DOI: https://doi.org/10.37134/jcit.vol12.1.2.2022

Determinants of Malaysian Real Estate Investment Trusts (M-REITs) Risk-Adjusted Performance during the Period of Property Oversupply

Peck-Ling Tee* & Shuet-Ee Choong

Universiti Tunku Abdul Rahman, Faculty of Accountancy and Management
Lot PT21144, Jalan Sungai Long, Bandar Sungai Long, Kajang, 43000, Selangor, Malaysia.
**Email: teepl@utar.edu.my*

Abstract

After the remarkable property surge in the first half of 2010s decade (2010-2014), the Malaysian property market has then moved into a period of oversupply and price overhang, which pose more challenges for REIT managers. Unlike most previous research that mainly compared various risk-adjusted performance measures among REITs, this research looks into whether size of portfolio, fundamental performance measures (net property income and dividend yield) and types of property managed by REITs influence their risk-adjusted performance measure of Jensen alpha. Based on a sample of 16 Malaysian REITs over the period 2015-2017, regression results generally show that there is no significant relationship between any of these determinants and Jensen alpha. Furthermore, only one out of the 16 M-REITs has a positive Jensen alpha and outperforms the benchmark FTSE Bursa Malaysia Kuala Lumpur Composite Index. Investors who prefer a high and certain dividend yield can consider to invest in M-REITs that mainly focused in the hospitality sector. Based on the rankings of Jensen alpha, M-REIT fund managers can consider to diversify their property portfolios to include more retail and hospitality properties during the period of property oversupply.

Keywords: M-REITs; Jensen alpha; Size of portfolio; Net property income; Dividend yield

1. Introduction

Real estate investment trust (REIT) is an investment vehicle or a unit trust scheme that invests in income-producing properties, which range from office or commercial buildings, shopping malls, industrial properties, resorts or hotels, healthcare facilities to specialty-built buildings (Chuweni, Ali, Ismail & Ahmad, 2015; Low & Johari, 2014). REIT market started to grow in Asia since the first decade of the 21st century (Newell et al, 2012). The continuous development of REIT markets in Asia not only contribute to growth in GDP, but also help to develop related sectors such as retail, hospitality and tourism. Japan was the pioneer in the region to launch two J-REITs in September 2001, followed by Singapore in July 2002 and Taiwan in March 2005. Meanwhile, Securities Commission of Malaysia revealed the REITs Guidelines in 2005 and the first M-REIT, Axis REIT, was then listed on 3rd August 2005. Subsequently, Hong Kong launched the first HK-REIT, named Link REIT, in November 2005. Link REIT made the history as the world's largest REIT initial public offering at that point in time with a market capitalization of US$2.6 billion (Ooi et al, 2006). Apart from that, Atchison and Yeung (2014) report highlighted some beneficial impacts that REITs bring to the Asian economies. Among the benefits highlighted include REITs offer long-term institutional and individual investors a

valuable alternative to achieve better risk and return outcomes, contribute to higher capital market diversity and a healthier development of the property industry through improving market transparency.

The performance of M-REITs was uninspiring throughout 2018. Bursa Malaysia's REIT Index closed at 928.81 points on 31st December 2018, translating into a decline of 12.2 percent from 1,057.35 points on 29th December 2017, underperformed the benchmark FBM KLCI by nearly twice as much (Tan & Arjuna, 2019). However, looking at the individual M-REITs, there are some M-REITs which performed well despite the pressure of commercial and retail properties oversupply in the market. Strong names such as Pavilion, IGB and Sunway were 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 REIT sector continues to grow in Malaysia, there is a need for more in depth studies on REITs and their performances. There have been many studies focusing on comparing the risk-adjusted performance of M-REITs with the benchmarks. However, there are limited studies assessing the factors that affect the risk-adjusted performance of M-REITs. Assessing M-REITs is challenging due to 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 previously studied are diversification in terms of types of property (Abdul Jalil & Mohammad Ali, 2015; Abdul Jalil, Low, Mohammad, Fadzli & Tiong, 2017), size of REITs firm (Mohamad & Zolkifli, 2014; Abdul Jalil & Mohammad Ali, 2015) and dividend payout (Mohamad & Zolkifli, 2014; Olanrele, 2014).

