FACTORS INFLUENCING RISK-ADJUSTED PERFORMANCE OF THE MALAYSIAN REAL ESTATE INVESTMENT TRUSTS

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APRIL 2019

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A research report project submitted in partial fulfillment of the requirement for the degree of

Master of Business Administration (Building Management)

Universiti Tunku Abdul Rahman

Faculty of Accountancy and Management

April 2019

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DECLARATION

I hereby declare that:

(1) This Research Project is the end result of my own work and that due acknowledgment has been given in the references to all sources of information be they printed, electronic, or personal.

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

(3) The word count of this research report is 13,505.

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Date : 17-4-2019

ACKNOWLEDGEMENT

First of all, I would like to express my gratitude to my project supervisor, Dr Tee Peck Ling for all his guidance, patience and immense knowledge. His guidance helped me in all the time of research and completing of this project.

My sincere thanks also goes to my family members, friends and course mates for all the support and motivation.

Lastly, I would also like to give credit to all the past researchers for who have contributed their work in this area of study as their contributions have provided me with a lot of knowledge.

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ABSTRACT

This study examines the risk-adjusted performance of Real Estate Investment Trusts (REITs) in Malaysia using Jensen Index as the performance measure. The sample data is collected from REITs listed in Bursa Malaysia for from year 2015 to 2017. This study used weekly share price of M-REITs and KLCI to generate beta and Jensen Index as the proxy for REIT performance. This study also examines the relationship between market capitalization, net property income, dividend yield and types of property managed with the risk-adjusted performance of M-REITs. Findings from this study are aimed to provide insights to the investors and REITs managers on which types of property contribute to better fundamental and risk-adjusted performance.

CHAPTER 1

INTRODUCTION

1.0 Introduction

Chapter 1 will start with the introduction to the background of this study follow by the problem statements of this study, the research questions, research objectives, scope of research, the significance of this study and finally the layout of chapters.

1.1 Research Background

1.1.1. Development of Real Estate Investment Trusts in Asia

The establishment of Real Estate Investment Trusts (REITs) along with the guidelines which offers detailed provisions and regulations for trading on the stock exchange is very crucial for a healthy GDP for a country.

The growth of the real estate industry is closely related to developments in other industries as well such as in the corporate and commercial sector, hospitality and tourism sector, retail sector, information technology (IT) sector, infrastructure, service sector and many other fields (Aggarwal, 2014). The most significant benefits of REITs are the convenience of investments and diversification in the real estate sector without large capital for individual investors, alternative avenues for property developers to raise capital, reduce illiquidity in the real estate sector and greater Foreign Direct Investment (FDI) in the real estate industry of a country. Major part of the profitability of REITs is closely related to tax policies and stamp duty related regulations in a country, especially for the offshore investors and FDI.

The growth of Real Estate Investment Trusts (REITs) over the past decade has seen an evolution on portfolios of REITs which put more focus on high quality commercial, retail and industrial real estate investment portfolios. REIT markets have been growing in the Asian markets (Newell, 2012). The establishment of Asia REITs started with Japan launching two J-REITs in September 2001 followed by Singapore in July 2002. Taiwan successfully launched its REIT in March 2005 and Hong Kong launched the first HK-REIT, the Link REIT in November 2005. The Link REIT created history as being the largest REIT IPO in the world at that time with a market capitalization of US$2.6 billion (Ooi & Tien, 2006). In 2005, Malaysia followed suit and set up REITs after the introduction of REITs Guidelines by Malaysian Securities of Commission (SC) in 2005.

Moving on to India, the country introduced its first draft guidelines for a REIT market in December 2007 but the initial framework did not receive approval because of unclear explanation on taxes (Ang, 2015). It was not until 2012 that the Securities and Exchange Board of India (SEBI) introduces the consultation paper on a new set of guidelines for the REIT market. Implementation of REITs in India has been continuing since the last six to seven years. India’s first Real Estate Investment Trust (REIT), Embassy Office Parks REIT, opened its initial public offering (IPO) on March, 2019 (Vishwanathan, 2019).

As for Pakistan, the concept of REIT has not taken off. Up till 2017, only a single REIT; the Arif Habib's Dolmen REIT was listed on the stock exchange (Business Recorder Research, 2017). Before being replaced in 2015 by the old 2008 regulations. The new regulations which were much more business-friendly than the 2008 regulators did not help to launch the growth of REITs in Pakistan. Many REIT projects have been delayed in the past few years with no sight of commencing in the near future (Business Recorder Research, 2017).

On the other hand, in the Philippines, although the law regarding REITs have been passed since 2009, the implementing rules were still under review by the Bureau of Internal Revenue (BIR). The tax regulations were still unclear. In the earlier interpretation, the initial injection of properties into the REIT would be free from taxes on gains however, a 12-percent value added tax (VAT) would be imposed on the sponsor of the income-generating properties (Abadilla, 2017).

In Thailand, the Securities and Exchange Commission introduced the regulations to establish REITs in late 2012, generating opportunities for the first REITs to be listed in 2013. In 2014, the Stock Exchange of Thailand launched a new REIT scheme based in large part on the Singaporean REIT model to replace the outmoded and illiquid Property Fund for Public Offering (PFPO) vehicle. Since the introduction of the new scheme, the total REIT market capitalization in Thailand has reached a massive THB 85 billion (US$2.6 billion) with more than two million squares of assets (Ratapana, 2017).

Based on a research done by Atchison & Yeung (2014) on the impact of Asian REITs on the economies, the authors highlighted some benefits that REITs have brought to the Asian economies. Among the benefits highlighted were REITS have offered long-term institutional and individual investors a valuable alternative to achieve better return/volatility outcomes, contributed to capital market diversity and a healthy development of property industry by improving market transparency.

In 2017 alone, total acquisitions undertaken by REITs in Asia-Pacific crossed USD 20 billion, with an approximate share of 15 percent in the overall commercial real estate acquisitions undertaken in the region (Moneycontrol News, 2018).

1.1.2 Development of Real Estate Investment Trusts in Malaysia

Real Estate Investment Trusts (REITs) is an investment vehicle or a unit trust scheme that invests in income-producing properties (Chuweni, Ali, Ismail & Ahmad, 2015). Among the income-generating properties are office or commercial buildings, shopping malls, industrial properties, resorts or hotels, healthcare facilities and specialty-built buildings, among others (Low & Johari, 2014). REITs are attractive to investors due to the regualtions that REITs are required to distribute at least 95 percent of their taxable income in the form of dividend yields to shareholders (Abdul Jalil, Low, Mohammad, Fadzli & Tiong, 2017).

The history of REITs in Malaysia dated back to 1989 with the introduction of the Malaysia Listed Property Trusts (LPTs). However, LPTs were not well-received due to weak perception and low demand. There were very few LPTs listed on the Bursa Malaysia due to their unattractiveness, small market capitalization and offer very little diversification advantage to the investors (Abdul Jalil & Mohd. Ali, 2012).

It was not until 2005 that the Securities Commission of Malaysia came up with structured guidelines to replace the previous guidelines for property trust funds. In August 2005, the first M-REIT, the Axis REIT debuted on Bursa Malaysia. In the next year, Malaysia became the first country in the world to introduce Islamic Real Estate Investment Trust; a REIT which complied with the principle of Shariah (Ong, Teh, Soh & Yan, 2012).

With increasing domestic and foreign investors showing interest in M-REITs, market capitalization has been gradually increased over the years (Ng, Lau & Lim, 2017). As of September 2017, market capitalization for REITs has grown to a massive RM44

billion as compared to RM5 billion ten years ago, a compound annual growth rate of 24% since 2007 (MalayMail, 2017). As of 2018, there are a total of 18 REITs listed on Bursa Malaysia.

Table 1: List of M-REITs as of December 2018

No.	REIT Fund	Management Company	Fund Trustee
1.	AMANAH HARTA TANAH PNB	Pelaburan Hartanah Nasional Berhad	AmanahRaya Trustees Berhad
2.	Al-`AQAR HEALTHCARE REIT	Damansara REIT Managers Sdn Bhd	AmanagRaya Trustees Berhad
3.	AL-SALAM REIT	Damansara REIT Managers Sdn Bhd	AmanahRaya Trustees Berhad
4.	AMFIRST REIT	AmREIT	Maybank Trustees Berhad
5.	AMANAHRAYA REIT	AmanahRaya-Kenedix REIT Manager Sdn Bhd	CIMB Islamic Trustee Berhad
6.	ATRIUM REIT	Atrium REIT Managers Sdn Bhd	CIMB Commerce Trustee Berhad
7.	AXIS REIT	Axis REIT Managers Sdn Bhd	RHB Trustees Berhad
8.	CAPITALAND MALAYSIA MALL TRUST	CapitaLand Malaysia Mall REIT Management Sdn Bhd	MTrustee Berhad
9.	HEKTAR REIT	Hektar Asset Management Sdn Bhd	MTrustee Berhad
10.	IGB REIT	IGB REIT Management Sdn Bhd	MTrustee Berhad
11.	KIP REIT	KIP REIT Management Sdn Bhd	Pacific Trustees Berhad
12.	KLCC REIT	KLCC REIT Management Sdn Bhd	Maybank Trustees Berhad
13.	MRCB-QUILL REIT	MRCB Quill Management Sdn Bhd	Maybank Trustees Berhad
14.	PAVILION REIT	Pavilion REIT Management Sdn Bhd	MTrustee Berhad
15.	SUNWAY REIT	Sunway REIT Management Sdn Bhd	RHB Trustees Berhad
16.	TOWER REIT	GLM REIT Management Sdn Bhd	MTrustee Berhad
17.	UOA REIT	UOA Asset Management Sdn Bhd	RHB Trustees Berhad
18.	YTL REIT	Pintar Project Sdn Bhd	Maybank Trustees Berhad

Note: Developed for research.

1.2 Problem Statement

Asian REIT markets have had mixed results thus far in 2018 with Japanese REITs (J-REITs) delivering total YTD (year-to-date) returns of 10.1% in USD versus declines of 7.17% for SREIT and 7.17% by the Australian REITs in USD terms (Bernasconi, 2019).

The performance of M-REITs was uninspiring through most of 2018. Bursa's REIT Index finished at 928.81 points on Dec 31, 2018, translating into a decline of 12.2% from 1,057.35 points on Dec 29, 2017, underperforming the benchmark FBM KLCI by nearly twice as much (Retail News Asia, 2019).

However, looking at the individual REITs, there are some REITs which performed well despite the pressure of oversupply of commercial and retail properties in the market. Strong names such as Pavilion, IGB and Sunway are able to withstand the market pressure. The reasons why some M-REITs performed better than others and the factors that affect their risk-adjusted performance pose some gaps to be filled by this research.

As the REITs sector continues to grow in Malaysia, there is a need for more thorough studies on REITs and their performances. There have been many studies focusing on comparing the risk-adjusted performance of M-REITs with the benchmark. However, there are limited studies assessing the factors that affect the risk-adjusted performance of M-REITs. Assessing M-REITs is challenging as each REIT may have different characteristics, property allocation, market capitalization, market advisory and other unique factors.

Over the years, researchers have suggested different factors that would affect the performance of REITs. Among the factors suggested by researchers are the diversification in terms of type of property (Redman & Manakyan, 1995; Abdul Jalil & Mohammad Ali, 2015; Abdul Jalil et al., 2017), location of property (Redman & Manakyan, 1995; Abdul Jalil & Mohammad Ali, 2015), size of REITs firm (Capozza & Lee, 1996; Mohmad & Zolkifli, 2014; Abdul Jalil & Mohammad Ali, 2015), capital

structure of REITs (Abdul Jalil & Mohammad Ali, 2015), dividend payout (Mohamad & Zolkifli, 2014; Olanrele, 2014;), degree of leverage (Olanrele, 2014) among others.

Since there many factors suggested by researchers that will affect the risk-adjusted performance of M-REITs, only a few factors namely market capitalization, net property income, dividend yield and diversification of property type will be chosen to be further studied since there are not much studies done on these factors.

