PERFORMANCE OF REAL ESTATE INVESTMENT TRUST (REITs) AFTER GLOBAL ECONOMY CRISES IN MALAYSIA
(Prestasi Amanah Pelaburan Hartanah (REITs) selepas Krisis Ekonomi Antarabangsa di Malaysia)

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ABSTRACT

Real Estate Investment Trusts (REITs) is a trust unit that creates fund flow from investors and unit holders to real estates. In Malaysia, REITs is a low-risk investment instrument. It can provide at least 90 percent of net profit to the investors and unit holder in terms of dividend. The aim of this study is to examine the performance of REITs Malaysia compared to market benchmark, FTSE Bursa Malaysia Kuala Lumpur Composite Index (FBM KLCI) after economy crises. The crises are Global Financial Crisis (2008), European Debt Crisis (2011) and Crude Oil Price Crash (2014). Three risk-adjusted measurements are used to test the performance of REITs, which are Sharpe ratio, Treynor ratio and Jensen's alpha. The result of this study will give an overall idea to investors on the performance of REITs Malaysia against risks.

Keywords: FBM KLCI; risks; Sharpe ratio; Treynor ratio; Jensen's alpha

ABSTRAK

Amanah pelaburan hartanah (REITs) merupakan satu skim unit amanah yang mewujudkan aliran dana daripada pelabur dan pemegang unit ke hartanah. Di Malaysia, REITs merupakan instrumen pelaburan yang berisiko rendah dan menjamin pulangan tahunan sekurang-kurangnya 90 peratus daripada keuntungan bersih dalam bentuk dividen kepada pelabur dan pemegang unit. Kajian ini bertujuan untuk menilai prestasi REITs Malaysia berbanding dengan penanda aras pasaran, FBM KLCI, selepas berlakunya krisis ekonomi. Krisis ekonomi yang digunakan dalam kajian ini adalah krisis kewangan global (2008), krisis hutang Eropah (2011) dan krisis kejatuhan harga minyak mentah (2014). Tiga ukuran prestasi terlaras risiko telah digunakan dalam penilaian prestasi REITs, iaitu nisbah Sharpe, nisbah Treynor dan alfa Jensen. Keputusan kajian ini akan memberi gambaran kepada pelabur tentang prestasi REITs Malaysia semasa menghadapi risiko.

Kata kunci: FBM KLCI; risiko; nisbah Sharpe, nisbah Treynor; alfa Jensen

1. Introduction

Real Estate Investment Trusts (REITs) is a low-risk investment tool that pools fund from investors to be used in real estate management (Jong & Tik 2015). REITs allows both small and large investors to acquire ownership in commercial properties. Examples of properties are shopping malls, offices, industrial properties, warehouses and hotels. As return, REITs will pay out at least 90 percent of the taxable income in the form of dividends to shareholders.

1.1 *Development of REITs in Malaysia*

Malaysia is the first country in Asia to publicly list property trust (Ong *et al*. 2011) with the introduction of Listed Property Trusts (LPT). Amanah Harta Tanah PNB is the first LPT listed in Bursa Malaysia in 1989. Most of the REITs were listed between year 2006 and 2007. In 2005, Security Commission Malaysia issued Guidelines for Islamic REIT. In 2006, the first Islamic REITs among the world was listed in Bursa Malaysia, named Al-Aqar Healthcare REIT (ALQAR). The second I-REITs in Malaysia is the Al-Hadharah Boustead REITs. This

REITs is the first estate based REITs in Malaysia and also the largest I-REITs in year 2009. However, in 19th February 2014, Al-Hadharah Boustead REITs has been delisted from Bursa Malaysia. On 3rd August 2005, Axis REITs has changed its status from REITs conventional into I-REITs and was listed in Bursa Malaysia.