This research aims to investigate the factors that influence the risk-adjusted performance of M-REITs during the period of property oversupply in Malaysia as well as to benchmark the risk-adjusted performance of M-REITs against FTSE Bursa Malaysia Kuala Lumpur Composite Index (FBM KLCI). Results from this research will shed the lights to the following research questions: (1) Does portfolio size (market capitalization) of M-REITs influence Jensen alpha?; (2) Does net property income of M-REITs influence Jensen alpha?; (3) Does dividend yield of M-REITs influence Jensen alpha?; (4) Does diversification in the types of property managed by M-REITs influence Jensen alpha?.

Results of this study could provide some information to the M-REITs managers when planning their business strategies and making decisions to optimize the performance of their REITs portfolio. With the real estate markets continuously under pressure of oversupply, every decision made is crucial and thus getting some insights on what could affect the performance would help the REITs' managers in making investment and divestment decisions. For investors, the analysis and findings of this research could provide better insights on picking the suitable M-REIT for their own investment portfolio.

2. Literature Review

Before the introduction of first Malaysian REIT back in 2005, Axis REIT, Malaysia was the first country in Asia permitted by legislation to form Listed Property Trusts (LPT) way back in 1989. Arab-Malaysian First Property Trust (AMFPT) was the first LPT to debut on Kuala Lumpur Stock Exchange (KLSE). Approaching the end of the 1990s, the number of listed LPTs in Malaysia grew to four. The second LPT, First Malaysian Property Trust (FMPT) was listed on 23rd November 1989, followed by Amanah Harta Tanah PNB (AHTP) on 28th December 1990 and Mayban Property Trust Fund One (MPTF1) listed on 25th March 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.

Malaysia's REIT market has witnessed a tremendous growth, with the total market capitalization of M-REITs increased from RM5 billion in 2007 to RM44 billion in 2017, equivalent to an annual compounded growth rate of 24.29 percent per annum (Malay Mail, 2017). Increasing portfolio size of M-REITs has also transformed into better risk-adjusted returns, which in turn attract more local and foreign investors to invest in M-REITs (Ng, Lim & Lau, 2017).

A study done by Kok and Khoo (1995) on the performance of LPTs in Malaysia using Sharpe, Treynor and Jensen alpha indices. Their study concluded that FMPT was the best performing LPT during both the market rising and declining periods and the performance was on par with the market portfolio. There was no LPT showing sign of consistency in terms of investment performance during the sampling period of their study and the systematic risks of all the LPTs were low. Similar research was done by Hamzah, Rozali and Tahir (2010) for the period from 1995 to 2005 showed that the performance of LPTs were superior to the market portfolio during the 1997-1998 financial crisis, but were underperforming during the pre-crisis period 1995-1997 and post-crisis period 1998-2005**.**

After the LPTs have been replaced by M-REITs, in a more recent research by Ng, Lim and Lau (2017) to analyze performance of 16 M-REITs using Sharpe, Treynor and Jensen alpha indices from 2007 to 2015, the average unadjusted performance 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 measures showed consistency in the performance of M-REITs.

REITs are attractive to investors due to the regulation that requires REITs to distribute at least 95 percent of their taxable income in the form of dividends to shareholders (Abdul Jalil et al 2017). Consequently, higher taxable income and dividend yield of a well-managed REIT will in turn lead to higher share price and risk-adjusted return. Hence, there should be a positive relationship between dividend yield and Jensen alpha for REITs.