1.3 Research Questions

This research is carried out to answer the following questions:

1. Will the size (market capitalization) influence the risk-adjusted performance of Malaysian Real Estate Investment Trusts (M-REITs)?
2. Will the net property income influence the risk-adjusted performance of Malaysian Real Estate Investment Trusts (M-REITs)?
3. Will the dividend yield influence the risk-adjusted performance of Malaysian Real Estate Investment Trusts (M-REITs)?
4. Will the diversification of property type influence the risk-adjusted performance of Malaysian Real Estate Investment Trusts (M-REITs)?
5. How is the risk-adjusted performance of Malaysian Real Estate Investment Trusts (M-REITs) of different sectors against the return of market portfolio (KLCI Index)?

1.4 Research Objectives

This research will fulfill the following objectives:

1. To investigate the factors (market capitalization, net property income, dividend yield and diversification of property type) influence on the performance of Malaysian Real Estate Investment Trusts (M-REITs).
2. To compare the performance of Malaysian Real Estate Investment Trusts (M-REITs) of different sectors as well as benchmark against the return of market portfolio (KLCI Index)

1.5 Scope of Research

This research will use secondary data on the market capitalization, net property income, dividend yield and types of property managed by individual REITs gathered from their respective annual reports. The data collected would be from the year 2015 to 2017. Only 16 REITs out of the 18 REITs listed on Bursa Malaysia will be used in this study as KLCC REIT and KIP REIT will be excluded. This is due to the reason that KLCC REIT is a stapled REIT where it holds bundles of existing shares of KLCC Property Holdings Bhd (KLCCP) and units of KLCC REIT (Wong, 2013). As for KIP REIT, there is not much data available since it was only listed on February 2017.

Another three types of date that will be used in this study are FBM KLCI Index, weekly share price of the REITs and Malaysia 3-month Treasury bill rate (TBR). The weekly returns of KLCI Index serve as benchmark for market portfolio in this study. Three-month treasury bills rates will be collected from Bank Negara Malaysia's annual report and used as the risk-free rate in this study. Actual weekly share price for the REITs will be collected from year 2015 to 2017 from Bursa Malaysia and Bloomberg Database.

Jensen index will then be computed using the collected date to serve as the measure of REITs performance.

1.6 Significance of the Research

As M-REITs begin to encounter an era of rapid development with increasing demand, this study is fundamental to give REITs managers, investors and even non-investors some insights on M-REITs' nature, characteristics and evaluate their performance. The results of this study could provide some information to the REITs managers when making decision and drafting strategies to optimize the performance of their portfolios. With the real estate market continuously under pressure, every decision made is crucial and getting some insights on what could affect the performance would help the REITs managers in making investment and even divestment decision.

As for the investors, making profit through investment in REITs would definitely be the on top of the list. By having some analysis done on the performance of REITs, investors can make better decision to pick up an investment that suits themselves. For non-investors, this study would provide some knowledge on the development of REITs, how it works and the performance throughout the years.

1.7 Chapter Layout

This report will be presented in five chapters as follows:

Chapter 1: Introduction

Chapter 1 will discuss on the background of the research, problem statements, research questions, objectives that will be achieved, scope of study and also the significance of this study. This chapter will end with the presentation of the chapter layout.

Chapter 2: Literature Review

Chapter 2 is about reviewing the literature related to the topic of study, theoretical framework and definition on variables. This chapter will begin with the review of literature follow by theoretical framework, variables, hypothesis development and research gap.

Chapter 3: Research Methodology

In Chapter 3, the method used to gather and analyze data will be discussed starting from research design, theoretical framework, development of hypothesis, data collection method and data analysis.

Chapter 4: Data Analysis and Results

In Chapter 4, data analysis will be carried out on and the results will be interpreted and presented in structured order.

Chapter 5: Discussion and Conclusion

Chapter 5 will provide the overall findings by discussion the major findings from this study, implication of the study, limitation of the study and finally recommendations for future research.

1.8 Conclusion

In chapter 1, the background of this study and the area of study have been introduced. The research questions and objectives have also been explained together with the significance of this study. In the next chapter, the literature review for this study will be discussed in detail.

CHAPTER 2

LITERATURE REVIEW

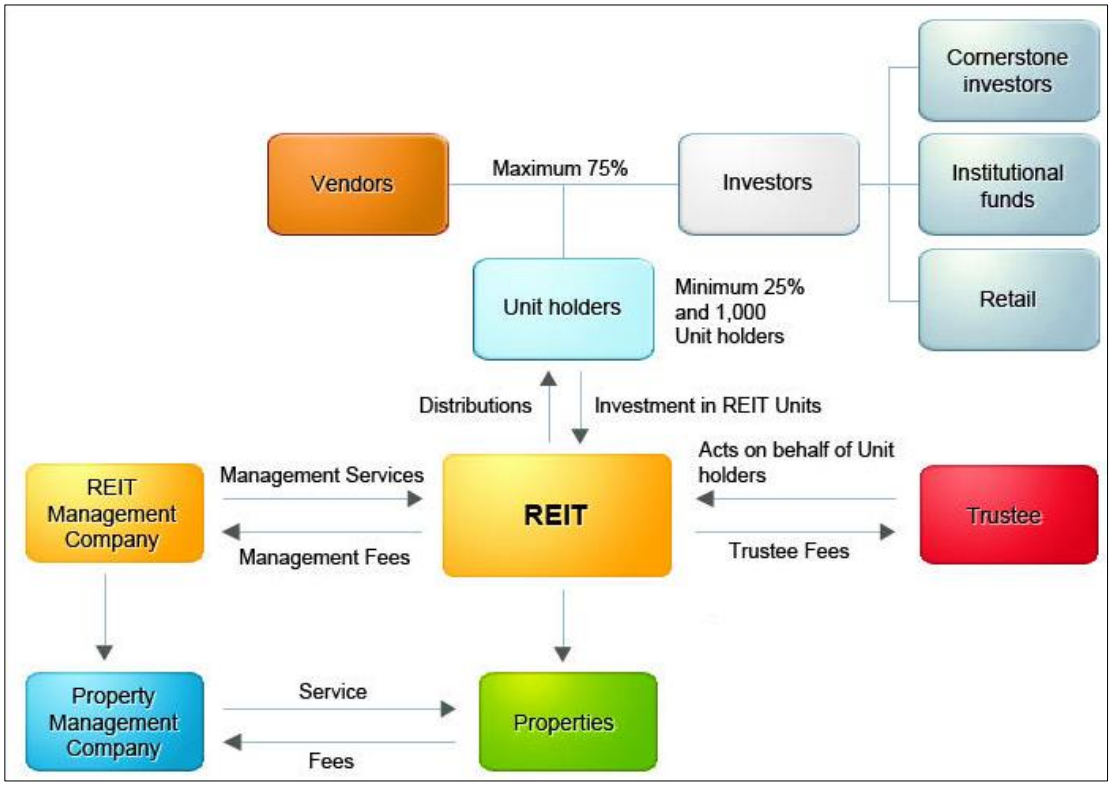
2.0 Introduction

This chapter will first introduce the structure of REIT in Malaysia followed by review of literature, conceptual framework, variables and hypothesis development.

2.1 Structure of Malaysian REITs

REIT functions like an investment vehicle that pools monies from many investors, for investment in real estate ventures such as industrial facilities, healthcare centers, office buildings, warehouses and malls, among others (Legal Herald, 2018). According to the definition in the guidelines released by Securities Commission Malaysia, Real Estate Investment Trust (REIT) is a unit trust scheme or investment vehicle that invests primarily in the real estate which will generate income. A conventional Malaysian REIT is structured to have the following key components; the deed, the assets of the REIT, the trustee, the management company and the unit holders (Chuweni et al., 2015)

Figure 1: Structure of Typical Conventional Malaysian REIT



Source: Bursa Malaysia (http://www.bursamalaysia.com/market/securities/education/faqs-on-real-estate-investment-trusts-reits)

A trust deed is registered whereby the investors entrust their capital to a trustee and the management of the property is undertaken by a professional manager (Kok & Khoo, 1995). According to Securities Commission Malaysia's Guidelines on Listed Real Estate Investment Trust, under Schedule A, the instrument constituting to the fund is deed and the statement that the deed "is binding on each unit holder as if it had been a party to it and that it is bound by its provisions". The deed will also have the authority over the management company and trustee and it must adhere to the laws of Malaysia.

As for the assets of a REIT, the majority of the assets must be real estate which will generate income. Although REITs are allowed to invest in non-real estate related assets,

at least half of the fund's total asset value must be invested in real estate and/or single -purpose companies as stated in paragraph 8.07 of SC guidelines. The fund's investment in non-real estate related assets is capped at 25% of the fund's total asset value as stated in paragraph 8.03 of the guidelines (Legal Herald, 2018).

The trustee is the registered legal owner of the assets and properties in a fund. Under the SC guidelines, a trustee must "be a trust company registered under the Trust Companies Act 1949 or Incorporated under the Public Trust Corporation Act 1995, be registered by the SC and have a minimum issued and paid-up capital of not less than RM500,000." As stated in paragraph 4.22 of the guidelines, the trustee is prohibited from holding units or other interests in the fund in order to avoid conflict of interest.

Under paragraph 3.02 of the SC guidelines, the management company establishes the REIT, the issues, offers for subscription, makes and invitation to subscribe for or purchase units of the REIT, and operates and administer the REIT (Legal Herals, 2018).

Lastly, the unit holder of the trust is the investor of REIT. According to Bursa Malaysia, "the key rights as a unit holders include rights to receive income and other distributions attributable to the units held; received the funds report of REIT; and participate in the termination of REIT by receiving a share of all net cash proceeds derived from the realization of the assets of REIT less any liabilities, in accordance with their proportionate interests in REITs."

The REITs in Malaysia can be divided into two types; the conventional REITs and the Islamic REITs. The Islamic REITs are regulated by the "Guidelines for Islamic Real Estate Investment Trusts" aside from the SC guidelines for conventional REITs. The operation of Islamic REITs is the same as the conventional REITs except that the Islamic REITs will have to follow the Shariah principles.

2.2 Risk-Adjusted Performance Measure

There are three common indices used to measure the risk-adjusted performance of portfolio namely the Treynor Index (1965), the Sharpe Index (1966) and the Jensen Index (1968). These three measures assume that stocks are priced according to the Capital Asset Pricing Model (CAPM) which stated that "the expected rate of return on a risk asset is composed of the risk-free rate plus the systematic risk (measured by beta) multiplied by the market risk premium of the expected market return minus the risk free rate" (Kim, Mattila & Gu, 2002).

2.2.1 Jensen Index

Jensen Index has been commonly used in various studies as a risk-adjusted performance measure for REITs (Kok & Khoo, 1995; Han & Liang, 1995; Kim, Mattila & Gu, 2002; Jackon, 2009; Hamzah, Rozali & Mohd Tahir, 2010). Jensen Index is based on the capital asset pricing model (CAPM). This index measures the REIT's beta and does a comparison with market beta to determine the rate of return (Ng, Leong, Lau & Fitriya, 2018). The formula of Jensen Index is as follow:

$$\boldsymbol{\alpha_i = R_i - [R_f + \beta_i(R_m - R_f)]}$$

Whereby,

$\boldsymbol{\alpha_i}$ = Jensen's Alpha for REIT

$\boldsymbol{R_i}$ = return of REIT

$\boldsymbol{R_f}$ = risk free rate

$\boldsymbol{\beta_i}$ = beta of portfolio

$\boldsymbol{R_m}$ = return of portfolio market

2.2.2 Treynor Index

Treynor Index is a measurement of the portfolio return on a risk-adjusted basis (Ng et al., 2018). This index is different from Sharpe Index in the sense that it uses beta or systematic risk, unlike Sharpe Ratio which uses standard deviation of returns as a measure of total risk in examining the portfolio performance (Dharani & Natarajan, 2011). A higher Treynor Index indicated a more favorable performance of a portfolio against the benchmark portfolio. The formula of Treynor Index is as follow:

$$\boldsymbol{Treynor\ Index} = \frac{\boldsymbol{r_i - r_f}}{\boldsymbol{\beta_i}}$$

Whereby,

$\boldsymbol{r_i}$ = average return of REITs

$\boldsymbol{r_f}$ = risk free rate of return

$\boldsymbol{\beta_i}$ = beta of portfolio

2.2.3 Sharpe Index

Sharpe Index scales the excess returns earned by total risk risks (Ooi & Liow, 2004). The formula of Sharpe Index is made up of average return of REITs, risk free rate of return and standard deviation of REITs. The formula of Sharpe Index is as follow:

$$\boldsymbol{Sharpe\ Index} = \frac{\boldsymbol{r_i - r_f}}{\boldsymbol{\sigma_i}}$$

Whereby,

$\boldsymbol{r_i}$ = average return of REITs

$\boldsymbol{r_f}$ = risk free rate of return

$\boldsymbol{\sigma_i}$ = standard deviation of REITs

2.2.4 Limitations of Treynor and Sharpe Index

The major limitation of Treynor and Sharpe Index is that both the indices only have meaning as ranking metric without quantifying the value added (Mirae Asset Knowledge Academy, 2014). The value of both indices are limited to the comparison between other Treynor and Sharpe Index.

