PERFORMANCE OF REITS IN COMPARISON TO OTHER FINANCIAL ASSETS

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ABSTRAK

Kajian ini merupakan kajian empirikal pertama yang mengkaji kesan kadar cukai dividen terhadap prestasi Amanah Pelaburan Hartanah (REIT) di Malaysia. Kerajaan Malaysia telah mengumumkan beberapa insentif cukai semasa pembentangan bajet tahunan 2007, 2009, dan 2012.Tempoh kajian adalah di antara Januari 1999 dan Disember 2014 khususnya sebelum dan selepas pelaksanaan insentif cukai 2007. Prestasi REIT Malaysia diukur berdasarkan kepada tiga ukuran prestasi terlaras risiko (Sharpe, Treynor, dan Jensen). Keputusan menunjukkan bahawa sebelum 2007, prestasi REIT Malaysia tidak mencapai tahap yang memuaskan berbanding KLCI, KLPI, indeks nilai wajaran REIT terlaras cukai, dan 3-Bulan Bil Perbendaharaan Malaysia. Selepas 2007, prestasi REIT Malaysia mengatasi KLCI, KLPI, indeks nilai wajaran REIT terlaras cukai dan 3-Bulan Bil Perbendaharaan Malaysia. Dapatan kajian menunjukan kerajaan Malaysia telah mengambil tindakan yang betul dalam melaksanakan insentif cukai kerana ianya telah menambah baik pembangunan industry REIT sejak ditubuhkan.

Kata kunci: REIT, prestasi terlaras risiko, kesan kadar cukai dividen

ABSTRACT

This is the first empirical study examining the impact of dividend tax rate changes on the performance of Malaysian Real Estate Investment Trusts (REITs). The Malaysian Government announced several tax incentives during the annual budget presentation in 2007, 2009, and 2012. The period of study is between January 1999 and December 2014 and specifically before and after the implementation of the 2007 tax incentives. Malaysian REITs performance are measured with three risk-adjusted performance measures (Sharpe, Treynor, and Jensen). The results indicate that, before 2007, Malaysian REITs showed unfavorable performance against the KLCI, KLPI, value weighted tax-adjusted REITs index, and Malaysia 3-month Treasury Bills. After 2007, Malaysia REITs outperformed the KLCI, KLPI, value weighted tax-adjusted REITs index, and Malaysia 3-month Treasury Bills. These findings show that the Malaysian government has made the right move in implementing the tax incentive as the REITs industry development has improved ever since its establishment.

Keywords: REIT, risk-adjusted performance, dividend tax rate

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

The development of Real Estate Investment Trusts (REITs) started in 1960 in the United States. Real Estate Investment Trust Act of 1960 was the guidance of REITs operationalization. It stipulated REITs tax-exempt status. The tax-exempt status provided an attractive legal structure for real estate companies. As the industry progresses, REITs face a number of restrictions in their operation and policies. These restrictions have been improved to make REITs more popular as real estate investment vehicles (Brounen & Koning, 2012).

The Netherlands and Australia initiated their own market in the late 1960s and 1970s following the success of the US REITs. The Netherlands established the Fiscal Investment Institution regime (Fiscale Beleggings Instelling: FBI) in 1969. Fiscale Beleggings Instelling implemented tax-exempt status for real estate companies (EPRA, 2015). In Europe, France established REITs market in 2003 and the United Kingdom launched the REITs market in 2007 (Brueggeman & Fisher, 2011). Australia also implemented a similar tax-exempt status in 1971 (Ooi, Newell, & Sing, 2006). In the late 1990s and particularly early 2000s, Asian governments passed a legislation that permitted REITs establishment (Atchison & Yeung, 2014). It provided tax concessions that imitated the taxation treatment of REITs globally including in particular Australia and the US (Atchison & Yeung, 2014). This caused the emergence of Asian REITs market. In Japan, REITs were publicly listed on the Tokyo Stock Exchange on March 2001. This made Japan as the thirteenth country in the world that launched the REITs market (Brueggeman

& Fisher, 2011). Subsequently, REITs was launched in South Korea, Singapore, Hong Kong, Taiwan, and Malaysia in the year 2001, 2002, 2003, 2003, 2005 (Newell, 2012) as shown in Figure 1.