Net property income is a fundamental performance measure of a REIT. In line with the Efficient Market Hypothesis (EMH), the information of the fundamental performance individual stocks (including REITs) will be reflected in the share prices instantaneously and in an unbiased manner (Malkiel, 2003). Nevertheless, there were limited past studies on the factors

that influence REIT performance. Chuweni et al (2015) looked into how fundamental performance could affect REIT market performance by using a case study focusing on YTL Hospitality REIT. In terms of share price, YTL Hospitality REIT showed sign of steady increment throughout 2010-2013 reaching its peak from 2012 to 2013. For ratio analysis, return on capital employed showed sign of declining from 2011 to 2013 due to increase of borrowings of the company. Besides, the current ratio of the REIT showed sign of declining from 2010 to 2013 and its value was at less than one, put the company at the risk of illiquidity. Another study carried out by Olanrele (2014) attempted to analyze factors affecting the REIT performance. This case study focused on AMFIRST REIT with the study period from 2007 to 2013. The REIT risk-adjusted performance was justified based of the dividend yield. The results of this study showed that all the factors such as size (market capitalization), degree of leverage, market-to-book ratio and fund from operation had significant impact on the REIT performance.

Tiong and Abdul Jalil (2016) carried out a study to investigate the relationship between the property types diversification and performance of M-REITs. 17 M-REITs were classified based on their property types, which are commercial, industrial, retail, hospitality and specialty. Their study came to the conclusion that property types had minimal impact on the M-REITs performance of expected return and dividend yield. However, a later study done by Abdul Jalil et al (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. Their study concluded that property type of office space was positively correlated with dividend per unit, dividend yield and total return index while property type of commercial mall was positively correlated with market capitalization. Property type of industrial building had positive correlation with dividend per unit, dividend yield and total return index, whereas property type of hotel and resort was positively correlated with market capitalization.

Mohamad and Zolkifli (2014) carried out research using REITs data from five Asian countries, which include Taiwan, Thailand, Malaysia, Hong Kong, Japan and Singapore for the period from 2007 to 2011. Their study found that factors such as dividend yield, net property income and portfolio size determined the return of REITs. In a later study by Lee (2017), the results indicated that dividend yield showed negative a relationship with return on REITs, whereas net property income showed a positive relationship with return on REITs. Findings by Lee (2017) contradicted the birds-in-the-hand theory that proposed a higher dividend yield should lead to an increase in share price as investors prefer the bird in hand rather than two in the bush.

Based on the review on these relevant theories and past empirical research findings, this research will test on the following four hypotheses:

H1: There is a positive relationship between market capitalization and Jensen alpha risk-adjusted return of M-REITs.

H2: There is a positive relationship between net property income and Jensen alpha risk-adjusted return of M-REITs.

H3: There is a positive relationship between dividend yield and Jensen alpha risk-adjusted return of M-REITs.

H4: There is a positive relationship between diversification in the types of property managed and Jensen alpha risk-adjusted return of M-REITs.

3. Methodology

Only 16 out of the 18 M-REITs listed on Bursa Malaysia (refer to Table 1) will be used as the sample 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, 2015). As for KIP REIT, there is not much data available since it was only listed on February 2017.

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

No.	Name of M-REIT	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 this research

The sampling period for this research is from year 2015 to year 2017. This sampling period is chosen because there was a significant market softening happened in 2015. According to the National Property Information Centre (NAPIC), Malaysia's property market has seen an 8 percent decline in transaction value and a 5.7 percent contraction in the number of transactions in 2015, the second sharpest de-escalation since 2002, after an 8.3 percent dwindle in 2009 (The Edge Financial Daily, 2016). Moreover, this research does not include the period 2018-2020 because there were changes in the political coalition that formed the federal government for

twice during that period which resulted in many infrastructure and property development projects either being cancelled or postponed, which might impact M-REITs performance.

As for the assets of a M-REIT, majority of the assets must be real estates which will generate income. Although M-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 estates 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 percent of the fund's total asset value as stated in paragraph 8.03 of the guidelines (Legal Herald, 2018).

This research uses secondary data. Weekly M-REITs closing stock prices and weekly FBM KLCI closing index are collected from the Bloomberg database, three-month Malaysia Treasury bills yield is collected from Bank Negara Malaysia's reports, while data on market capitalization, net property income, dividend yield and types of property managed by each of the individual M-REITs are gathered from their respective annual reports. All these data are collected from year 2015 to year 2017.

