks of M-REITs and M-PPLCs are 0.006 and 0.1635 respectively. The systematic of M-REITs is lower than M-PPLCs.

Compare with the unsystematic risks, the unsystematic risks for M-PPLCs also is higher than M-REITs which are 0.9207 higher than 0.0605. This can indicate that the risk of investor to invest in M-PPLCs is totally higher than M-REITs. For average of beta value, M-REITs score the figure of 0.2109 and M-PPLCs score 1.0818. M-PPLCs are 5 times of M-REITs' average beta value. This show that the systematic risk bears by M-PPLCs compared to M-REITs, which in other words it is more volatile against the market movement.

Based on table 4.1 and 4.2, among all the M-PPLCs companies, there are 5 companies that scored above 1, whereas, the highest beta value of M-REITs is only 0.3117. These explain that the higher the beta value, the larger the portfolio contributes towards the average systematic risk of the entire market. However, for M-REITs, the result show that the volatility of M-REITs against the market movement is low than M-PPLCs due to the contribution level of systematic risk is low. In conclusion, M-PPLCs have a relative higher systematic risk and total risks compare with M-REITs. This show that M-REITs is a defensive investment portfolio because has lower risks and less susceptible to market movement change. For M-PPLCs, it is a speculative investment portfolio as it has higher risk and high degree of volatility against the market movement.

Regarding R-square, M-REITs have a lower value of approximately 0.1466, whereas M-PPLCs have a larger value which is 0.3571 respectively. It is about 2 times of M-REITs. This can conclude that the M-REITs is high diversified compare with M-

PPLCs. Based on our finding, majority of total risk are unsystematic risk and it is the largest influence factor for both portfolio compare with systematic risk.

For diversification measure, the average of M-REITs scores 0.8535 which is relative higher than M-PPLCs that only 0.6429 respectively. The value of diversification measure of M-REITs indicates that it has the greater opportunities to diversify its portfolio in order to reduce the exposure toward risk and not only focus on only one type of method. Compare with M-PPLCs, it is much less opportunities to diversify by avoiding the exposure to risk. For example, the highest value of diversification measure for M-REITs is AHP REIT with 0.9971. For M-PPLCs, the lowest value is 0.2996 by Eastern & Oriental Bhd.

4.1.2 Performance analysis of M-REITs' and M-PPLCs (Sharpe, Treynor and Jensen's Alpha ratio)

Table 3: Sharpe Ratio, Treynor Ratio and Jensen's Alpha of M-REITs'

No.	M-REITs'	Sharpe Ratio	Treynor Ratio	Jensen's Alpha
1	Amanah Harta Tanah PNB (AHP REIT)	**-0.37**	**-10.7784**	**-0.1475**
2	Al-'Aqar Healthcare REIT(Alaqar REIT)	**0.21**	**-1.1184**	**0.1959**
3	Amfirst Real Estate Investment Trust(Amfirst REIT)	**-0.75**	**-1.0781**	**-0.4120**
4	AmanahRaya Real Estate Investment Trust(Amanah REIT)	**0.12**	**-0.8892**	**0.1828**
5	Atrium Real Estate Investment Trust(Atrium REIT)	**0.18**	**-1.3797**	**0.1118**

6	Axis Real Estate Investment Trust(Axis REIT)	**0.25**	**-0.7668**	**0.2939**
7	CapitaLand Malaysia Mall Trust(CMMT REIT)	**-0.18**	**-0.7497**	**-0.1794**
8	Hektar Real Estate Investment Trust(HEKTAR REIT)	**-0.05**	**-1.0226**	**0.0570**
9	MRCB-Quill REIT(MQREIT)	**0.09**	**-0.8713**	**0.1511**
10	Pavilion Real Estate Investment Trust(PAV REIT)	**0.31**	**-1.4191**	**0.3513**
Average of M-REITs'		**-0.019**	**-2.0073**	**0.0605**

Source: Developed for the research

Table 4:. SharpeRatio, Treynor Ratio and Jensen's Alpha of M-PPLCs'

No.	M-PPLCs'	Sharpe Ratio	Treynor Ratio	Jensen's Alpha
1	Daiman Development Bhd.	**0.35**	**-0.3139**	**0.8419**
2	Damansara Realty Bhd	**-0.04**	**-0.1610**	**0.3314**
3	Eastern & Oriental Bhd.	**-0.10**	**-0.2157**	**0.2408**
4	Ecofirst Consolidated Bhd.	**0.59**	**-0.3165**	**0.9181**
5	Focal Aims Holdings Bhd.	**0.35**	**-0.0797**	**3.6926**
6	Glomac Bhd.	**-0.32**	**-0.2989**	**-0.1779**
7	Global Oriental Bhd.	**-0.21**	**-0.1771**	**-0.0642**
8	GSB Group.	**0.60**	**-0.2202**	**1.3154**
9	Guocoland Malaysia	**0.04**	**-0.2054**	**0.4496**