1.2 *Classification of REITs*

In Malaysia, REITs is categorized into three types: equity REITs, mortgage REITs and hybrid REITs. Equity REITs invests and owns commercial real estates such as offices, shopping complexes and apartments to generate income. After that, equity REITs will divide at least 90 percent of taxable income to shareholders annually. Mortgage REITs offers financial loans to real estate owners in the form of mortgage or purchases mortgages and mortgaged-backed securities. The interests gained from the mortgage loan are transferred to shareholders of REITs as annual dividend. Hybrid REITs is the combination of equity REITs and mortgage REITs. This type of REITs owns real estates and provide financial mortgages at the same time.

1.3 *Advantages of REITs*

REITs is a low-risk investment tool and guarantees stable annual income to shareholders. Both small and large investors can enjoy the rental income from commercial properties without involving in management of REITs. REITs is handled by an experienced and professional management team. Besides, REITs has lower volatility compared to the stock price of real estate. This means that stock price for REITs is relatively stable and less risk compared to real estate. In addition, REITs has a diversified investment portfolio which increases returns and reduces risk. Real estate is an asset with low liquidity and this characteristic makes investors refuse to invest in real estate. Investors would like to invest in REITs with high liquidity because REITs shares are traded on the major stocks exchange. This characteristic makes the process of buying and selling become easy and fast.

1.4 *Comparison between I-REITs and conventional REITs*

For conventional REITs, there is no necessity for any *shariah* advisor be in the company. However, it is a necessity to assign at least one *shariah* advisor in I-REITs in order to verify the *shariah* conditions that permitted in the investment activities. Next, there is no restriction for the insurance purchase by the conventional REITs. However, I-REITs can only choose takaful for protection. Besides, the conventional REITs only open for conventional type of investors. For I-REITs, both conventional and *shariah* investors can choose to be one of the unit holder of I-REITs.

1.5 *Global economy crisis*

The performance of REITs Malaysia during three market downtrends that were triggered by economy crises was examined. The crises are: United States subprime mortgage crisis in 2008, European debt crisis in 2011 and crude oil price crash in 2014.

1.5.1 *U.S. subprime mortgage*

In 29 September 2008, the stock market of US crashed and caused negative consequences to global economy. Dow Jones Industrial Index declined for 6.89 percent on the day, which was the greatest fall ever. The mortgage crisis was a result of too much borrowing and flawed financial modeling, which based on the assumption that the home prices will only go up. However, the large decline in home prices after the collapse of a housing bubble had triggered the mortgage crisis. The primary causes of the housing bubble are the low mortgage interest

rates, low short-term interest rates, relaxed standards for mortgage loans and the irrational exuberance. The borrowers faced difficulties in paying the mortgage loans and thus affected the liquidity of financial institutions in US. The fourth largest investment bank in US, Lethman Brothers faced bankruptcy during this crisis.

1.5.2 *European debt crisis*

The European debt crisis occurred in year 2009 and reached its peak on 11th November 2011. The causes of this crisis were the lack of an effective financial mechanism, the practice of bribe and the over spending of government. These issues caused the government debt increased by 113%. This huge amount of government debt was paid by banks from France, United Kingdom (UK), US, Germany and local banks by issuing government bond. According to the Economy Report 2012/2013, Malaysia was exposed to this crisis through the trade channel. On the financial side, the impact from the crisis was transmitted mainly via increased uncertainty and volatility in the global financial markets, and the attendant rise in deleveraging activity. However, Malaysia has sufficient buffers against shocks from the European debt crisis.

1.5.3 *Crude oil price crash*

Since June 2014, the oil price had declined from $115 per barrel till $70 per barrel. The occurrence of this crisis was due to the Organisation of Petroleum Exporting Countries (OPEC) failed to make an appropriate decision when the export of crude oil from oil-exporting countries such as Russia, Nigeria, Iran and Venezuela. At the same time, the demand for crude oil became low due to weak economy activity, increased efficiency and a growing switch away from oil to other fuels. For example, an energy saving vehicle has been invented and used in Japan and Europe. This has reduced the petroleum demand in these two countries.