From the weekly M-REITs closing stock prices and FBM KLCI closing index respectively, weekly M-REITs returns and FBM KLCI (proxy as market portfolio) returns are calculated using the following equation:

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

Whereby,
Rt = each M-REIT and FBM KLCI KLCI return for week t
P_t = closing M-REIT share price and FBM KLCI index at the end of week t
P_{t-1} = closing M-REIT share price and FBM KLCI index at the end of week t-1 (i.e. previous week)

There are three common indices used to measure the risk-adjusted performance of a portfolio, namely Treynor index (1965), Sharpe index (1966) and Jensen alpha index (1968). This research adopts only the Jensen alpha index as the risk-adjusted performance for the selected M-REITs due to the limitations of both Sharpe and Treynor indices as well as the fact that a positive (negative) Jensen alpha directly indicates whether a particular M-REIT has over-performed (under-performed) the benchmark FBM KLCI and to what extent it has over-performed (under-performed). The major limitation of Sharpe and Treynor indices is that both measures are ranking metric without quantifying the value-added. Jensen alpha index is computed by subtracting the required rate of return generated from the Capital Asset Pricing Model (CAPM) from the actual return. The required rate of return composes the risk-free rate plus the systematic risk (measured by beta) multiplied by the market risk premium of the actual market return minus the risk free rate (Kim, Mattila & Gu, 2002). Many previous researches also adopted Jensen alpha index as the risk-adjusted performance measure for REITs, such as Kim et al (2002), Jackson (2009) and Hamzah et al (2010). The formula of Jensen alpha index is as follow:

$$\alpha_i = R_i - [R_f + \beta_i(R_m - R_f) \quad (2)$$

Whereby,

α_i = Jensen alpha index for M-REIT i

R_i = weekly average actual return of M-REIT i

R_f = weekly average risk free rate, derived from annualized yield of three-month Malaysia Treasury bills (TBR), which is $[(1 + TBR)^{1/52} - 1] \times 100$

β_i = beta of M-REIT i generated by regressing weekly FBM KLCI returns against weekly M-REIT i's returns

R_m = weekly average actual return of FBM KLCI

This research will examine on four factors that could determine the performance of M-REITs, which include size, net property income, dividend yield and types of property managed. Size of the individual M-REIT is measured by natural logarithm of its market capitalization instead of absolute value of its market capitalization used in Olanrele (2014) to avoid biasness caused by absolute values. Net property income is defined as income from properties before interest, depreciation and overhead expenses, calculated by taking rental income minus property expenses such as taxes and property management expenses (Capozza & Lee, 1996). For this research, net property income will be expressed as a percentage of the total income generated by the respective individual M-REIT. Dividend yield of an individual M-REIT is the proportion of its share price that is distributed yearly as dividends to the investors (Mohamad & Zolkifli, 2014; Lee, 2017). Different types of property managed by each individual M-REIT might have different effects on its performance. In this research, properties managed by all the M-REITs are classified into seven different types, which are retail, commercial, office, industrial, healthcare, hospitality and education as applied in Abdul Jalil and Mohammad Ali (2015). An individual M-REIT is classified as "diversified" if it invests and manages more than one type of property in its portfolio of properties. Apart from this diversification dummy, six dummy variables will be created for six types of property managed by M-REITs as another dimension to measure diversification, which are retail, commercial, office, industrial, healthcare and hospitality, while property type of education will be excluded from the analysis to avoid exact collinearity.

After data have been collected and computed, SPSS 25 software will be used to conduct descriptive and regression tests. Firstly, descriptive statistics such as average, standard deviation, maximum and minimum will be generated and analyzed on weekly returns (unadjusted performance) of M-REITs and the benchmark FBM KLCI over the period 2015-2017. Then, average Jensen alpha index (risk-adjusted performance) for M-REITs over the period 2015-2017 will be compiled and ranked. Subsequently, descriptive statistics for parametric factors that influence M-REITs risk-adjusted performance such as size, net property income and dividend yield will be generated and analyzed. For non-parametric factor, which are the types of property managed by M-REITs, frequency distribution will be tabulated. Based on a panel of 48 REIT-year observations multiple linear regression will be performed on models specified in Equation 3 and Equation 4 below to test on hypotheses H1 to H4 formed for this research.