10	OSK Holdings Bhd.	**0.07**	**-0.4063**	**0.2753**
Average of M-PPLCs'		**0.133**	**-0.2395**	**0.7823**

Source: Developed for the research

In this section, there are three major ways for us to calculate the performance of M-REITs and M-PPLCs. Those of the methods are Sharpe Ratio, Treynor Ratio and Jensen' Alpha measure. The result of finding is shown in table 4.3 and 4.4. For Sharpe ratio, M-REITs score a lower ration compare with M-PPLCs. The average Sharpe Ratio is -0.019 and 0.133 respectively. Hence, it can conclude that the performance of M-REITs is lower than M-PPLCs because the Sharpe ratio is low value and reach negative value.

In M-PPLCs, the highest value of Sharpe ratio is 0.6 that fall on GSB Group. Although the average Sharpe ratio of M-PPLCs is high but it still contain some companies such like Glomac Bhd. score a negative Sharpe Ratio with -0.32. Besides, for M-REITs, there is a company which is Amfirst REIT reach the lower Sharpe Ratio with negative value which is -0.75 and there is 4 out of ten REITs are negative value. These show that the performance of REITs is underperformed against the investment which generates risk of free rate return. Then, it generates negative value. ($r_f > r_i$).

After that, the second method to measure the performance of both portfolios is Treynor Ratio. It is quiet similar with Sharpe ratio but it is against with beta value. Both Treynor Ratio of M-REITs and M-PPLCs are showing a negative value while M-REITs score -2.0073 and M-PPLCs score -0.2395. The value of M-REITs' Treynor Ratio is relative lower than M-PPLCs Treynor Ratio. Based on table 4.3, the lowest value of Treynor Ratio in M-REITs is AHP REIT with -10.778. On other hand,

all of the M-REITs and M-PPLCs are negative value due to the recession of economic in Malaysia.

The highest value of Treynor Ratio in M-PPLCs is -0.0797 which is Focal Aims Holding Bhd. A negative value indicate that both M-PPLCs and M-REITs are underperformed against the investment with generate risk of free rate of return. In another word, it is underperformed against the market benchmark.

For the final method to calculate the performance of M-REITs and M-PPLCs is Jensen' Alpha measure which is using the capital asset pricing model (CAPM). According to the finding, the result shown that the M-REITs' average of Jensen' Alpha measure is 0.0605. For the average Jensen' Alpha of M-PPLCs is 0.7823 which is higher than M-REITs and the M-REITs almost 13 times of M-PPLCs' Jensen' Alpha.

Based on table 4.3, there are 3 out of 10 M-REITs are shown in negative value. The highest value of M-REITs is 0.3513 which is PAV REIT and the lowest is -0.4120 which is Amfirst REIT. Based on table 4.4 for M-PPLCs, there are only 2 out of 10 are negative value. The highest value of M-PPLC is 3.6926 which is Focal Aims Holding Bhd. The lowest value of M-PPLC is -0.1779 which is Glomac Bhd. Besides, there is none M-REIT's Jensen' Alpha score above 1 mean all are underperformed against the FBM KL Property Index. In other hand, there are few companies in M-PPLCs are above 1 with 3.6926 and 1.3154 which is Focal Aims Holding Bhd. and GSB Group. In overall, the comparison between M-REITs and M-PPLCs based on Jensen' Alpha measure show that the M-PPLCs are much greater against the benchmark of market portfolio compare with M-REITs.

4.2 Conclusion

This chapter covers all the result of the finding. The result are computed in appendixes. Conclusion is made based on the result to determine the hypotheses. Comparison of M-REITs and M-PPLCs is discussed in this chapter. The following chapter will be last chapter of our research.

CHAPTER 5: CONCLUSION AND RECOMMENDATION

5.0 Introduction

The aim of this entire research is to analyze and compare between the REITs and Public Listed Property Companies in Malaysia in terms of the performance as well as the risk diversification benefits. Firstly, this chapter will thoroughly conclude the overall findings of our research as well as the implications of the studies. Besides that, we will discuss the limitations that we faced when conducting the research while providing recommendations for future studies. Lastly, appendices and references of our study will be attached as well in order to prove our work for this study.

5.1 Discussions of Major Findings

Generally, the purpose of our study is to explore and compare the performance and risk diversification benefits between the REITs and Listed Property Companies in Malaysia. In order to analyze the performance measurement of REITs and Listed Property Companies, Sharpe Ratio, Treynor Ratio, and Jensen's Alpha has been used, while risk diversification benefits of REITs and Listed Property Companies are examined by using risk diversification measures. The sampling data of REITs and Listed Property Companies are chosen according to the Bursa Malaysia market, dated from 1st January 2013 to 31st December 2018 which is a six year study period.