Based on the remark by Han & Liang (1995), Jensen Index attempts to compare the performance of a portfolio against the benchmark portfolio (stock market portfolio) to determine whether the portfolio is over or under-performing as compared to the benchmark. Jensen Index also enables one to determine whether the returns of the portfolio are statistically significant as a statistically significant positive value for alpha showed a better risk-adjusted performance in comparison to the benchmark portfolio and vice versa (Asabere, Kleiman & McGowan Jr., 1991).

Furthermore, both Treynor and Sharpe Index are based on the ratio of return to risk rather than measuring the relative performance based on the security market line (SML) as Jensen Index (Jackson, 2009). Based on the mean-variance theory, security market line (SML) is all securities plotted on a single line, when expected returns are plotted against the beta coefficients (Dybvig & Ross, 1985).

Jensen Index is chosen for this study as it enables performance of M-REITs to be compared with the market portfolio (KLCI Index).

2.3 Past Research on Risk-Adjusted Performance of REITs

Before the first introduction of first Malaysian REIT, Axis REIT, back in 2005, Malaysia is the first country in Asia permitted by legislation to form listed property trusts (LPT) way back in 1989. Malaysian First Property Trust (AMFPT) was the first LPT to debut on Kuala Lumpur Stock Exchange (KLSE). Approaching the end of the 1990s, there number of listed LPTs in Malaysia grew to four. The second LPT, First Malaysian Property Trust (FMPT) was listed on November 23, 1989 followed by Amanah Harta Tanah PNB (AHTP) on December 28, 1990 and Mayban Property Trust Fund One (MPTF1), listed on March 25, 1997 (Chai, Choong, Koh & Tham, 2011).

In 2005, the Securities Commission Malaysia introduced a set of new guidelines and Listed Property Trust (LPT) was officially changed to Real Estate Investment Trust (REIT) to standardized with other countries.

Since the establishment of REITs in Malaysia, there have been many researches done to evaluate the performance of Malaysian REITs using various approaches.

In the context of Malaysia, a study was done by Kok & Khoo (1995) on the performance of property trusts in Malaysia using Sharpe, Treynor and Jensen Index. The study was carried out to analyze the degree of risk and return, determine the performance of against benchmark portfolio and to test the consistency of the property trusts. The data collected were the weekly and monthly prices of Arab-Malaysian First Property Trust (AMFPT), First Malaysian Property Trust (FMPT) and Amanah Harta Tanah PNB (AHP). The study concluded that FMPT was the best performing property trust during the market rising and declining period and the performance is on par with the market portfolio. There was no property trust showing sign of consistency investment performance during the study period and that the systematic risks of all the property trusts were low. Similar researches were done using Sharpe, Treynor and Jensen Index as the performance measurement of REITs throughout the years. Study done by Hamzah, Rozali & Mohd Tahir (2010) for the period from 1995 to 2005

showed that the performance of REITs was superior to the market portfolio during the 1997-1998 financial crisis but were underperforming during the pre-crisis period from 1995-1997 and post-crisis period from 1998-2005. In another research done by Ong, Teh, Soh & Yan (2012), the study compared the performance of conventional and Islamic REITs from 2005-2010 period in another financial crisis period. The results obtained from this study differ based on different performance measure. Treynor and Sharpe Index showed that most REITs did not perform better than the market portfolio during and post financial crisis whereas Jensen Index showed otherwise. Low & Johari (2014) did an adjusted and unadjusted performance analysis and risk features analysis on 12 Malaysian REITs from 2007 to 2012. Performance measures; Sharper, Treynor, Sharpe Index and M-squared measure were used in this study. The results showed that 9 out of the 12 M-REITs performed better than the market portfolio based on unadjusted performance while only half of the 12 M-REITs over-performed the market portfolio based on risk-adjusted return.

In the recent years, similar study was carried out by Ng, Lau & Lim (2017) to analyze performance of 16 M-REITs using Sharpe, Treynor and Jensen Index from 2007 to 2015. For unadjusted performance, the average of M-REITs portfolio over-performed the market portfolio represented by FBM Property Index. As for the adjusted performance, Axis, Sunway and Pavilion REITs performed better than other M-REITs in the market. Both adjusted and unadjusted indicated consistency in the performance of the M-REITs. The studied carried out by Ng et al. (2018) was similar except that it compared the performance of 16 Malaysian REITs from the year 2007 to 2016 and 26 Singapore REITs from the year 2002 to 2016. From this study, it was concluded that the average diversification measure of M-REITs is higher and M-REITs showed better performance with the higher average for the three indices.

In other studies on Malaysian REITs, Newell, Ting & Acheampong (2002) carried out a study on performance analysis on the four listed property trusts namely Arab Malaysian First Property Trust, First Malaysia Property Trust, Amanah Harta Tanah PNB and Mayban Property Trust Fund One from 1991-2000 based on their capital

returns. During the period of study, only Amanah Harta Tanah PNB performed better than the market portfolio (Kuala Lumpur Composite Index). Based on the risk-adjusted performance, all four of the listed property trusts did not perform better than the market portfolio.

Newell & Osmandi (2009) carried out a study to analyze the performance of conventional REITs and Islamic REITs in terms of risk-adjusted performance. Weekly total returns data was collected for the 11 conventional M-REITs and 2 Islamic-REITs from the period of August 2006 to December 2008. Risk-adjusted performance was analyzed based on average annual return and conventional REITs outperformed Islamic REITs, with marginally lower risk during the period of study. In order to study the diversification benefits, correlation analysis was carried out and the result indicated that Islamic REITs were less correlated with stock market compared to conventional REITs. In terms of efficient frontier, conventional REITs dominate the portfolio with a higher level of risk.

Study carried out by Ong, Teh & Chong (2011), used a different approach to examine the performance of REITs in Malaysia. This study applied Net Asset Value Approach (NAV) which indicated "the total value of the company's assets that shareholders would receive and how should the company be liquidated". Annual closing prices for 13 M-REITs from 2005 to 2010 were collected for this study. The study came to the conclusion that M-REITs were traded at NAV premium throughout the study period due to the reasons being liquidity, access to greater capital resources, transparency and effective management.

Chuweni, Ali, Ismail & Ahmad (2014) did a case study focusing on performance of YTL Hospitality REIT. This study utilized the ratio analysis of financial statement to determine the profit margin from 2010 to 2013. In terms of share price, YTL Hospitality REIT showed signed of steady increment throughout the study period reaching its peak in 2012 to 2013. For ratio analysis, return on capital employed showed sign of declining from 2011 to 2013 due to increase of borrowing of the company. For

operating ratios, the current ratio of the REIT showed sign of declining from 2010 to 2013 and is valued at less than 1 put the company at the risk of illiquidity.

A study carried out by Olanrele (2014) attempted to analyze factors affecting the REIT performance. This study focused on AMFIRST REIT with the study period from 2007 to 2013. The REIT performance was justified based of the dividend yield and the result of this study showed that all the factor variables; size (capitalization), degree of leverage, market-to-book ratio and fund from operation (FFO) had impact on the REIT performance.

Tiong & Abdul Jalil (2016) carried out a study to investigate the relationship between the property types diversification and performance of REITs. 17 M-REITs were classified based on their property types; commercial, industrial, retail, hospitality and specialty. This study came to the conclusion that property types had minimal impact on the M-REITs performance of expected return and dividend yield.

The study done Abdul Jalil, Low, Mohammad, Fadzli & Tiong (2017) analyzed the correlation between property types and financial performance of M-REITs. The market performance was represented by market capitalization, dividend per unit, dividend yield and total return index. This study concluded that of property type office space was positively correlated with dividend per unit, dividend yield and total return index while property type commercial mall is positively correlated with market capitalization. Property type industrial building had positive correlation with dividend per unit, dividend yield and total return index whereas property type hotel and resort was positively correlated with market capitalization of REITs.

2.4 Factors Influencing Risk-Adjusted Performance of M-REITs

There were some researches done on examining factors influencing risk-adjusted performance of REITs. Redman & Manakyan (1995) carried out a research to analyze the risk-adjusted performance of United Stated REITs from the period of 1986 to 1990. The study came to the conclusion that financial ratios (gross cash flow, leverage, asset size), location of properties managed and types of property managed will have an impact on the risk-adjusted performance of REITs. In this study the researchers used Sharpe Index as performance measure.

In the context of Asia, Mohamad & Zolkifli (2014) carried out research using REITs data from five Asian countries; Taiwan, Thailand, Malaysia, Hong Kong, Japan and Singapore for the period from 2007 to 2011. Net Asset Value (NAV) and return on the REITs were used as the performance measurement. The researchers concluded that the factors; risk, dividend yield, net income and size (total asset) will determine the performance of the REITs.

In the Malaysian context, study carried out by Olanrele (2014) on AmFirst REIT from 2007 to 2013 concluded that net asset value (NAV), size (market capitalization), asset value net income and level of leverage will have effect of REITs performance. In this study, dividend yield was used as the proxy measure for performance. In another research carried out by Abdul Jalil & Mohd. Ali (2015), the types of property managed, location of property managed, size of REITs and financing policy of REITs in terms of weighted average cost of capital (WACC), cost of equity and cost of debt as the characteristics that will determine the performance of REITs. In the study done by Lee (2017), the results indicated dividend yield had negative relationship with return on REITs whereas net property income showed a positive relationship.

2.4.1 Size of REIT

For this study, the size of individual REIT is expressed through its market capitalization value. There is empirical evidence which suggested an inverse relationship between the returns and size of REITs. In short, the returns of smaller REITs should outperform larger REITs (Yong, Allen & Lim, 2009). This is supported by the study done by Capozza & Lee (1996) that smaller REITs earned higher premium to net asset value compared to larger REITs. Study by Clayton & MacKinnon (2000) also showed that the size (market capitalization) is positively related to the performance of REITs.

2.4.2 Net Property Income

Net property income is defined to be income generated from properties such as rental minus property expenses such as taxes and property management expenses (Capozza & Lee, 1996). Research carried out by Mohamad & Zolkifli (2014) showed that net income has a negative significance relationship with Net Asset Value (NAV).

Net property income is a fundamental performance measure of a REIT and in line with the "Efficient Market Hypothesis", the information of the fundamental performance will be reflected in the share price of the REIT. The "Efficient Market Hypothesis" generally believed that "securities markets were extremely efficient in reflecting information about individual stocks and about the stock market as a whole in an unbiased manner" (Malkiel, 2003).

2.4.3 Dividend Yield

Dividend yield is a financial ratio that measures the share of a proportion's marketplace price which will be distributed yearly to the investors in the form of dividend. Dividend yield will affect the performance of REITs (Lee, 2017; Mohamad & Zolkifli, 2014; Redman & Manakyan, 1995).