1.6 *Research objectives*

There are two research objectives for this paper. First, to examine the performance of REITs after global economy crises that happened between year 2008 and year 2015. The global economy crises that are examined in this paper are: global financial crisis in 2008, Europe debt crisis in 2011 and crude oil price crash in 2014. The second objective is to determine whether the performance of REITs conventional is better than I-REITs, as discussed in the previous study by Mohamad and Saad (2012).

1.7 *Research scope*

This study focuses on the 16 REITs that has been listed in Bursa Malaysia before year 2015, which included 2 I-REITs (refer to Table 1) and 14 REITs conventional (refer to Table 2). The Al-Salam REITs will not be examined because it was listed in 2015. The performance of REITs after the three crises will be analyzed using the risk-adjusted performance measures.

Table 1: I-REITs listed in Bursa Malaysia

I-REITs	Quote	Established year
AXIS REIT	AXREIT	2005
AL-AQAR KPJ	ALAQAR	2006

Sources: Bursa Malaysia, MIDF Research (2016)

Table 2: REITs conventional listed in Bursa Malaysia

Conventional REITs	Quote	Established year
AMANAH HARTA TANAH PNB	AHP	1989
YTL HOSPITALITY REIT	YTL	2005
UOA REIT	UOAREIT	2005
TOWER REITs	TWREIT	2005
HEKTAR REIT	HEKTAR	2006
AMFIRST REITs	AMFIRST	2006
AMANAHRAYA REIT	ARREIT	2007
MRCB-QUILL REIT	QCAPITA	2007
ATRIUM REIT	ATRIUM	2007
SUNWAY REIT	SUNREIT	2010
CAPITAL LAND MALAYSIA MALL TRUST	CMMT	2010
PAVILLION REIT	PAVREIT	2011
IGB REIT	IGBREIT	2012
KLCCP STAPLED GROUP	KLCC	2013
AL-SALAM REIT	ALSA	2015

Sources: Bursa Malaysia, MIDF Research (2016)

2. Relationship between the Crises and the Performance of REITs

Alastair *et al*. (2010) found out that the negative impact brought by global financial crisis 2008 to the international real estate market was much more serious compared to previous crises. They compared the performance of properties between United States (US) and United Kingdom (UK). An analysis of four macroeconomics variables relative to the performance of property was carried out. The macroeconomics variables are gross domestic product, unanticipated inflation, term structure and risk premium. After that, regression analysis was completed to examine the impact of the financial crisis on the expected returns for US and UK properties. They concluded that the impact of the global financial crisis on property market has had a greater adverse impact on UK property performance.

Based on the research by MIDF Research (2016), the resistance of REITs Malaysia against risks was very strong during the European debt crisis in year 2011. The increased market volatility during this crisis had caused the FBM KLCI performance to be subdued with a marginal total return of +4.4%. Meanwhile, REITs Malaysia able to outperform the FBM KLCI, with marginal total return of +9.9%. In year 2012, the market gradually recover from the impact of the crisis where the total return for FBM KLCI and REITs Malaysia reported as +14.3% and +20.2% respectively. Thus, REITs Malaysia outperformed the FBM KLCI during the crisis.

Nazlioglu *et al.* (2016) investigated the relationship between oil prices and REITs Malaysia using gradual-shift causality and volatility transmission analysis. The period for their research was between year 2005 and 2013. Their research proved that the fluctuation of oil prices influence the performance of all kind of REITs except mortgage REITs. Besides, Huang and Lee (2009) had also investigated the same topic of analysis by using the ARJI model. They found out that the impact from the fluctuation of oil prices affected performance of REITs. Their study showed that the oil price was directly proportional with the return growth of REITs.