In Asia, REITs showed rapid development because it provides an opportunity for investors to invest in a professionally managed portfolio of real estate with attractive dividend yields. This increases a competition among the regulators in providing favorable regimes in order to attract more foreign capital and increase market capitalization (Ooi et al., 2006).

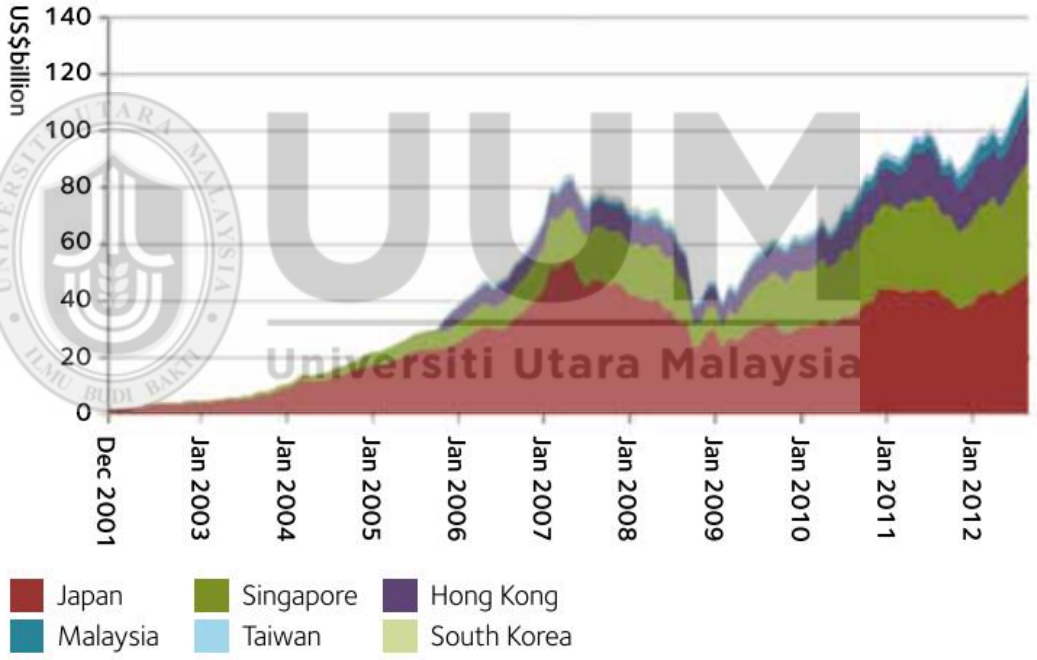

Figure 1.1 Growth of the Asian REITs Market: Asia Market Capitalization 2001 - 2012
Source: (Newell, 2012)

Globally, REITs' total market capitalization amounted to US$850 billion in 2012. It was derived from 500 REITs within 22 countries. Asian REITs contributed US$118.4 billion or 13.93% of total market capitalization (Newell, 2012) as shown in Table 1. In Asia, Japan led with 40% of market share in the REITs market, followed by Singapore and

Hong Kong that accounted for 32% and 17%. Japan, Singapore, and Hong Kong were categorized as developed REITs market. Other countries liked Malaysia, Thailand, Taiwan and South Korea were classified as emerging markets.

Table 1.1
Asian REITs Market Capitalisation: August 2012

Country	REITs Number	Market Capitalization (US$)	Percentage of Asian REITs Market
Japan	35	$47.2B	40%
Singapore	27	$37.6B	32%
Hong Kong	9	$19.7B	17%
Malaysia	15	$6.3B	5%
Thailand	38	$4.7B	4%
Taiwan	6	$2.4B	2%
South Korea	8	$0.5B	<1%
Total	**138**	**$118.4B**	**100%**

Source: (Newell, 2012)

In Malaysia, REITs were introduced in 1989. The Malaysian REITs was developed in accordance with the Australian Listed Property Trust (LPT) regulatory framework (Hwa, 2008; Hamzah, Rozali, & Tahir, 2010). According to Brounen and Koning (2012), most Asian REITs adopted the Australian model of listed property trusts. As shown in Table 2, Arab Malaysian First Property Trust was the first listed property trusts fund (PTF) launched in September 1989, followed by First Malaysia Property Trust in November 1989 and Amanah Harta Tanah PNB in December 1990. In 1997, Mayban Property Trust Fund One was listed on the Kuala Lumpur Stock Exchange (KLSE).