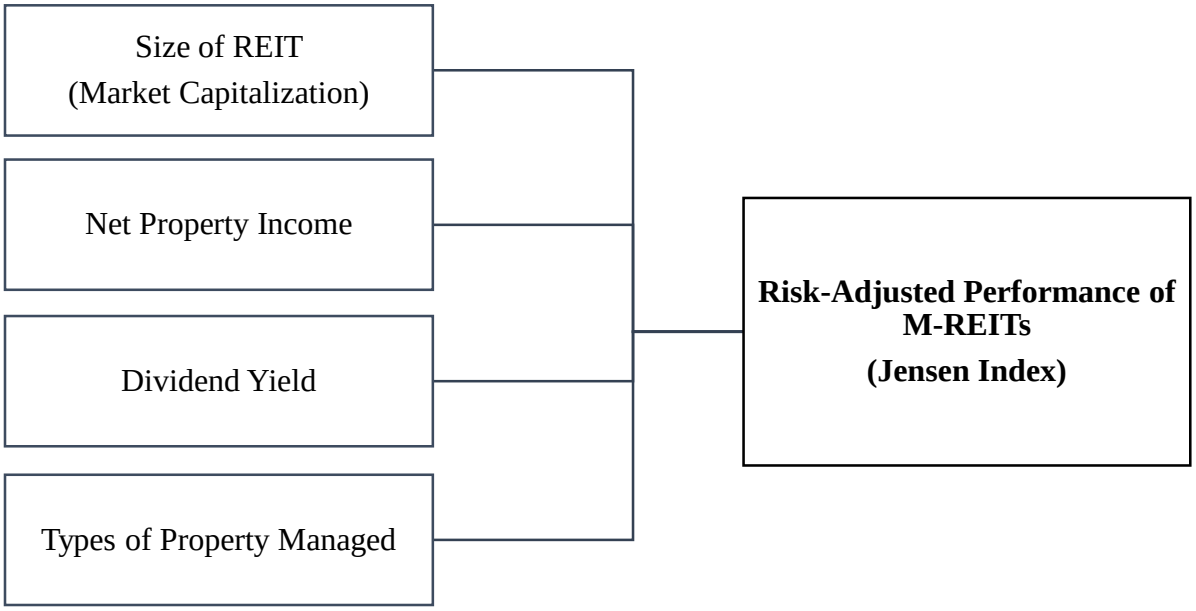
Dividend yield is also a fundamental performance measure of REITs. Based on the "Bird-in-the-Hand Htypothesis", high dividend will d lincrease share value as investors prefer the "bird in the hand" of cash dividends rather than the "two in the bush" of future capital gains (Al-Malkawi, Rafferty & Pillai, 2010).

2.4.4 Types of Property Managed

The different types of property managed by REITs will have different effect on the performance of the REITs (Abdul Jalil & Mohd. Ali, 2015). This result is supported by Redman & Manakyan (1995) where the hypothesis of real estate property characteristics of REITs portfolio will have an effect on the returns.

2.5 Theoretical Framework

Figure 2: Proposed Theoretical Framework



Note: Developed for research.

2.6 Hypothesis Development

Following are the hypothesis developed for this research:

Hypothesis I

H_1: There is a relationship between market capitalization and risk-adjusted performance of M-REITs.

Hypothesis II

H_2: There is a relationship between net property income and risk-adjusted performance of M-REITs.

Hypothesis III

H_3: There is a relationship between dividend yield and risk-adjusted performance of M-REITs.

Hypothesis IV

H_4: There is a relationship between types of property managed and risk-adjusted performance of M-REITs.

2.7 Conclusion

In this chapter, the study of literature, theoretical framework and variables have been explained to further provide insight for this study. In the next chapter, the methodology to carry out this study will be discussed.

CHAPTER 3

RESEARCH METHODOLOGY

3.0 Introduction

This chapter will introduce the research design, conceptual framework, hypothesis development, sampling design followed by data collection and data analysis methods.

3.1 Positivism Research Philosophy

According to this school of thought, educational researchers should "eliminate their biases", "remain emotionally detached and uninvolved with the objects of study", and "test or empirically justify their stated hypotheses" (Johnson & Onwuegbuzie, 2004). Positivism studies are usually observable and quantifiable. In a positivism study, the researcher plays the role of collecting and interpreting data in an objective way without the involvement of provisions of human interests in the study. In other words, studies with positivist paradigm are based purely on facts and consider the world to be external and objective (Dudovskiy, 2018). This study will adhere to positivism research

philosophy where the research findings are strictly based on actual measurements, facts and objective.

3.2 Research Design

A research design is “blueprint for conducting a study with maximum control over factors that may interfere with the validity of the findings” (Burns & Groove, 2009). In general, research design is an organized study plan that provides the researchers with the specification to accomplish their research objectives.

3.2.1 Quantitative Research

This research is a quantitative type of research. According to Aliaga & Guderson (2000), quantitative research is carried out to explain a phenomenon through collecting numerical data and analyzing the data using statistics. In a wider view, quantitative research can be explained as “a type of empirical research into a social phenomenon, testing a theory consisting of variables which are analyzed with statistics in order to determine of the theory explains or predicts phenomena of interests” (Yilmaz, 2013). This research demonstrated the characteristics of a quantitative research as it aims to determine the market-based risk-adjusted performance of M-REITs through analyzing data that can be transformed into usable statistics and generalize results.

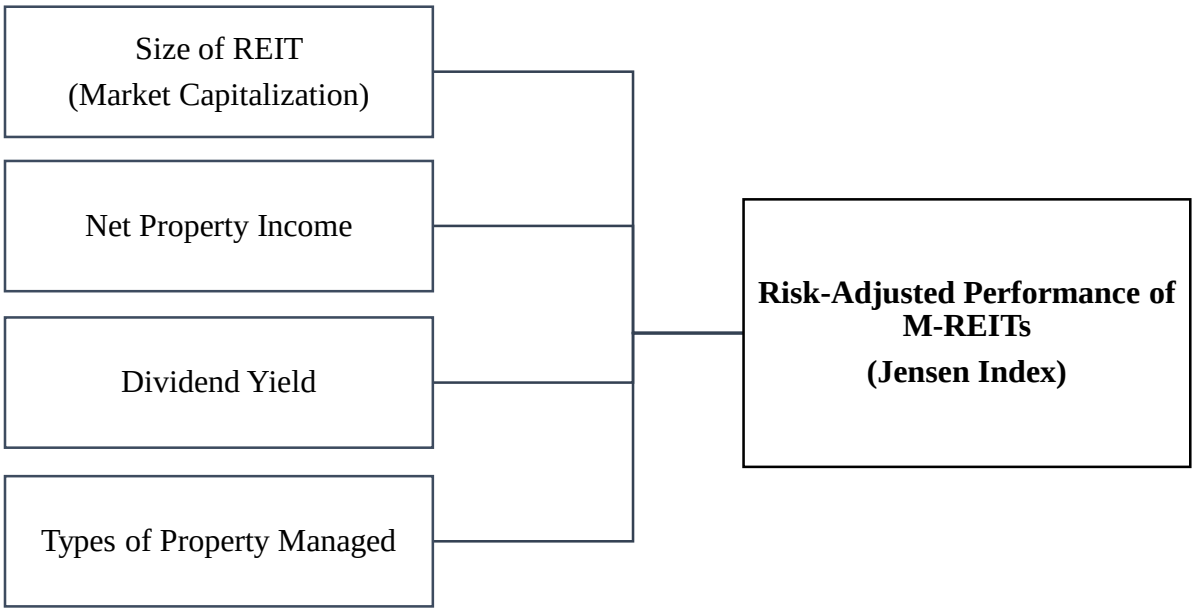
3.3 Conceptual Framework

There were some researches done on the factors which will influence the risk-adjusted performance of M-REITs. The study carried out by Olanrele (2014) concluded that net asset value (NAV), size (market capitalization), asset value net income and level of leverage will have effect on the dividend yield of M-REITs which is the proxy measure for performance of M-REITs. In another research carried out by Abdul Jalil & Mohd. Ali (2015), the types of property managed, location of property managed, size of REITs and financing policy of REITs in terms of weighted average cost of capital (WACC), cost of equity and cost of debt as the characteristics that will determine the performance of REITs. In the study done by Lee (2017), the results indicated dividend yield had negative relationship with return on REITs whereas net property income showed a positive relationship.

Past researchers had studied and analyzed the factors that will affect the performance of REITs. In this study, Jensen Index will be used as the proxy measure for the risk-adjusted performance of M-REITs. The factors that will be studied are the size of M-REITs (market capitalization), net property income, dividend yield and type of property managed.

Jensen Index will be the dependent variable in this study and the factors; size of REITs (market capitalization), net property income, dividend yield and type of property managed will be the independent variables. The main objective of this study is to investigate whether the four factors will affect the Jensen Index or risk-adjusted performance of M-REITs.

Figure 3: Theoretical Framework



Note: Developed for research.

Table 2: Dependent Variable and Independent Variables

Variables	Explanation
Dependent	
Jensen Index	Risk-adjusted performance of M-REITs
Independent	
Size of REIT	Market capitalization of individual M-REITs.
Net Property Income	Annual net income generated by properties in the M-REITs.
Dividend Yield	M-REITs yearly dividend declared for the shareholders.
Types of Property Managed	Properties of different sectors managed by M-REITs.

Note: Developed for research.

3.4 Hypothesis Development

Following are the hypothesis developed for this research:

Hypothesis I

H_0: There is no relationship between market capitalization and risk-adjusted performance of M-REITs.

H_1: There is a relationship between market capitalization and risk-adjusted performance of M-REITs.

Hypothesis II

H_0: There is no relationship between net property income and risk-adjusted performance of M-REITs.

H_1: There is a relationship between net property income and risk-adjusted performance of M-REITs.

Hypothesis III

H_0: There is no relationship between dividend yield and risk-adjusted performance of M-REITs.

H_1: There is a relationship between dividend yield and risk-adjusted performance of M-REITs.

Hypothesis IV

H_0: There is no relationship between types of property managed and risk-adjusted performance of M-REITs.

H_1: There is a relationship between types of property managed and risk-adjusted performance of M-REITs.

3.5 Measurement of Variables

3.5.1 Performance of M-REITs

Treynor, Sharpe and Jensen Index are commonly used to measure the risk-adjusted performance of portfolio. According to Kim et al., (2002), these three measures assume that stocks are priced according to the Capital Asset Pricing Model (CAPM) where the expected rate of return is made up of "the total of risk-free rate plus and systematic risk multiplied by the market risk premium of the expected market return less the risk free rate".

Table 3: Past Researches on Risk-Adjusted Performance of M-REITs using Treynor, Sharpe and/or Jensen Index

Name of Researchers	Year	Indices used	Results
Kok & Khoo	1995	Sharpe, Treynor & Jensen	First Malaysian Property Trust (FMPT) was the best performing property trust during the market rising and declining period.
Hamzah, Rozali & Mohd Tahir	2010	Sharpe, Treynor & Jensen	During the period from 1995 to 2005, performance of M-REITs was better than market portfolio but underperformed during pre-financial crisis from 1995-1997 and post financial crisis from 1998-2005.

Ong, The, Soh & Yan	2012	Sharpe, Treynor & Jensen	From 2005-2010, Treynor & Sharpe Index showed most M-REITs did not perform better than market portfolio whereas Jensen Index showed otherwise.
Low & Johari	2014	Sharpe, Treynor & Jensen	Durind 2007-2012, only half of the twelve M-REITs performed better than market portfolio based on risk-adjusted performance.
Ng, Lau & Lim	2017	Sharpe, Treynor & Jensen	For risk-adjusted performance, Axis, Sunway and Pavilion REIT stood out among the sixteen M-REITs.
Ng, Leong, Lau & Abdul Rahim	2018	Sharpe, Treynor & Jensen	M-REITs showed better performance than in terms of risk-adjusted performance during the study period as compared to S-REITs.

Note: Developed for research.

Beside using the three indices, there are researches who use different performance measures. The study done by Ong, Teh & Chong (2011), applied Net Asset Value (NAV) as performance measure of REITs. The NAV indicated the total value of the company's shareholders would receive and how should the company be liquidated. On the other hand, Chuweni, Ali, Ismail & Ahmad (2014) used the financial ratio analysis as performance measure. Tiong & Abdul Jalil (2016) used the expected return and dividend yield as performance measure for M-REITs.

For this study, Jensen Index will be used as the risk-adjusted performance measure. The formula of Jensen Index is as follow:

$$\boldsymbol{\alpha_i = R_i - [R_f + \beta_i(R_m - R_f)]}$$

Whereby,

$\boldsymbol{\alpha_i}$ = Jensen's Alpha for REIT

$\boldsymbol{R_i}$ = return of REIT

$\boldsymbol{R_f}$ = risk free rate

$\boldsymbol{\beta_i}$ = beta of portfolio

$\boldsymbol{R_m}$ = return of portfolio market

3.5.2 Size of REIT

In this study, the size of REIT is measured by the total market capitalization. There have been a few studies that suggests that there is an inverse relationship between returns and size of REITs (Capozza, 1996; Clayton & MacKinnon, 2000; Yong, Allen & Lim, 2009). In this study, market capitalization will be one of the factors being studied as to whether the it will affect the risk-adjusted performance of REITs.