Ong *et al.* (2012) examined the investment performance of REITs listed in Malaysia over year 2005 till 2010. They divided the period of analysis into three parts: before, during and after the global financial crisis. The method they used in their analysis was by calculating the risk-adjusted performance measures: Sharpe ratio, Treynor ratio and Jensen's alpha. Based on the Sharpe ratio and Treynor ratio, most REITs underperformed the market benchmark during and after the crisis. However, according to the Jensen's alpha, REITs outperformed the market during and after the crisis. Their research was supported by the study of Jong and Tik (2015) which concluded that the performance of REITs is better than FBM KLCI all along the global financial crisis 2008.

3. Comparison between I-REITs and REITs Conventional

Mohamad and Saad (2012) compared the performance of I-REITs and REITs conventional in their research. They used risk-adjusted performance measurement to do the comparison. Their analysis data composed of 12 REITs listed in Bursa Malaysia from year 2007 till 2009. They also applied the independent sample *t*-test to test the hypothesis of means equality between S-REITs and REITs conventional. At the same time, the Pearson Correlation was used test the correlation between the risk and returns. Their research showed that the performance of REITs conventional was better than I-REITs when tested with Sharpe ratio and Jensen's alpha.

However, the study done by Mohamad (2015) proven that I-REITs performed better than REITs conventional between years 2009 and 2013. The performance measurements used were distribution per unit (DPU), dividend yields (DY), net asset value (NAV) and earnings per unit (EPU). DPU and DY were chosen to represent REITs performance due to its ability in forecasting the REITs growth. The NAV of a REIT is the market value of its assets portfolio, minus any debts, which are secured by the property. It is per unit metric is used to determine the REITs valuation. The higher the NAV per unit compared to REITs stock price, it is said to be undervalued and traded at a premium. The study also mentioned I-REITs plays main role in the development of Islamic market in Malaysia.

4. Data

Four types of data are used to examine the performance of REITs. The data are daily stock prices of REITs Malaysia listed from year 2008 until 2015, Malaysia's Treasury bill, FTSE Bursa Malaysia Kuala Lumpur Composite Index (FBM KLCI) and FTSE Bursa Malaysia EMAS (FBM EMAS). These data were collected from several resources such as Bank Negara Malaysia, Bursa Malaysia, Yahoo Finance, The Wall Street Journal and Securities Commission Malaysia. The periods of this research are 30 days, 60 days and 90 days after 29 September 2008, 1 November 2011 and 19 June 2014 respectively. The data collected are used to calculate the average daily return, standard deviation and beta value for REITs and FBM KLCI.

By year 2017, Malaysia has 17 REITs listed in Bursa Malaysia, which includes 14 conventional REITs and 3 I-REITs. However, only 14 conventional REITs and 2 I-REITs are examined in this study due to Al-Salam REITs, which was only been listed after year 2015.

Treasury bill is a short term debt obligation backed by the government with a maturity of less than one year. It has high liquidity among investment instruments and known as the most safe investment tool. Theoretically, risk free rate is impossible because risk will occur in any type of investments. However, investors take the Treasury bill as the measure of risk free rate because it has lowest risk due to the support by the government.

The market benchmark used in this study is FBM KLCI. FBM KLCI composes of 30 largest public listed companies in Malaysia. This index is often been used by experts as market benchmark to determine the performance of portfolio. In this study, the FBM KLCI is used as the market benchmark to compare with conventional REITs and I-REITs.

FBM EMAS is also one of the market index. It represents 98% of the total market modal for all the public listed companies in Malaysia. The FBM EMAS composes of FBM KLCI, FBM 70 and FBM Small Cap. The FBM 70 comprises the next 70 after the FBM KLCI companies by full market capitalisation. The FBM Small Cap comprises the companies within the top 98% of the Bursa Malaysia excluding the constituents of the FBM KLCI and FBM 70 index. In this study, FBM EMAS is the market index used in the calculation of risk-adjusted performance measures.

5. Methodology

The performance of REITs is measured by using three risk adjusted performance measures: Sharpe ratio, Treynor ratio and Jensen's alpha. These measures are often being used to evaluate and compare the performance of two portfolios.