After 15 years, there were only three REITs traded on Bursa Malaysia (BM), which showed an almost stagnant progress. According to Newell, Hwa, and Acheampong (2002) and Janice and Lin (2007), the slow development and poor performance of property trusts in Malaysia such as thin trading volume, small market size, and poor historical returns

were caused by the underlying local operational structures and regulatory factors. The primary difference was on the tax treatment. Investors received dividends after corporation paid for corporate taxes amounted to 28%. In contrast with the US and Australia, they implemented tax-exempt status, in which income distribution was not subject to income tax if at least 95% was distributed to investors (Newell, Hwa, & Acheampong, 2002).

Table 1.2
Malaysian Listed Property Trust Characteristics (December 1999)

Property Trust	KLSE Listing	Number of Properties	Real Estate Portfolio Composition (by Real Estate Type and Location)
Arab Malaysian First Property Trust (AMFT)*	Sept. 1989	2	Office (100%) Kuala Lumpur (100%)
First Malaysia Property Trust (FMPT)	Nov. 1989	6	Office (43%), Industrial (44%), Retail (7%), Hotel (6%) Kuala Lumpur (41%), Australia (25%), Other (34%)
Amanah Harta Tanah PNB (AHP)	Dec. 1990	9	Office (93%), Retail (7%) Kuala Lumpur (96%), East Malaysia (2%), Other (2%)
Mayban Property Trust Fund One	March 1997[1]	5	Office (100%) Kuala Lumpur (40%), Other (60%)

1 Previously unlisted from Aug 1990–Feb 1997.

* Arab Malaysian First Property Trusts (AMFT) changed its name at 1/8/2003 became Amfirst Property Trust. It was based on the Trust Deed issued on 23 December 2002.

Source: (Newell et al., 2002)

In 2002, the tax regime applied tax charge for the income of the corporation amounted to 28%. The dividends were paid by Property Trusts Funds (PTF) are subjected to the requirements of a tax imputation system (Securities Commission, 2002). Shareholders obtain pre-tax dividends and the tax credits could be applied to offset against the recipient's taxable amount. Tax imputation system could evade double taxation treated for corporate profits. Subsequently, Securities Commission obtained a request from the public to evaluate the existing tax regime specifically in term of tax charges and incentives, coupled with a comparison to other jurisdictional practices (Securities

Commission, 2002). The US model was taken as the center stage of jurisdictional study because it has implemented the "tax transparent" status where income from the PTFs/REITs if disbursed 90% (previously 95%) as dividends to its unit holders would be exempted from paying tax and would only be taxable at the unit holders level. This concept was called as "flow-through" improved the total income received by shareholders/unit holders. Malaysian situation did not fulfill the tax transparent status because of the tax imputation system existence. Furthermore, individual and corporate tax rates varied. For instance, property trust funds (PTFs) paid dividends and taxes at a corporate rate of 28%. Retail and institutional investors are entitled to claim tax credits from these dividends. If the retail investors' tax liability were less than the tax credit, they were entitled to a refund of the difference. Thus, the tax imputation system applied during those times was already tax-free in nature and thus, tax transparent status was not crucial (Securities Commission, 2002).

Nonetheless, in order to boost the REITs attractiveness, the Securities Commission (SC) introduced a new guidelines in 2005 which had somehow helped in increasing its number to 17 as at 31 December 2013 as shown in Table 3 (Annual Report Bursa Malaysia, 2013). Property trusts fund (PTFs) was renamed as REITs in order to be consistent with the global term. Prior to 2005, there were no specific guidelines for REITs taxation. The main features of the guidelines were the tax transparency status of REITs and the limitation of REITs borrowing to 35% of their asset value (Ooi et al., 2006). Specifically, the tax treatment was regulated by the provision of the Income Tax Act (ITA) 1967 subsection 61(1), sections 63A and 63B (Inland Revenue Board Malaysia, 2012) which is applicable to unit trusts.