3.5.3 Net Property Income

Net property income is defined to be "income from properties before interest, depreciation and overhead expenses and is calculated by taking rental income minus property expenses such as taxes and property management expenses" (Capozza & Lee, 1996). In this study, net property income will be expressed as ratio against the total income of a REIT.

3.5.4 Dividend Yield

Dividend yield is a financial ratio that measures the share of a proportion's marketplace price that is distributed yearly as dividends to the investors. Dividend yield will affect the performance of REITs (Lee, 2017; Mohamad & Zolkifli, 2014; Redman & Manakyan, 1995).

3.5.5 Types of Property Managed

The different types of property managed by REITs will have different effect on the performance of the REITs (Abdul Jalil & Mohd. Ali, 2015). This result is supported by Redman & Manakyan (1995) where the hypothesis of real estate property

characteristics of REITs portfolio will have an effect on the returns. In this study, all the M-REITs are classified into seven different sectors namely retail, commercial, office, industrial, healthcare, hospitality and education.

3.6 Sampling Design

3.6.2 Sampling Period

The data collected for the 16 M-REITs are from the period of 2015 to 2017. This sampling period is chosen as there was a significant market softening happening in 2015. According to the National Property Information Centre (NAPIC), Malaysia's property market has seen an 8% decline in transaction value and a 5.7% reduction in the transaction volume in 2015, the second highest de-escalation since 2002, after an 8.3% dwindle in 2009 (The Edge Financial Daily, 2016). This study can observe the risk-adjusted performance of M-REITs during the market declining period.

The sampling period is set for three years until 2017 only as during the time of study, not all REITs have published their annual report for 2018. Data regarding market capitalization, net property income and dividend yield may not be available for some REITs. Thus, the availability of data becomes the consideration for the sampling period.

3.6.1 Sampling Size

As of December, there are a total of 18 REITs listed on Bursa Malaysia. In this study, only 16 M-REITs will be used as one of the REITS, KLCC REIT is listed as stapled securities. Its units are stapled with KLCC Property Holdings shares. KIP REIT is also excluded from the study as it was a relatively new REIT. KIP REIT was listed on 6th of February 2017. The data period available is too short as compared to other REITs.

3.7 Data Collection Method

This study utilized secondary data collected from Bloomberg website and annual reports of the respective M-REITs. The weekly share price of the M-REITS and KLCI will be collected from Bloomberg database and the weekly return will be calculated using the following formula:

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

Whereby,

$\boldsymbol{Rt}$ = M-REITs and KLCI share price for week t

$\boldsymbol{P_t}$ = Closing share price at the end of week t

$\boldsymbol{P_{t-1}}$ = Closing share price at the end of week for the previous week

As for the dividend yield, market capitalization, net property income and also type of property managed by the M-REITs, the data will be extracted from the respective M-REITs annual reports from the year 2015 to 2017. For the risk free rate, the 3-month

Malaysia Treasury Bill will be used and the data will be sourced from Bank Negara Malaysia annual report from 2015 to 2017. Since the rate is an annualized yield, it is converted into weekly equivalent using the following formula:

$$\text{Malaysia T-Bill Weekly Equivalent} = (1 + \text{annualized yield})^{1/52}$$

3.7.1 Secondary Data

Secondary data is basically public information that has been collected by people other than the user. Majority of secondary data sets contain quantitative data; that is, "the information consists of studied objects whose characteristics are coded in variables that have a range of possible values" (Hox & Boeije, 2005). Data used in this study are secondary data as they are collected from Bloomberg database, Bank Negara annual reports and also M-REITs annual reports.

3.8 Data Analysis

For this study, data analysis will be carried out using IBM SPSS Statistics version 25.0 and also Microsoft Excel.

3.8.1 Pearson and Spearman Correlation

According to Hauke & Kossowski (2011), Pearson's correlation coefficient is "a measure of the strength of the linear relationship between two continuous variables". It is assumed that one variable is normally distributed for each value of the other variable

and vice versa (Morgan, Leech, Gloeckner & Barrett, 2013). It is defined as "the ratio of the covariance of the two variables to the product of their respective standard deviations, commonly denoted by the Greek letter ρ (rho)" (Chok, 2008):

$$\boldsymbol{\rho = \frac{Cov\,(X,Y)}{\sigma_X \sigma_Y}}$$

According to Hauke & Kossowski (2011), Spearman's rank correlation coefficient is "a nonparametric (distribution-free) rank statistic proposed as a measure of the strength of the association between two variables". As mentioned by Chai et al. (2011) "Spearman's correlation assesses how well an arbitrary monotonic function can describe the relationship between two variables, without making any assumptions about the frequency distribution of the variables". In principle, Spearman's rank-order correlation is a different version of Pearson's correlation coefficient whereby the data will be ranked first before being calculated into coefficient.

Correlations can vary from -1.00 (a perfect negative correlation) through 0.00 (no relation) to +1.00 (a perfect positive correlation). For perfect negative correlation, one variable tends to move in the opposite direction from each other. For perfect positive correlation, two variables tend to increase or decrease at the same direction. For a zero correlation, there are no significant correlations between the variables.

For this study, Pearson correlation analysis will be carried out between the dependent variable; the Jensen Index and independent variables; market capitalization, net property income and dividend yield. For the types of property managed, dummy variables will be created for the six sectors; retail, commercial, office, industrial, healthcare and hospitality. Education sector will be excluded from the analysis to avoid exact collinearity. Spearman's correlation analysis would be carried out between these dummy variables with Jensen Index, market capitalization, net property income and dividend yield.

3.8.2 Multiple Regression

Multiple regression attempts to estimate "a normal dependent variable from a combination of several normally distributed and/or dichotomous independent variables" (Morgan et al., 2013). For multiple regression, it is assumed each independent variable and the dependent variable has a linear relationship, the errors are normally distributed, and the variance of the residuals is constant. A condition that may arise from this analysis is multicollinearity. This problem occurs when two or more predictor variables are highly correlated. In other words, there are two or more variables are overlapping or with similar information.

In general, the multiple regression equation of independent variables (X_1, X_2, X_3,…X_K) on a dependent variable (Y) will be expressed as follow:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + \ldots b_KX_K + e$$

where a = the least squares estimate of the intercept, and b_l, b_2, b_3,…b_k = the least squares estimates of the population regression coefficients for X_1 and X_2, respectively, and e is a residual term (Jaccard, Choi & Turrisi, 1990):

For this study, the Jensen Index as the dependent variable will be regressed against the independent variables of market capitalization, net property income, dividend yield and the dummy variable of diversified/non-diversified. The equation of the regression will be as following:

$$\text{Jensen Index} = a + b_1(\text{Market Capitalization}) + b_2(\text{Net Property Income}) + b_3(\text{Dividend Yield}) + b_4(\text{Diversified/Non-diversified})$$

A second model will be generated using Jensen Index as dependent variable and all the types of property managed by M-REITs as independent variables. The types of property managed will be expressed as dummy variables with "0" representing a REIT does not manage the type of property and "1" representing the REIT does manage the type of property. The equation of the second model will be as following:

$$\text{Jensen Index} = a + b_1(\text{Retail}) + b_2(\text{Commercial}) + b_3(\text{Office}) + b_4(\text{Industrial}) + b_5(\text{Healthcare}) + b_6(\text{Hospitality})$$

3.8.3 Independent Sample t-Test

Independent sample t-Test can be used when investigating the difference between two independent groups on a normal dependent variable. According to Morgan et al. (2013), there are a few assumptions when running this analysis; "the variances of the dependent variable in the two populations are equal", "the dependent variable is normally distributed within each population" and lastly "all the data are not related to each other".

In this study, independent sample t-Test is being carried out to determine whether diversified and non-diversified M-REITs differ in terms of performance.

3.9 Conclusion

In this chapter, the conceptual framework and hypothesis development have been explained. Measurement of variables, sampling design, data collection and data analysis have also been discussed thoroughly in this chapter. In the coming chapter, the results from data analysis will be presented.

CHAPTER 4

DATA ANALYSIS AND RESULTS

4.0 Introduction

In this chapter, the results obtained from the analysis will be presented. This chapter will first present the descriptive statistics of the data followed by the multiple data analysis methods discussed in the previous chapter.

4.1 Descriptive Statistics

4.1.1 Average Weekly Return of M-REITs and KLCI Index

The summary of weekly return of the 16 M-REITs and market portfolio, the KLCI Index are presented in table below:

Table 4: Summary of Descriptive Statistics of Average Weekly Return

M-REITs	Average Weekly Return (%)	Standard Deviation (%)	Minimum Weekly Return (%)	Maximum Weekly Return (%)
AMANAH HARTA PNB	-0.1382	1.5371	-5.3097	5.2174
AL-`AQAR HEAKTHCARE REIT	0.0461	2.1756	-5.4054	7.2464
AL-SALAM REIT	0.0561	4.6669	-9.8837	31.4685
AMFIRST REIT	0.1494	1.8726	-8.3333	6.1728
AMANAHRAYA REIT	0.0897	1.2354	-5.7471	4.8193
ATRIUM REIT	-0.0316	1.2131	-4.4248	3.8835
AXIS REIT	-0.0989	0.1487	-4.2169	4.6512
CAPITALAND MALAYSIA MALL TRUST	0.3803	9.3958	-49.7608	102.8571
HEKTAR REIT	-0.0599	1.9330	-7.9710	11.1111
IGB REIT	0.2415	0.1576	-3.5503	7.7844
MRCB-QUILL REIT	0.0817	2.6175	-16.6667	18.0000
PAVILION REIT	0.0959	2.4297	-6.1798	10.4651
SUNWAY REIT	0.1720	2.0844	-4.4944	10.4561
TOWER REIT	0.0164	1.4982	-5.5118	7.5000
UOA REIT	0.1106	1.9055	-5.6604	13.1944
YTL REIT	0.1777	1.6695	-6.7800	5.7851
Average	0.0806	2.2838		
Market Portfolio: KLCI Index	0.0196	0.1013	-5.1009	4.7728

Note: Developed for research.

The average weekly return of the 16 M-REITs is 0.0806%, a return higher compared to average weekly return of the KLCI Index which is at 0.0196%. During the period of study, CapitaLand Malaysia Mall trust performed the best with the average return of 0.3803% whereas Amanah Harta PNB was the worst performing with a return of -0.1382%.

4.1.3 Frequencies Count

Table 5: Frequency Table for Retail Sector

Retail					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	6	12.5	37.5	37.5
	Yes	10	20.8	62.5	100.0
	Total	16	33.3	100.0	
Missing	System	32	66.7		
Total		48	100.0		

Note: Developed for research.

Based on the frequency table, out of the 16 M-REITs in this study, 10 of the M-REITs which account to 62.5% have retail properties in their portfolios. Retail properties managed by these REITs are shopping malls and supermarkets.

Table 6: Frequency Table for Commercial Sector

Commercial					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	12	25.0	75.0	75.0
	Yes	4	8.3	25.0	100.0
	Total	16	33.3	100.0	
Missing	System	32	66.7		
Total		48	100.0		

Note: Developed for research.

Based on the frequency table, 12 M-REITs or 75% do not have commercial properties as in their portfolios. Commercial properties managed by these REITs are made up of shop units which the main business is food and beverage.

Table 7: Frequency Table for Office Sector

Office					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	6	12.5	37.5	37.5
	Yes	10	20.8	62.5	100.0
	Total	16	33.3	100.0	
Missing	System	32	66.7		
Total		48	100.0		

Note: Developed for research.

Based on the frequency table, 62.5% or 10 out of the 16 M-REITs have office properties in their portfolio.

Table 8: Frequency Table for Industrial Sector

Industrial					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	12	25.0	75.0	75.0
	Yes	4	8.3	25.0	100.0
	Total	16	33.3	100.0	
Missing	System	32	66.7		
Total		48	100.0		

Note: Developed for research.