5.1 *Average daily return*

The average daily return of REITs can be calculated by using the formula below:

$$R_i = \frac{1}{j} \sum_{t=1}^{t=j} \frac{P_t - P_{t-1}}{P_{t-1}} \tag{1}$$

where

R_j = the average return on REITs
P_t = daily stock price of REITs at time t
P_{t-1} = daily stock price of REITs at time t-1

The average daily return of FBM KLCI can be calculated by using the formula below:

$$R_m = \frac{1}{j} \sum_{t=1}^{t=j} \frac{M_t - M_{t-1}}{M_{t-1}} \tag{2}$$

where

R_m = the average return on FBM KLCI
M_t = daily stock price of FBM KLCI at time t

M_{t-1} = daily stock price of FBM KLCI at time t-1

5.2 *Measurement of risks*

Risks can be classified into two types: systematic risk and non-systematic risk. Systematic risk is the market risk that cannot be eliminated through diversification. It indicates the motion of the entire economy. Non-systematic risk is the diversified risk and is the uncertainties come along with a company or industry.

In this study, the standard deviation measured both systematic and non-systematic risk whereas beta measured only systematic risk. REIT with beta value equals to 1 indicates the price of REIT moves along with the market price. REIT with beta value less than 1 indicates the REIT is less risky compare to market. REIT with beta value more than 1 indicates the REIT has more risk compare to market benchmark. The higher value of the risk measurements indicates the REITs are riskier. Beta is calculated using the following formula:

$$\beta = \frac{\text{cov}(R_j, R_m)}{\text{var}(R_m)} \tag{3}$$

where

β = Beta REITs for j-period
$\text{cov}(R_j, R_m)$ = Covariance of REITs and FBM EMAS for j-period
$\text{var}(R_m)$ = Variance for the return of FBM EMAS for j-period

5.3 *Sharpe ratio*

Sharpe ratio is a performance measurement method that shows excess return for the uncertainties happened. Sharpe ratio is one of the measures to calculate risk-adjusted returns. This ratio shows the surplus return that will be received for the existing volatility. The measure of risk used in this method is the standard deviation. The large Sharpe ratio shows good risk adjusted performance. The negative value Sharpe ratio indicates that less risky assets may have a better performance than the analyzed securities.

$$\text{Sharpe ratio} = \frac{R_j - R_f}{\sigma_p} \tag{4}$$

where

R_j = the average return on REITs
R_f = the average return on Malaysia Treasury Bills
σ_p = the standard deviation of the returns on REITs

5.4 *Treynor ratio*

Treynor ratio is also one of risk adjusted performance measurement. It only takes into account the systematic risk in calculating the ratio. Beta is used to replace the standard deviation in the Sharpe ratio. Beta only measures portfolio sensitivity to changes in the market, while the standard deviation measures the amount of ignorance that exists. Large Treynor ratio represents a good portfolio performance.

$$\text{Treynor ratio} = \frac{R_j - R_f}{\beta_j} \tag{5}$$

where

R_j = the average return on REITs
R_f = the average return on Malaysia Treasury Bills
β_j = the beta of REIT in relative to market benchmark, FBM EMAS

5.5 *Jensen's alpha*

Jensen's alpha is used to identify the abnormal returns compared to return found through the calculation in theory. The portfolio that has a positive Alpha has higher returns compared to the adjusted returns estimated risk in the CAPM.

$$\alpha_p = R_j - [R_f + \beta_j(R_m - R_f)] \tag{6}$$

where

R_j = the average return on REITs
R_f = the average return on Malaysia Treasury Bills
R_m = the average return on FBM EMAS
β_j = the beta of REIT in relative to market benchmark, FBM EMAS

6. Results

The sequences of I-REITs, REITs conventional and FBM KLCI for three methods after three crises are shown in Table 3, Table 4 and Table 5. The analysis between these results will also be discussed in this section.