$$JA_{it} = a + b_1MC_{it} + b_2NPI_{it} + b_3DY_{it} + b_4DSF_{it} + \varepsilon_{1it} \quad (3)$$

$$JA_{it} = c + d_1RET_{it} + d_2COM_{it} + d_3OFF_{it} + d_4IND_{it} + d_5HLC_{it} + d_6HSP_{it} + \varepsilon_{2it} \quad (4)$$

whereby,

JA	=	Jensen alpha index
MC	=	natural logarithm of market capitalization
NPI	=	net property income
DY	=	dividend yield
DSF	=	diversification dummy, takes a value of "1" if the individual M-REIT is diversified, or "0" otherwise
RET	=	type dummy, takes a value of "1" if the individual M-REIT manages retail properties, or "0" otherwise
COM	=	type dummy, takes a value of "1" if the individual M-REIT manages commercial properties, or "0" otherwise
OFF	=	type dummy, takes a value of "1" if the individual M-REIT manages office properties, or "0" otherwise
IND	=	type dummy, takes a value of "1" if the individual M-REIT manages industrial properties, or "0" otherwise
HLC	=	type dummy, takes a value of "1" if the individual M-REIT manages healthcare properties, or "0" otherwise
HSP	=	type dummy, takes a value of "1" if the individual M-REIT manages hospitality properties, or "0" otherwise
i	=	each individual M-REIT
t	=	each year, from 2015 to 2017
a and c	=	constant terms
b and d	=	coefficients for respective independent variables
ε	=	error terms

4. Discussion of Results

Table 2: Descriptive statistics of M-REITs weekly returns for the period 2015-2017

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
M-REITs Average	0.0806	2.2838	N.A.	N.A.
FBM KLCI (Market Portfolio)	0.0196	0.1013	-5.1009	4.7728

Note: Developed for this research.

Table 2 showed that average weekly return of the 16 M-REITs over the period 2015-2017 is 0.0806 percent, which is far higher than average weekly return of FBM KLCI (0.0196 percent). During this period, CapitaLand Malaysia Mall Trust has the best performance of 0.3803 percent, whereas Amanah Harta PNB has the worst performance of -0.1382 percent. Based on weekly average return, 11 out of 16 M-REITs have superior performance if compared to FBM KLCI, while 9 out of 16 M-REITs have outperformed the overall M-REITs average.

Table 2: Jensen Alpha index of M-REITs for the period 2015-2017

Name	Jensen Alpha Index	Ranking
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 this research.

As shown in Table 3, during the period from 2015 to 2017, only one M-REIT performs better than FBM KLCI as the benchmark with zero Jensen alpha index. Only one M-REIT, which is CapitalLand Malaysia Mall Trust, has a positive Jensen alpha index and outperforms FBM KLCI, whereas the rest of the M-REITs have a negative Jensen alpha index and under-perform FBM KLCI. This could be probably due to oversupply of properties in the Malaysian market during this period. Based on the ranking, it can be observed that the retail is the best performing M-REIT sector because CapitaLand Malaysia Mall Trust, IGB REIT and Pavilion REIT which mainly focus on retail properties are leading in the table with first, second and fourth positions

respectively. Besides, YTL Hospitality REIT and Sunway REIT which have many hospitality properties in their portfolios are performing reasonably well too with third and sixth positions respectively in the table.

Table 4: Descriptive statistics of factors influencing M-REITs performance over the period 2015-2017

Factor 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 this research.

As depicted in Table 4, 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 market capitalization absolute value, while 2015 has the lowest value of 20.1029. For net property income, the average for 2016 is the highest with 80.2856 percent, while the lowest is in 2015 with 72.0508 percent. As for dividend yield, the year 2016 has the highest average dividend yield of 7.7794 percent, while the year 2017 has the lowest average dividend yield of 5.7613 percent.