There are 75% or 12 out of the 16 M-REITs have industrial properties in their portfolios. Industrial properties managed by REITs include warehouses, factories and production facilities.

Table 9: Frequency Table for Healthcare Sector

Healthcare					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	14	29.2	87.5	87.5
	Yes	2	4.2	12.5	100.0
	Total	16	33.3	100.0	
Missing	System	32	66.7		
Total		48	100.0		

Note: Developed for research.

Based on the frequency table, only 2 out of the 16 M-REITs or 12.5% have properties for healthcare I their portfolios. Al-`Aqar Healthcare REIT is the only M-REIT that focused on healthcare properties in their portfolio.

Table 10: Frequency Table for Education Sector

Education					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	14	29.2	87.5	87.5
	Yes	2	4.2	12.5	100.0
	Total	16	33.3	100.0	
Missing	System	32	66.7		
Total		48	100.0		

Note: Developed for research.

There are only 2 out of the 16 M-REITs or 12.5% have properties for education in their portfolios. These properties are used as colleges and universities. For example, AmanahRaya REIT managed SEGi University Kota Damansara, SEGi College Subang Jaya and HELP University at Jalan Semantan.

Table 11: Frequency Table for Hospitality Sector

Hospitality					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	13	27.1	81.3	81.3
	Yes	3	6.3	18.8	100.0
	Total	16	33.3	100.0	
Missing	System	32	66.7		
Total		48	100.0		

Note: Developed for research.

Based on the frequency table, only 3 out of the 16 M-REITs or 18.8% have hospitality properties in their portfolios. These hospitality properties consist of resorts and hotels.

Table 12: Frequency Table for Diversified/Non-Diversified Table

Diversified					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	8	16.7	50.0	50.0
	Yes	8	16.7	50.0	100.0
	Total	16	33.3	100.0	
Missing	System	32	66.7		
Total		48	100.0		

Note: Developed for research.

Based on the 16 M-REITs used in this study, 50.0% of the REITS are diversified and another 50.0% are not. In another word, 50.0% of the REITs have property from more than one sector in their portfolios while another 50.0% have only one type of property in their portfolios.

4.1.2 Average Market Capitalization, Net Property Income and Dividend Yield

Table 13: Average Market Capitalization, Net Property Income and Dividend Yield for M-REITs in 2015-2017

Variables	Average	Standard Deviation	Minimum	Maximum
2015				
Market Capitalization (ln RM)	20.1029	1.6860	15.3529	22.2661
Net Property Income (%)	72.0508	14.0483	45.5815	94.3192
Dividend Yield (%)	6.3725	0.9624	5.00	7.90
2016				
Market Capitalization (ln RM)	20.1908	1.6995	15.5426	22.4712
Net Property Income (%)	80.2857	30.8337	46.6675	186.1063
Dividend Yield (%)	7.7794	0.8897	4.3400	7.5200
2017				
Market Capitalization (ln RM)	20.2250	1.7058	15.6599	22.3800
Net Property Income (%)	74.9338	15.7393	46.6142	111.2035
Dividend Yield (%)	5.7613	0.8375	4.4900	7.4000

Note: Developed for research.

The overall average market capitalization for all the M-REITs is highest in 2017 with the value of 20.2250 after converting into natural logarithm of total value of market capitalization. 2015 has the lowest value of 20.1029. For net property income, the average for 2016 is the highest with 80.2856% and the lowest is at 2015 with

72.0508%. As for dividend yield, the year 2016 has the highest average dividend yield of 7.7794% and the year 2017 has the lowest average dividend yield of 5.7613%.

4.2 Jensen Index of M-REITs

The following table show the Jensen Index of each M-REIT and its rank:

Table 14: Jensen Index of M-REITs and Ranking

Name	Jensen Index	Rank
CAPITALAND MALAYSIA MALL TRUST	0.983	1
IGB REIT	-0.3313	2
YTL HOSPITALITY REIT	-0.3662	3
PAVILION REIT	-0.4125	4
AL-SALAM REIT	-0.4782	5
SUNWAY REIT	-0.4841	6
UOA REIT	-0.5922	7
MRCB-QUILL REIT	-0.6829	8
AMANAHRAYA REIT	-0.6857	9
Al-`AQAR HEALTHCARE REIT	-0.7433	10
TOWER REIT	-0.8115	11
AMFIRST REIT	-0.8207	12
AXIS REIT	-0.8230	13
AMANAH HARTA TANAH PNB	-0.8952	14
HEKTAR REIT	-0.8955	15
ATRIUM REIT	-0.9564	16

Note: Developed for research.

During the period of study from 2015 to 2017, only one M-REIT performed better than the benchmark of KLCI Index as it the only REIT that generates a positive Jensen Index. The rest of the M-REITs generate a negative Jensen Index value indicating that they underperformed the benchmark KLCI Index.

CapitaLand Malaysia Mall Trust performed the best during the study period and Atrium REIT is the worst performing REIT. From the Jensen Index ranking, it can be observed that the retail is the best performing sector of REIT as the top ranking REITS such as CapitaLand Malaysia, IGB and Pavilion REIT mainly focused on retail REIT. YTL Hospitality REIT and Sunway REIT which have many hospitality properties in their portfolios are performing reasonably well too.

The worst performing REIT; Atrium REIT is a non-diversified REIT focusing on industrial properties.

In short, all the M-REITs other than CapitaLand underperformed the benchmark portfolio, KLCI Index during the study period.

4.3 Correlations

4.3.1 Pearson Correlation

Table 15: Pearson Correlation Matrix

Correlations					
		M.C	NPI	D.Y	Jensen
M.C	Pearson Correlation	1	-.165	-.108	.261
	Sig. (2-tailed)		.262	.466	.329
	N	48	48	48	16
NPI	Pearson Correlation	-.165	1	-.300*	-.148
	Sig. (2-tailed)	.262		.038	.585
	N	48	48	48	16
D.Y	Pearson Correlation	-.108	-.300*	1	-.104
	Sig. (2-tailed)	.466	.038		.700

	N	48	48	48	16
Jensen	Pearson Correlation	.261	-.148	-.104	1
	Sig. (2-tailed)	.329	.585	.700	
	N	16	16	16	16
*. Correlation is significant at the 0.05 level (2-tailed).					

Note: Developed for research.

Based on the correlation matrix, only one out of the six pair of variables is significantly correlated. It can be seen from the table that only net property income and dividend yield is negatively correlated. The Pearson Correlation: r = -.300; p = .038.

4.3.2 Spearman Correlation

Table 16: Spearman Correlation Matrix between Types of Property Managed and Jensen Index

Correlations								
			Ret.	Com.	Off.	Ind.	Health.	Hosp.	Jensen
Spearman's rho	Ret.	Correlation Coefficient	1.000	.149	.200	.149	-.098	.041	.112
		Sig. (2-tailed)	.	.582	.458	.582	.719	.879	.680
		N	16	16	16	16	16	16	16
	Com.	Correlation Coefficient	.149	1.000	.447	-.333	-.218	-.277	-.157
		Sig. (2-tailed)	.582	.	.082	.207	.417	.298	.563
		N	16	16	16	16	16	16	16
	Off.	Correlation Coefficient	.200	.447	1.000	.149	-.098	.041	-.112
		Sig. (2-tailed)	.458	.082	.	.582	.719	.879	.680
		N	16	16	16	16	16	16	16
	Ind.	Correlation Coefficient	.149	-.333	.149	1.000	.218	.462	-.313
		Sig. (2-tailed)	.582	.207	.582	.	.417	.071	.238

		N	16	16	16	16	16	16	16
	Heath.	Correlation Coefficient	-.098	-.218	-.098	.218	1.000	.303	.041
		Sig. (2-tailed)	.719	.417	.719	.417	.	.255	.880
		N	16	16	16	16	16	16	16
	Hosp.	Correlation Coefficient	.041	-.277	.041	.462	.303	1.000	.261
		Sig. (2-tailed)	.879	.298	.879	.071	.255	.	.330
		N	16	16	16	16	16	16	16
	Jensen	Correlation Coefficient	.112	-.157	-.112	-.313	.041	.261	1.000
		Sig. (2-tailed)	.680	.563	.680	.238	.880	.330	.
		N	16	16	16	16	16	16	16

Note: Developed for research.

Based on the Spearman Correlation Matrix, there is no significant correlation between type of property managed and Jensen Index.

Table 17: Spearman Correlation Matrix between Types of Property Managed and Dividend Yield

Correlations								
			Ret.	Com.	Off.	Ind.	Health.	Hosp.	NPI
Spearman's rho	Ret.	Correlation Coefficient	1.000	.149	.200	.149	-.098	.041	-.224
		Sig. (2-tailed)	.	.582	.458	.582	.719	.879	.404
		N	16	16	16	16	16	16	16
	Com.	Correlation Coefficient	.149	1.000	.447	-.333	-.218	-.277	-.188
		Sig. (2-tailed)	.582	.	.082	.207	.417	.298	.486
		N	16	16	16	16	16	16	16
	Off.	Correlation Coefficient	.200	.447	1.000	.149	-.098	.041	.140
		Sig. (2-tailed)	.458	.082	.	.582	.719	.879	.605

		N	16	16	16	16	16	16	16
	Ind.	Correlation Coefficient	.149	-.333	.149	1.000	.218	.462	.532*
		Sig. (2-tailed)	.582	.207	.582	.	.417	.071	.034
		N	16	16	16	16	16	16	16
	Health.	Correlation Coefficient	-.098	-.218	-.098	.218	1.000	.303	.328
		Sig. (2-tailed)	.719	.417	.719	.417	.	.255	.215
		N	16	16	16	16	16	16	16
	Hosp.	Correlation Coefficient	.041	-.277	.041	.462	.303	1.000	.017
		Sig. (2-tailed)	.879	.298	.879	.071	.255	.	.949
		N	16	16	16	16	16	16	16
	NPI	Correlation Coefficient	-.224	-.188	.140	.532*	.328	.017	1.000
		Sig. (2-tailed)	.404	.486	.605	.034	.215	.949	.
		N	16	16	16	16	16	16	48
*. Correlation is significant at the 0.05 level (2-tailed).									

Note: Developed for research.

Based on the Spearman Correlation Matrix, type of property managed for industrial is significant with net property income. The correlation value for Spearman's rho (.532) has a significance level of .034.

Table 18: Spearman Correlation Matrix between Types of Property Managed and Dividend Yield

Correlations								
			Ret.	Com.	Off.	Ind.	Health.	Hosp.	D.Y
Spearman's rho	Ret.	Correlation Coefficient	1.000	.149	.200	.149	-.098	.041	-.392
		Sig. (2-tailed)	.	.582	.458	.582	.719	.879	.133
		N	16	16	16	16	16	16	16
	Com.	Correlation Coefficient	.149	1.000	.447	-.333	-.218	-.277	.031
		Sig. (2-tailed)	.582	.	.082	.207	.417	.298	.908
		N	16	16	16	16	16	16	16
	Off.	Correlation Coefficient	.200	.447	1.000	.149	-.098	.041	-.308
		Sig. (2-tailed)	.458	.082	.	.582	.719	.879	.246
		N	16	16	16	16	16	16	16
	Ind.	Correlation Coefficient	.149	-.333	.149	1.000	.218	.462	.000
		Sig. (2-tailed)	.582	.207	.582	.	.417	.071	1.000
		N	16	16	16	16	16	16	16
	Health.	Correlation Coefficient	-.098	-.218	-.098	.218	1.000	.303	-.328
		Sig. (2-tailed)	.719	.417	.719	.417	.	.255	.215
		N	16	16	16	16	16	16	16
	Hosp.	Correlation Coefficient	.041	-.277	.041	.462	.303	1.000	.295
		Sig. (2-tailed)	.879	.298	.879	.071	.255	.	.267
		N	16	16	16	16	16	16	16
	D.Y	Correlation Coefficient	-.392	.031	-.308	.000	-.328	.295	1.000
		Sig. (2-tailed)	.133	.908	.246	1.000	.215	.267	.
		N	16	16	16	16	16	16	48

Note: Developed for research.

Based on the correlation matrix, there is no significant correlation between types of property managed and dividend yield.