Table 3: Ranking of REITs and FBM KLCI based on risk-adjusted performance measures in 2008

| Risk-adjusted performance measures | Ranking of REITs and FBM KLCI | | |
	(30 Days)	(60 Days)	(90 Days)
Sharpe Ratio			
FBM KLCI	3	1	3
I-REITs	2	3	1
REITs Conventional	1	2	2
Treynor Ratio			
FBM KLCI	3	3	3
I-REITs	1	1	1
REITs Conventional	2	2	2
Jensen's Alpha			
FBM KLCI	3	3	3
I-REITs	2	2	1
REITs Conventional	1	1	2

Based on Table 3, I-REITs and REITs conventional have higher rank compared to FBM KLCI for all three risk-adjusted performance measures. This indicates the performance of REITs Malaysia against risks is better than FBM KLCI after the global financial crisis 2008. Whereas, Treynor ratio shows that I-REITs performs better than REITs conventional when only market risk is considered. When whole risks are considered, which included market risk and non-systematic risk, Sharpe ratio shows that the position of I-REITs and REITs conventional are not consistent. When look into the Jensen's alpha, the conventional REITs has higher position compare to I-REITs for period of 30 days and 60 days. For 90 days period, I-REITs has the highest position among three components.

According to MIDF Research (2016), European debt crisis did not bring much impact toward REITs Malaysia. However, it affected FBM KLCI a lot. Table 4 shows the same conclusion as MIDF Research. Based on Table 4, Treynor ratio and Jensen's alpha show that FBM KLCI ranked lower than I-REITs and REITs conventional. Besides, I-REITs shows better performance compared to REITs conventional when examined with these two measurements. The Sharpe ratio shows that FBM KLCI performs better than REITs. Meanwhile, REITs conventional has better performance compared to I-REITs.

Table 4:   Ranking of REITs and FBM KLCI based on risk-adjusted performance measures in 2011

Risk-adjusted performance measures	Ranking of REITs and FBM KLCI		
	(30 Days)	(60 Days)	(90 Days)
Sharpe Ratio			
FBM KLCI	3	1	1
I-REITs	2	3	3
REITs Conventional	1	2	2
Treynor Ratio			
FBM KLCI	2	3	2
I-REITs	3	1	1
REITs Conventional	1	2	3
Jensen's Alpha			
FBM KLCI	3	3	3
I-REITs	2	1	1
REITs Conventional	1	2	2

Table 5 shows that REITs has outperformed the FBM KLCI after the crisis in 2014. The ranking of FBM KLCI is the lowest compared to I-REITs and REITs conventional. Overall, I-REITs has higher rank compared to REITs conventional. This can conclude that the performance of I-REITs is better than REITs conventional.

7. Conclusion

From the analysis in this research, the overall performance of REITs is better than the market benchmark, FBM KLCI for all the three crises. This conclusion thus proved the study by Jong and Tik (2015) which showed the performance of REITs was better than FBM KLCI during the global financial crisis 2008. Meanwhile, MIDF Research (2016) also proved that REITs outperformed the market during the European debt crisis (2011) and oil price crash (2014). The other focus of this study is to compare the performance of I-REITs and REITs conventional. Based on the Treynor ratio and Jensen's alpha, I-REITs performed better than REITs conventional for all three period examined. Whereas, the Sharpe ratio showed that I-REITs performed better than REITs conventional only after the oil price crash 2014. Thus, risk-adverse investors can choose to invest in I-REITs to gain stable income.

Table 5:   Ranking of REITs and FBM KLCI based on risk-adjusted performance measures in 2014

Risk-adjusted performance measures	Ranking of REITs and FBM KLCI		
	(30 Days)	(60 Days)	(90 Days)
Sharpe Ratio			
FBM KLCI	1	3	3
I-REITs	3	1	1
REITs Conventional	2	2	2
Treynor Ratio			
FBM KLCI	3	3	3
I-REITs	2	1	1
REITs Conventional	1	2	2
Jensen's Alpha			
FBM KLCI	3	3	3
I-REITs	1	1	1
REITs Conventional	2	2	2

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