Table 5: Distribution for types of property managed by M-REITs

Types of Property Managed	Frequency Count
Retail	10
Commercial	4
Office	10
Industrial	4
Healthcare	2
Hospitality	3
Education	2

Note: Developed for this research

Table 5 summarized the frequency distribution of types of property managed by M-REITs. Both retail and office properties appear to be the most commonly managed properties by M-REITs with 10 M-REITs involve in each. On the other hand, healthcare and education properties are the least commonly managed with only 2 M-REITs involve in each. Besides, 8 out of 16 M-REITs are considered diversified as they are managing more than one type of property, while the other 8 are considered non-diversified as they just focus on managing one type of property.

Table 6: Multiple linear regression results for equation 3

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	-1.440	2.013	N.A.	-.715	.490
	NPI	-.006	.009	-.192	-.697	.500
	D.Y	-.074	.136	-.155	-.543	.598
	DSF	-.311	.254	-.351	-1.225	.246
	M.C	.097	.078	.357	1.253	.236
Dependent Variable: Jensen						

Note: Developed for this research

R-squared of multiple linear regression performed on Equation 3 is 0.215, which indicates that all the four factors including size, net profit margin, dividend yield and diversification in the types of property managed explain 21.50 percent of the variation in M-REITs Jensen alpha index. However, when interpret from the output generated by SPSS as shown in Table 6, none of these factors show a significant relationship with the dependent variable, Jensen alpha index, since the p-value for t-statistic are all above 0.10 level. Therefore, there are no evidence to reject the null hypothesis of H1 to H4.

Table 7: Multiple linear regression results for equation 4

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	-.502	.253	N.A.	-1.985	.078
	RET	.327	.266	.356	1.228	.250
	COM	-.263	.365	-.256	-.719	.490
	OFF	-.200	.307	-.218	-.652	.531
	IND	-.416	.354	-.406	-1.176	.270
	HLC	-.070	.399	-.052	-.176	.864
	HSP	.206	.370	.181	.557	.591
Dependent Variable: Jensen						

Note: Developed for this research

R-squared of multiple linear regression performed on Equation 4 is 0.305, which indicates that all the six property type dummy variables explain 30.50 percent of the variation in M-REITs Jensen alpha index. However, when interpret from the output generated by SPSS as shown in Table 7, none of these dummy variables show a significant relationship with Jensen alpha index,

since the p-value for t-statistic are all above 0.10 level. Therefore, this further confirms that there is no evidence to reject the null hypothesis of H4.

Table 8: Multiple Linear Regression for Types of Property Managed and Dividend Yield

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.155	.362	N.A.	19.788	.000
	RET	-.981	.381	-.510**	-2.576	.030
	COM	.853	.523	.396	1.630	.138
	OFF	-.835	.439	-.434*	-1.902	.090
	IND	.325	.507	.151	.642	.537
	HLC	-1.445	.572	-.513**	-2.527	.032
	HSP	1.270	.530	.532**	2.398	.040
a. Dependent Variable: DY						

****, ** and * indicate significant at 0.01, 0.05 and 0.10 level respectively.*
Note: Developed for this research

A further analysis from this research found some significant relationships between types of property managed and dividend yield of M-REITs. F-statistic of this multiple linear regression of 3.143 is slightly significant at 0.10 level since the p-value is 0.060. In addition, R-squared of this multiple linear regression is 0.677, which indicate the types of property managed explain 67.7 percent of the variation of M-REITs dividend yield. From the coefficient table illustrated in Table 8, M-REITs that manage properties in hospitality have a significantly higher dividend yield. On the other hand, M-REITs that manage properties in retail and healthcare have a significantly lower dividend yield, while M-REITs that manage properties in office building have a slightly significant lower dividend yield.

5. Conclusion and Recommendation

The results obtained from this research are invalidating the findings from previous research. In addition, the results obtained also contradict with EMH, birds-in-the-hand theory and portfolio diversification theory that proposed significant relationships between the determinants and risk-adjusted performance of REITs. Nevertheless, the problem may not lie on the conceptual framework proposed by theories and previous researchers but rather on the data itself which is the performance of M-REITs. Based on the Jensen alpha index of the 16 M-REITs, only one M-REIT (CapitalLand Malaysia Mall Trust) has a positive Jensen alpha index and over-performs if compared to the benchmark FBM KLCI. This shows that M-REITs and generally the entire Malaysian property market are not performing well during the property oversupply period of

2015-2017. The Malaysian property market is facing oversupply problem of commercial and residential properties, declining occupancy rate for commercial and retail, and the downtrend of property prices especially in the years from 2016 to 2017.