4.4 Multiple Regression

4.4.1 Model 1

In model 1, the aim is to predict whether the risk-adjusted performance (Jensen Index) can be predicted well from a combination of other variables; market capitalization, net property income, dividend yield and types of property managed.

Table 19: Multiple Regression Analysis Result for Model 1

Variables Entered/Removed[a]			
Model	Variables Entered	Variables Removed	Method
1	M.C, NPI, D.Y, Diversified[b]	.	Enter
a. Dependent Variable: Jensen			
b. All requested variables entered.			

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.464[a]	.215	-.070	.4742622
a. Predictors: (Constant), M.C, NPI, D.Y, Diversified				

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.679	4	.170	.754	.576[b]
	Residual	2.474	11	.225		
	Total	3.153	15			
a. Dependent Variable: Jensen						
b. Predictors: (Constant), M.C, NPI, D.Y, Diversified						

Coefficients[a]								
		Unstandardized Coefficients		Standardized Coefficients			90.0% Confidence Interval for B	
Model		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	-1.440	2.013		-.715	.490	-5.056	2.176
	NPI	-.006	.009	-.192	-.697	.500	-.022	.010
	D.Y	-.074	.136	-.155	-.543	.598	-.318	.170
	Diversified	-.311	.254	-.351	-1.225	.246	-.768	.145
	M.C	.097	.078	.357	1.253	.236	-.042	.236
a. Dependent Variable: Jensen								

Note: Developed for research.

From the model summary table, it can be seen that the multiple correlation coefficient (R), using all the predictors simultaneously is .464 and the Adjusted R Square is -.070. There are a few circumstances whereby the Adjusted R Square is negative. First of all, the sample size is smaller than the explanatory variable. Another explanation is that negative Adjusted R Square appears when Residual sum of squares approaches to the total sum of squares. Negative Adjusted R Square tends to indicate insignificance of explanatory variables. The possible ways to improve the results are to increase the sample size and avoid correlated independent variables.

The ANOVA table shows that F = .754 and is not statistically significant as it does not fulfill p < .100. This indicates that the predictors do not significantly combined together to predict the risk-adjusted performance of M-REITs.

The Coefficients table shows that each independent variable is not significantly contributing to the equation for predicting risk-adjusted performance of M-REITs.

4.4.2 Model 2

In model 2, the aim is to predict whether the risk-adjusted performance (Jensen Index) can be predicted well from a combination of other variables; different types of property managed.

Table 20: Multiple Regression Analysis Result for Model 2

Variables Entered/Removed[a]			
Model	Variables Entered	Variables Removed	Method
1	Hospitality, Office, Retail, Healthcare, Industrial, Commercial[b]	.	Enter
a. Dependent Variable: Jensen			
b. All requested variables entered.			

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.552[a]	.305	-.158	.4933704
a. Predictors: (Constant), Hospitality, Office, Retail, Healthcare, Industrial, Commercial				

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.962	6	.160	.659	.685[b]
	Residual	2.191	9	.243		
	Total	3.153	15			
a. Dependent Variable: Jensen						
b. Predictors: (Constant), Hospitality, Office, Retail, Healthcare, Industrial, Commercial						

Coefficients[a]								
		Unstandardized Coefficients		Standardized Coefficients			90.0% Confidence Interval for B	
Model		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	-.502	.253		-1.985	.078	-.965	-.038
	Ret.	.327	.266	.356	1.228	.250	-.161	.814
	Com.	-.263	.365	-.256	-.719	.490	-.933	.407
	Off.	-.200	.307	-.218	-.652	.531	-.762	.362
	Ind.	-.416	.354	-.406	-1.176	.270	-1.065	.233
	Health.	-.070	.399	-.052	-.176	.864	-.803	.662
	Hosp.	.206	.370	.181	.557	.591	-.472	.884
a. Dependent Variable: Jensen								

Note: Developed for research.

In the second model, it can be seen from the Model Summary table that the multiple correlation coefficient (R), using all the predictors simultaneously is .552 and the Adjusted R Square is -.158.

The ANOVA table shows that F = .659 and is not statistically significant as it does not fulfill p < .100. The Coefficients table shows that each independent variable is not significantly contributing to the equation for predicting risk-adjusted performance of M-REITs.

Based on the model, results generated from data collected shown that types of property managed do not significantly predict the risk-adjusted performance of M-REITs which is the Jensen Index.

4.4.3 Other Model

Since the previous models do not show any significance, more analysis has been carried out to generate model which is significance and meaningful. The following is the model generated using dividend yield as dependent variable and types of property managed as independent variables.

Table 21: Multiple Regression Analysis Result for Model 3

Variables Entered/Removed[a]			
Model	Variables Entered	Variables Removed	Method
1	Hospitality, Office, Retail, Healthcare, Industrial, Commercial[b]	.	Enter
a. Dependent Variable: D.Y			
b. All requested variables entered.			

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.823[a]	.677	.462	.70624
a. Predictors: (Constant), Hospitality, Office, Retail, Healthcare, Industrial, Commercial				

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	9.405	6	1.567	3.143	.060[b]
	Residual	4.489	9	.499		
	Total	13.894	15			
a. Dependent Variable: D.Y						
b. Predictors: (Constant), Hospitality, Office, Retail, Healthcare, Industrial, Commercial						

Coefficients[a]								
		Unstandardized Coefficients		Standardized Coefficients			90.0% Confidence Interval for B	
Model		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	7.155	.362		19.788	.000	6.492	7.818
	Ret.	-.981	.381	-.510	-2.576	.030	-1.679	-.283
	Com.	.853	.523	.396	1.630	.138	-.106	1.812
	Off.	-.835	.439	-.434	-1.902	.090	-1.640	-.030
	Ind.	.325	.507	.151	.642	.537	-.604	1.254
	Health.	-1.445	.572	-.513	-2.527	.032	-2.493	-.397
	Hosp.	1.270	.530	.532	2.398	.040	.299	2.241
a. Dependent Variable: D.Y								

Note: Developed for research.

From the model summary table, it can be seen that the multiple correlation coefficient (R), using all the predictors simultaneously is .823 and the Adjusted R Square is .462. This means that 46% of the variance in dividend yield (fundamental performance measure) can be predicted from the different types of property managed.

The ANOVA table shows that $F = 3.143$ and is statistically significant, $p < .100$. This indicates that the predictors significantly combine together to predict dividend yield.

The Coefficients table shows that retail, office, healthcare and hospitality sector are the variables that are significantly adding to the equation predicting the dividend yield.

4.5 Test of Significance

Based on Model 1 of Multiple Linear regression analysis, none of the independent variables is significantly contributing to the equation for predicting risk-adjusted performance of M-REITs as t value is not significant.

Hypothesis	Decision
Hypothesis I H0: There is no relationship between market capitalization and risk-adjusted performance of M-REITs. H1: There is a relationship between market capitalization and risk-adjusted performance of M-REITs.	Do not reject H0.
Hypothesis II H0: There is no relationship between net property income and risk-adjusted performance of M-REITs. H1: There is a relationship between net property income and risk-adjusted performance of M-REITs.	Do not reject H0.
Hypothesis III H0: There is no relationship between dividend yield and risk-adjusted performance of M-REITs. H1: There is a relationship between dividend yield and risk-adjusted performance of M-REITs.	Do not reject H0.
Hypothesis IV H0: There is no relationship between types of property managed and risk-adjusted performance of M-REITs. H1: There is a relationship between types of property managed and risk-adjusted performance of M-REITs.	Do not reject H0.

4.6 Independent Sample t-Test

Independent sample t-Test can be used when investigating the difference between two unrelated or independent groups on an approximately normal dependent variable. This test is carried out to determine whether diversified and non-diversified M-REITs differ in terms of performance.

Table 22: Independent Sample t-Test Result

Group Statistics					
	Diversified	N	Mean	Std. Deviation	Std. Error Mean
NPI	Yes	8	73.404650	14.6502977	5.1796624
	No	8	70.696888	14.2856580	5.0507428
D.Y	Yes	8	6.1413	1.07817	.38119
	No	8	6.6038	.83674	.29583
Jensen	Yes	8	-.660287	.1828915	.0646619
	No	8	-.464175	.6284713	.2221981

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
NPI	Equal variances assumed	.002	.968	.374	14	.714	2.7077625	7.2345633	-12.8088325	18.2243575
	Equal variances not assumed			.374	13.991	.714	2.7077625	7.2345633	-12.8097570	18.2252820
D.Y	Equal variances assumed	1.127	.306	-.959	14	.354	-.46250	.48252	-1.49740	.57240
	Equal variances not assumed			-.959	13.188	.355	-.46250	.48252	-1.50341	.57841
Jensen	Equal variances assumed	2.858	.113	-.847	14	.411	-.1961125	.2314156	-.6924496	.3002246
	Equal variances not assumed			-.847	8.177	.421	-.1961125	.2314156	-.7277519	.3355269

Note: Developed for research.

Based on Levene's test, the F test is not significant as in the cases of net property income, dividend yield and Jensen Index, the assumption that the variances of the two groups are equal is not violated. Thus, Equal variances assumed result would be used for the t-test and related statistics.

The t for the three performance measures are not significant. Thus, there is insufficient evidence to say that there is a significance difference between diversified and non-diversified REITs.

4.7 Conclusion

In this chapter, the descriptive statistics and frequency count of data have been shown. The results from correlations, multiple regressions and independent sample t-test have also been presented and explained. In the following chapter, conclusion and recommendation would be thoroughly discussed.

CHAPTER 5

DISCUSSION AND CONCLUSION

5.0 Introduction

For this chapter, the findings discovered through this study will be explained followed by the implications and limitations of study and finally recommendations for future study.

5.1 Conclusion on Findings

The results obtained from this study are invalidating the researches done by previous researchers that market capitalization, net property income, dividend yield and types of property managed will have an impact on the risk-adjusted performance of M-REITs.

Hypothesis	Decision
Hypothesis I H0: There is no relationship between market capitalization and risk-adjusted performance of M-REITs. H1: There is a relationship between market capitalization and risk-adjusted performance of M-REITs.	Do not reject H0.
Hypothesis II H0: There is no relationship between net property income and risk-adjusted performance of M-REITs. H1: There is a relationship between net property income and risk-adjusted performance of M-REITs.	Do not reject H0.
Hypothesis III H0: There is no relationship between dividend yield and risk-adjusted performance of M-REITs. H1: There is a relationship between dividend yield and risk-adjusted performance of M-REITs.	Do not reject H0.
Hypothesis IV H0: There is no relationship between types of property managed and risk-adjusted performance of M-REITs. H1: There is a relationship between types of property managed and risk-adjusted performance of M-REITs.	Do not reject H0.

Nevertheless, the problem may not lie in the framework proposed by previous researchers but rather on the data itself which is the performance of M-REITs.

Based on the Jensen Index of the 16 M-REITs, only one REIT performed better than the benchmark of KLCI Index. CapitaLand Malaysia Mall Trust is the only M-REIT that generates a positive Jensen Index. This shows that M-REITs and generally the entire property market is not performing well during the study period from 2015 to 2017.

Property market is facing the problem of oversupply of commercial and residential properties, declining occupancy rate for commercial and retail and the downtrend of property prices especially in the year of 2016 to 2017 (Kaur, 2018).

Since Jensen Index is a market-based risk-adjusted performance measure, the underperforming property market in Malaysia during the study period may have impact the Jensen Index.

The other reason that affects the results from this study may be the small sample size. As of December 2018, there are only 18 REITs listed on Bursa Malaysia and 16 M-REITs are being used for this study. Unlike the country like Singapore, Japan, Australia and US, Malaysia has lesser REITs thus smaller sample size. A sample size that is too small "reduces the power of the study" and "increases the margin of error", which can "render the study meaningless" (Deziel, 2018).

In the third model generated through multiple regression analysis between the dividend yield and different types of property managed, the model is significant at 0.1000. Dividend yield is the fundamental performance measure of M-REITs. Investors can enjoy consistent annual returns mainly from dividend yield even without any capital appreciation as it is a requirement for the REITs to distribute 90% or more of its total Based on the model generated, retail, office, healthcare and hospitality sector are the variables that are significantly adding to the equation predicting the dividend yield.