Based on the results of both REITs and Listed Property Companies, M-REITs has a slightly higher average weekly return than the M-PPLCs in Malaysia, meaning that M-REITs can produce a higher return than M-PPLCs for the investors. However, the performance analysis in terms of Sharpe Ratio, Treynor Ratio, and Jensen's Alpha shows that M-PPLCs performed better by scoring a higher average than M-REITs in all three components. In Sharpe Ratio, the results shows that M-PPLCs scored a higher and positive value while M-REITs have a lower and negative value, indicating that M-REITs are underperforming against the investment which generate risk of free rate return.

While both M-REITs and M-PPLCs are showing a negative value in the Treynor Ratio, M-PPLCs still have a relatively higher ratio than M-REITs. The negative value from both investment vehicles in Treynor Ratio means that they are underperforming the market benchmark, but a higher value still indicates that M-PPLCs are generating a better return than M-REITs with risk free rate of returns. Other than that, both M-REITs and M-PPLCs manage to score a positive average value in the Jensen's Alpha, but with M-PPLCs also scoring a higher ratio than M-REITs, which is consistent with prior findings from Ting (2002) and Kim Hiang Low (2001).

This is because only 2 out of 10 companies in M-PPLCs have negative values, whereas 3 out of 10 companies in M-REITs scored negative values. In addition, none of the M-REITs scored above 1 in the Jensen's Alpha, meaning that the M-REITs underperformed the market benchmark which is the FBM KL Property Index, while a few M-PPLCs managed to score above 1. In short, the M-PPLCs have better performance against the market benchmark when compared to M-REITs in terms of Jensen's Alpha. The results are inconsistent with the findings by Newell, Ting and Peter Acheampon (2002) which states that REITs are able to outperform the market benchmark, whereas the findings are consistent with Abdullah and Wan Zahari (2008) that states that M-PPLCs can outperform the KLCI.

Besides the performance of M-REITs and M-PPLCs, the risk features of the two investment vehicles are examined and compared according to their results. In general, the risks for investing in M-PPLCs are higher than M-REITs. This can first be seen in the average standard deviation of M-PPLCs which is higher than M-REITs. Also, the results obtained shows that M-PPLCs have higher total risk than M-REITs as well, which go the same to systematic risks where M-REITs have a lower systematic risks ratio than M-PPLCs.

Besides systematic risks, M-PPLCs also have a higher ratio in unsystematic risks than M-REITs, which implies that it is more risky for investors to invest in M-PPLCs. Based on the results in the average beta value, M-PPLCs is more volatile in the market movement because of its high value which is five time more than M-REITs. This is due to the fact that there are five companies in M-PPLCs that scored the beta value over 1, while all M-REITs scored below 1, resulting in a higher beta value for M-PPLCs. To conclude, M-PPLCs have higher degree of risks or volatility against the market movement due to a higher total risks and beta values than M-REITs. This results are consistent with findings from Newell, Pham, and Ooi (2015), Chai et al. (2011), and Ann (2013) that all stated that overall REITs have better risk diversification than listed property companies.

The hypotheses testing result are compute in Table 5.1.

Table 5.1: Hypothesis Testing Result

No	Hypothesis	Finding	Conclusion
1	H_o: M-REITs'' Si < M-PPLCs'' Si (M-REITs' have lower Sharpe ratio compared to M-PPLCs)	M-REITs'' Si (-0.019) < M-PPLCs'' Si (0.133)	Do Not Reject $\mathbf{H_o}$
	H_1: M-REITs'' Si > M-PPLCs'' Si (M-REITs' have higher Sharpe ratio compared to M-PPLCs)		Reject $\mathbf{H_1}$
2	H_o: M-REITs'' Ti < M-PPLCs'' Ti (M-REITs' have lower Treynor ratio compared to M-PPLCs)	M-REITs'' Ti (-2.0073) < M-PPLCs'' Ti (-0.2395)	Do Not Reject $\mathbf{H_o}$
	H_2: M-REITs'' Ti > M-PPLCs'' Ti (M-REITs' have higher Treynor ratio compared to M-PPLCs)		Reject $\mathbf{H_2}$
3	H_o: M-REITs'' αi < M-PPLCs'' αi (M-REITs' have lower Jensen's Alpha compared to M-PPLCs)	M-REITs'' αi (0.0605) < M-PPLCs'' αi (0.7823)	Do Not Reject $\mathbf{H_o}$
	H_3: M-REITs'' αi > M-PPLCs'' αi (M-REITs' have higher Jensen's Alpha compared to M-PPLCs)		Reject $\mathbf{H_3}$
4	H_o: M-REITs'' β > M-PPLCs'' β (M-REITs' have higher Beta [market risk] compared to M-PPLCs)	M-REITs'' β (0.2109) < M-PPLCs'' β (1.0818)	Reject $\mathbf{H_o}$
	H_4: M-REITs'' β < M-PPLCs'' β (M-REITs' have lower Beta [market risk] compared to M-PPLCs)		Do Not Reject $\mathbf{H_4}$
5	H_o: M-REITs'' Rd < M-PPLCs'' Rd (M-REITs' have lower risk diversification benefits compared to M-PPLCs')	M-REITs'' Rd (0.8535) > M-PPLCs'' Rd (0.6429)	Reject $\mathbf{H_o}$
	H_5: M-REITs'' Rd > M-PPLCs'' Rd (M-REITs' have higher risk diversification benefits compared to M-PPLCs')		Do Not Reject $\mathbf{H_5}$