In addition, there are only 18 M-REITs in Malaysia, which is far smaller than the number of REITs in more developed REIT markets such as the United States, Japan, Australia and Singapore. According to Deziel (2018), a sample size that is too small could reduce the power of the study and increase the margin of error, which can render the results of the study meaningless. Hence, future researchers may consider a comparative study of M-REITs against REITs from other countries such as Singapore, Japan, Australia, Taiwan and Hong Kong, to avoid the potential problem of small sample size.

Although none of the factors discussed above significantly determine the risk-adjusted performance of M-REITs, there are still some implications from the findings of this research. Investors who prefer a high and certain dividend yield rather than an uncertain capital gain during the period of property market slowdown can consider to invest in M-REITs that mainly manage properties in the hospitality sector. As shown in Table 8, M-REITs that manage hospitality properties generate a larger dividend yield of 0.532 percent if compared to those that manage other types of property. For M-REIT fund managers, they can consider to diversify their property management portfolios to include more properties in the retail and hospitality sectors. Even though the types of property do not show any significant relationship with Jensen alpha index, M-REITs that have focused mainly in the retail sector (CapitalLand, IGB and Pavilion) and the hospitality sector (YTL and Sunway) are conquering five out of the top six rankings in terms of Jensen alpha as shown in Table 3.

References

Abdul Jalil, R., & Mohammad 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.

Atchison, K., & Yeung, V. S. (2014). The impact of REITs on Asian economies. *Asia Pacific Real Estate Association (APREA)*.

Capozza, D. R., & Lee, S. (1996). Portfolio characteristics and net asset values in REITs. *The Canadian Journal of Economics*, *29(4)*, 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

Chuweni, N. N., Ali, S. N. M., Ismail, M. N. I., & Ahmad, S. H. (2015). 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*.

Deziel, C. (2018). The effect of a small sample size limitation. Sciencing. Retrieved March 8, 2019, from https://sciencing.com/effects-small-sample-size-limitation-8545371.html

Hamzah, A. H., Rozali, M., & Tahir, I. (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.

Jackson, L. A. (2009). Lodging REIT performance and comparison with other equity REIT returns. *International Journal of Hospitality & Tourism Administration, 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.

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

Malaysia's 2015 property market records decline in transaction value and volume. (2016, May 9). *The Edge Financial Daily*. Retrieved May 9, 2018, from https://www.theedgemarkets.com/article/malaysia%E2%80%99s-2015-property-market-records-decline-transaction-value-volume

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

Mohamad, N. E. A., & Zolkifli, I. A. (2014). The determinant factors of real estate investment trust (REIT)'s performance : Evidence from Asian REITs. *Indonesian Capital Market Review*, *VI(1)*, 53–59.

Newell, G., Ting, K. H., & Heampong, P. (2012). Listed property trusts in Malaysia. *Journal of Real Estate Literature*, *10(1)*, 109–119.

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(1)*, 265–276.

Olanrele, O. O. (2014). REIT performance analysis: Are other factor determinants constant?. *Asian Economic and Financial Review*, *4(4)*, 492.

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

REITs market cap grows 24% over a decade (2017, October 27). *Malay Mail*. Retrieved Februay 4, 2019, from http://epaper.mmail.com.my/2017/10/27/reits-market-cap-grows-24-over-a-decade/.

Tan, X. Y., & Arjuna, C. S. (2019). M'sian REITs could become market darlings in 2019. *The Edge Financial Daily*. Retrieved January 4, 2019, from https://www.theedgemarkets.com/article/msian-reits-could-become-market-darlings-2019.

Tiong, C. P., & Abdul Jalil, R. (2016). Property types diversification strategy of Malaysian real estate investment trust (M-REITs). *MATEC Web of Conference.* DOI:10.1051/MATECCONF/20166600076

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