5.2 Implications of Study

Although the findings from this study did not prove the conceptual framework proposed, however, this study is able to provide a clearer understanding of the risk-adjusted performance of M-REITs to the managers and investors. The investors especially can make use of the data to determine the best performing and worst performing REITs in term of risk-adjusted performance (Jensen Index). This will be able to help them make better decisions when investing in M-REITs. REIT managers too can utilize the data to determine which sector is performing and whether to further diversify the REIT portfolios.

Investors will prefer REITs with higher dividend yield when investing. Based on model 3 of multiple regression analysis using dividend yield as dependent variable and types of property managed as independent variables, the result shows that retail, office, healthcare and hospitality sector are the variables that are significantly adding to the equation predicting the dividend yield. Thus, investors can focus on these factors when investing during the property market slowdown period as these sectors have significant relationship with dividend yield.

Based on the Jensen Index ranking, during the property underperforming period, retail REITs ranked high as compared to other sectors of REITs. Thus, REIT managers can consider diversifying their portfolios into retail sector.

As for the investors, retail REITs such as CapitaLand Malaysia Mall Trust, IGB and Pavilion REIT remained resilient during market declining period. YTL Hospitality REIT also ranked highly during this period. Investors can consider putting their money into these M-REITs.

5.3 Limitations of Study

There are several limitations and weaknesses in this study that hinder the results obtained to fulfill the conceptual framework proposed. First of all, the selection of Jensen Index as the performance measure. As Jensen Index is a market-based performance measure, the underperforming property market will affect the value. Based on the result, only one REIT is performing better than the benchmark, KLCI Index.

Secondly, the small sample size of M-REITs and the short study period may have affect the results of the analysis. As of time of study, there are only 18 REITs listed on Bursa Malaysia and 16 M-REITs are being used for this study. Also, only three years of data are collected for this study from 2015 to 2017. A sample size that is too small "reduces the power of the study" and "increases the margin of error", which can "render the study meaningless" (Deziel, 2018). The insufficient sample may have impact the significance of the analysis. Even if the study period is to be extended, it would be difficult to obtain data such as weekly share price for individual M-REITs and KLCI Index as most of the database from Bursa Malaysia and Bloomberg only store historical data up to five years. The first M-REIT only debuted in August 2005 thus, the availability of data is still a limitation for this study.

Lastly, the low return of M-REITs may reflect yet another limitation. The declining property market has brought negative sentiment to the REITs market performance thus affecting the M-REITs stock price movements over the period of study (Chai et al., 2011).

5.4 Recommendations for Future Study

In order to overcome the limitations of this study, future study can utilize different performance measures as dependent variable. For risk-adjusted performance measure, Sharpe Index tends to imply a more reliable indication compared to Treynor and Jensen. This is due to the beta coefficients being used in the two indices. Howson & Peterson (1998) (as cited in Conover, Friday & Howton, 2000), beta changes with market condition and has low reliability. Other performance measure such as Net Asset Value (NAV) and financial ratio analysis may be used to complement the efficiency of the findings.

Next, for the limitation of small sample size, further study can be done by utilizing data from countries such as Singapore to examine the conceptual framework. Larger sample size and with appropriate confidence level may help to generate a significant result thus proving the framework.

Furthermore, a future study can be carried out to determine the degree of diversification and the performance of REITs. This study will help REIT managers to come out with a plan that will benefit the shareholders the most.

5.5 Conclusion

In this chapter, the conclusion and findings from this study have been discussed followed by the implications and limitations of this study. Recommendations for future study are also given to improve the results from this study.

References

Abdul Jalil, R., & Mohd Ali, H. (2012). Real estate decisions of Malaysian real estate investment trusts. In *3rd International COnference of Business and Economic Research* (pp. 349–373). Bandung, Indonesia.

Abdul Jalil, R., & Mohd Ali, H. (2015). Performance determinants of Malaysia real estate investment trusts. *Jurnal Teknologi*, (March), 151–159. https://doi.org/10.11113/jt.v73.4333

Abdul Jalil, R., Low, S.-T., Mohammad, I. S., Fadzli, S. Z., & Tiong, C. P. (2017). The relationship of Malaysian REITS' portfolio and its financial performance. *Internationl Journal of Real Estate Studies*, *11*(2), 159–167.

Aggarwal, S. (2014, August 28). REITs To Boost Growth And Transparency In Indian Real Estate Sector! Retrieved from http://www.mondaq.com/india/x/336834/Fund Management REITs/REITs To Boost Growth And Transparency In Indian Real Estate Sector

Ang, L. B. (2016, August 24). What's behind India's REIT delay? Retrieved from https://www.jllrealviews.com/economy/whats-behind-indias-reits-delay/

Barrett, K. C., Morgan, G. A., Leech, N. L., & Gloeckner, G. W. (2012). *IBM SPSS for introductory statistics: Use and interpretation*. Routledge.

Burke Johnson, R., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, *33*(7), 14–26. https://doi.org/10.3102/0013189X033007014

Bursa Malaysia. (n.d.). Retrieved from http://www.bursamalaysia.com/market/regulation/structure/overview/

Capozza, D. R. (1995). Property type , size and REIT value. *Journal of Real Estate Research*, *10*(4), 363–379.

Capozza, D. R., & Lee, S. (1996). Portfolio characteristics and net asset values in REITs. *The Canadian Journal of Economics*, *29*(April), 520–526.

Chai, M. Y., Choong, Y. J., Kok, C. W., & Tham, W. J. (2011). *Malaysian real estate investment trusts (M-REITs): A performance and comparative analysis*. Universiti Tunku Abdul Rahman. https://doi.org/10.1080/01402390.2011.569130

Christie, S. (2007). *Beware the Sharpe ratio Beware the Sharpe ratio*. Fellow Macquire University.

Chuweni, N. N., Ali, S. N. M., Ismail, M. N. I., & Ahmad, S. H. (2015, January). *Performance analysis of hospitality REIT: A case study of YTL hospitality REIT*. In 2nd International Hospitality and Tourism Conference 2014 (pp. 603-606). CRC Press/Balkema.

Dudovskiy, J. (2016). *The ultimate guide to writing a dissertation in business studies: a step-by-step assistance*. Pittsburgh, USA.

Goyal, H., & Gupta, S. (n.d.). REITs to Boost Growth and Transparency in Indian Real Estate Sector. Retrieved from https://www.hg.org/legal-articles/reits-to-boost-growth-and-transparency-in-indian-real-estate-sector-33321

Hamzah, A. H., & Rozali, M. B. (2010). Empirical investigation on the performance of the Malaysian real estate investment trusts in pre-crisis , during crisis and post-crisis period. *International Journal of Economics and Finance*, *2*(2), 62–69.

Han, J. (1995). The historical performance of real estate investment trusts. *Journal Fof Real Estate Research*, *10*(3), 235–262.

Hauke, J., & Kossowski, T. (2011). Comparison of values of pearson's and spearman's correlation coefficients on the same sets of data. *Quaestiones Geographicae*, *30*(2), 87–93. https://doi.org/10.2478/v10117-011-0021-1

Hox, J. J., & Boeije, H. R. (2005). Data collection,primary versus secondary. *Encyclopedia of Social Measurement*, *1*, 593–599.

Jaccard, J., Wan, C. K., & Turrisi, R. (1990). The detection and interpretation of interaction effects between continuous variables in multiple regression. *Multivariate Behavioral Research*, *25*(4), 476–478.

Jackson, L. A. (2009). Lodging REIT performance and comparison with other equity REIT returns, *10*(4), 296–325. https://doi.org/10.1080/15256480903202383

Kim, H., Mattila, A. S., & Gu, Z. (2002). Performance of hotel real estate investment trusts : a comparative analysis of Jensen indexes. *International Journal of Hospitality Management*, *21*(2002), 85–97.

Kok, K. L., & Khoo, L. K. (1995). Performance of property trusts in the kuala lumpur stock exchange. *Capital Market Reviews*, *3*(2), 1–19.

Lee, K. H. (2017). *Determinants of returns on Malaysian real estate investment trusts (M-REITs)*. Universiti Tunku Abdul Rahman.

Loo, S. W., & Johari, A. (2014). Risk-adjusted performance of Malaysian real estate investment trust funds. *Jurnal Pengurusan*, *41*(2014), 3–11.

Malkiel, B. G. (2003). The efficient market hypothesis and its critics. *Journal of Economic Perspectives*, *17*(1), 59–82.

Mason, C. H., & Perreault, W. D. (1991). Collinearity, power, and interpretation of multiple regression analysis. *Journal of Marketing Research*, *XXVIII*(August 1991), 268–280.

Mohamad, N. E. A., & Zolkifli, I. A. (2012). The determinant factors of real estate investment trust (REIT)'s performance : Evidence from Asian REITs. *Indonesian Capital Market Review*, *VI*(1), 53–59.

Money, C. (2018, August 31). REIT acquisitions in Asia touch USD 10 billion in H1 2018: Report. Retrieved from https://www.moneycontrol.com/news/business/real-estate/reit-acquisitions-in-asia-touch-usd-10-billion-in-h1-2018-report-2901621.html

Newell, G., & Osmadi, A. (2009). The development and preliminary performance analysis of Islamic REITs in Malaysia. *Journal of Property Research*, *26*(4), 329–347. https://doi.org/10.1080/09599916.2009.485417

Newell, G., Ting, K. H., & Heampong, P. (2002). Listed property trusts in Malaysia. *Journal of Real Estate Literature*, *10*(1), 109–119.

Ng, D. C. Y., Leong, M. L., Lau, T. C., & Abdul Rahim, F. (2018). A comparison on the performance and risk diversification benefits of real estate investment trusts in Malaysia and Singapore.

Ng, D. C. Y., Lim, B. K., & Lau, T. C. (2017). A study on the performance and risk diversification benefits of real estate investment trusts in Malaysia. *Journal of Social Science and Humanities*, *25*(January), 265–276.

Olanrele, O. O. (2014). Reit Performance Analysis: Are other Factor Determinants Constant?. Asian Economic and Financial Review, 4(4), 492.

Olanrele, O., & Said, R. (2015). Comparison of REIT dividend performance in Nigeria and Malaysia. *African Journal of Business Management*, *9*(16), 608–614. https://doi.org/10.5897/AJBM2015.7855

Ong, T. S., Teh, B. H., & Chong, M. P. (2011). A study on the performance of malaysian real estate investment truts from 2005-2010 by using net asset value approach, *2*(1), 1–15.

Ooi, J. T. L., Newell, G., & Sing, T. (2006). The growth of REIT markets in asia. *Journal of Real Estate Literature*, *14*(2), 203–222.

Ratapana, C. (2017, December 13). Are Thai REITs better than property funds? Retrieved from http://www.jllapsites.com/research/thai-reits-better-property-funds/

Redman, A. L., & Manakyan, H. (1995). A multivariate analysis of REIT performance by financial and real asset portfolio characteristics. *Journal of Real Estate Finance and Economics*, *10*, 169–175.

REITS Market Cap Grows 24% Over a Decade. (2017, October 27). *Malay Mail*. Retrieved from http://epaper.mmail.com.my/2017/10/27/reits-market-cap-grows-24-over-a-decade/

Sharpe, W. F. (1966). Mutual fund performance. *The Journal of Business*, *39*(1), 119–138.

Teh, B. H., Soh, C. H., & Yan, Y. L. (2012). Malaysian real estate investment trusts : A performance and comparative analysis. *International Journal of Economics and Finance*, *4*(5), 73–84. https://doi.org/10.5539/ijef.v4n5p73

Tiong, C. P., & Abdul Jalil, R. (2015). A literature review on diversification strategy of Malaysian real estate invstment trust (M-REIT) and its performance. *International Journal of Real Estate Studies*, *9*(1), 16–22.

Tiong, C. P., & Abdul Jalil, R. (2016). Property types diversification strategy of Malaysian real estate investment trust (M-REITs), 1–9.

Wong, Y. M. (2015). Malaysia REIT : First decade development and returns characteristics. In *Pacific Rim Real Estate Society 21st Annual Conference*.

Yilmaz, K. (2013). Comparison of quantitative and qualitative research traditions : Epistemological , theoretical , and methodological differences. *Europeann Journal of Education*, *48*(2).