Source: Developed for the research

5.2 Implications of the Study

The purpose of this research is to provide a comparative analysis for the performance return and risk diversification benefits of both REITs and Listed Property Companies in Malaysia, so that more future investors will have a better understanding before making their investment decisions. By providing a quantitative evaluation for both investment vehicles, investors are able to compare between the potential and abilities for both M-REITs and M-PPLCs in terms of the performance returns and risk features.

For instance, investors that are risk averse can choose to invest in M-REITs that have lower average beta values and higher risk diversifiable measure, while investors that are looking for higher returns can choose to invest in M-PPLCs that have better performance according to the results in Sharpe Ratio, Treynor Ratio, and Jensen's Alpha. However, investors will still need to take note of several factors like management qualities of the companies or corporate growth strategy before investing in either M-REITs or M-PPLCS in order to have a better and careful perspective on which investment vehicles to invest in.

5.3 Limitations of the Study

During the process of conducting this study, there are some problems and difficulties we encountered which caused the research to be imperfect.

First and foremost, the sample size and period of our research is too small due to the lack of time for our research period. For this study, we have obtained 10 companies

of both M-REITs and M-PPLCs sectors from the Bursa Malaysia market listing, over the period of six years, from year 2013 to 2018. The complete data for both investment vehicles is difficult to be obtained as most REITs companies in Malaysia are new and do not have enough data for our sampling period, hence we will need to look one by one for the most suitable companies for M-REITs and M-PPLCs. The small sample size from our study is also not sufficient enough to make the whole research trustworthy as compared to prior studies that have more sample data.

Moreover, there is a limited amount of prior studies and journals that covers the comparison along with the analysis of both REITs and listed property companies in Malaysia. Therefore, we have to search for prior studies that are related to REITs and listed property companies separately and relate them together to form our literature review. This serves as part of limitations for our study because researchers that studied REITs may have results that are more biased towards REITs, and same goes to researchers that studied listed property companies.

Also, our research is based on the REITs and Listed Property Companies in Malaysia, meaning that our results are not applicable in other countries. This is due to the fact that the regulations and guidelines of REITs as well as Listed Property Companies in Malaysia are different in other countries. For instance, REITs and listed property companies in different countries may have different tax regulations, foreign ownership restrictions, requirement of capital and so on. Hence, the results from our study may not be reliable for investors that wish to invest in the REITs and Listed Property Companies in other countries.

5.4 Recommendations for Future Research

Firstly, the sample size for our data is too small to be reliable for future research. Thus, future researchers are recommended to obtain a larger sample size and increase the sampling period of the study when analyzing the REITs and listed property companies in Malaysia for more reliable results for the investors. Besides that, future researchers can also determine which REITs or listed property companies to study by checking the availability of the data before conducting the study so that no time will be wasted.

Besides that, future researchers can include studies that are related to REITs and Listed Property Companies in other countries to strengthen the consistency of the study. By adding in more prior studies from different countries, the comparison and analysis of REITs and Listed Property Companies will be more effective as investors can have different perspectives in viewing the investment vehicles before making their decisions. With more journals and articles, future researchers are able to link and compare both REITs and Listed Property Companies with more accuracy and consistency.

Lastly, one of the limitations for this study is that it only analyzes and compares local REITs and Listed Property Companies. Future researchers can improve this research by analyzing and comparing REITs and Listed Property Companies in Malaysia with other countries. This is because different guidelines and regulations of the investment vehicles in different regions will affect their earnings, which will then affect the results of the study. By considering the possible outcomes in other countries, researchers will be able to provide investors with a more accurate study on the REITs and Listed Property Companies all over the world.

5.5 Conclusion

This research has studied about the performance and risk diversification benefits between Real Estate Investment Trusts (REITs) and Public Listed Property Companies (PPLCs) in Malaysia. In order to determine the performance and risk diversification benefits, we had review the literature and implement the data collection as shown in the research methodology. This chapter has included the suggestions for each investor as an advice and guidelines for them in the future. In addition, it also contributes knowledge about REITs and PPLCs to investors.

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