Table 1.3
List of Real Estate Investment Trusts

No.	Funds Under Management	Property sectors in portfolio	Date Listed	Status
1	Al-Aqar Healthcare REIT	Healthcare	10/8/2006	Existing
2	Al-Hadharah Boustead REIT	Plantation	8/2/2007	Delisted in 2014
3	Amanah Harta Tanah PNB***	Office	28/12/1990	Existing
4	Amanah Harta Tanah PNB2 (formerly known as Mayban Property Trust Fund One) ****	Office	25/3/1997	Delisted in 2009
5	AmanahRaya REIT	Diversified	26/2/2007	Existing
6	Amfirst Property Trust (formerly Arab Malaysian Property Trust)	Office	28/9/1989	Suspended in 2006
7	AmFirst REIT*	Diversified	21/12/2006	Existing
8	Atrium REIT	Industrial	2/4/2007	Existing
9	Axis REIT	Office and Industrial	3/8/2005	Existing
10	CapitaMalls REIT	Retail	16/7/2010	Existing
11	First Malaysian Property Trust	Office, Industrial, Retail, and Hotel	Nov 1989	Delisted in 2002
12	Hektar REIT	Retail	4/12/2006	Existing
13	IGB REIT	Retail	21/9/2012	Existing
14	KLCC REIT**	Office and Retail	9/5/2013	Existing
15	MRCB-Quill REIT (formerly known as Quill Capita Trust)	Retail	8/1/2007	Existing
16	Pavilion REIT	Retail	7/12/2011	Existing
17	Sunway REIT	Diversified	8/7/2010	Existing
18	Tower REIT	Office	12/4/2006	Existing
19	UOA REIT	Office	30/12/2005	Existing
20	YTL Hospitality REIT (formerly known as Starhill Real Estate Investment Trust)	Retail	16/12/2005	Existing

Source: Authors' compilation from (Osmadi, 2010) and Securities Commision (2015)

*Arab Malaysian Property Trust was suspended on Dec 2006, AmFPT distributed units of AmFirst REIT to existing unit holders of AmFPT on the basis of one for one, and cash distribution the basis of RM 0.4 for one unit of AmFPT.

**KLCC REIT will not be included in M-REIT index due to KLCC REITs was stapled securities with KLCC Property Holdings Berhad on May 9, 2013.

***Established as property trusts fund (PTF) which subsequently converted to Malaysian REITs in 2005.

****Amanah Harta Tanah PNB2 previously known as Mayban Property Trust Fund One. It was changed its name on 11 July 2001.

In 2005, a specific guideline was established in relation to the rental income of real properties. Section 63C of ITA 1967 stated that rental income from real properties is treated as business income. Furthermore, tax initiatives were also introduced (Inland Revenue Board Malaysia, 2012). The government introduced several tax initiatives during the annual budget presentation in 2007, 2009, and 2012 where the dividend tax rates have been reduced until December 31, 2016 (PWC Malaysian Tax and Business Booklet, 2012). From 2004 to 2011, REITs recorded a compounded annual growth rate of 83.19%. As at 31 December 2014, the market capitalization of REITs amounted RM 35,665.69 million (Securities Commision, 2015).

A significant growth in the number of REITs in Malaysia can be seen especially after the introduction of the new guidelines on REITs by Securities Commission (SC) in January 2005. The SC has also issued revised guidelines on REITs on August 2008 to further promote a more competitive REITs industry. The Malaysian government realizes the importance of REITs by announcing several incentives in the annual budgets to develop the REITs market starting from the 2004 budget. There are three annual budgets that affect investors as in these budgets, the government reduced the tax rates on income distributed to unit holders, or dividends, and extended the tax benefits to December 31, 2016. According to Newell and Osmadi (2010), Malaysian REITs fund managers, property advisors, and fund managers in general pointed out that tax issues were the main factor

that drive the development of Malaysian REITs. They argued that tax incentive can increase REITs attractiveness to the local and international investors which could stimulate the growth for Malaysian REITs.

In the 2007 budget, which was presented on September 1, 2006, the Malaysian government reduced the tax rates for individuals and domestic unit trusts to 15% while foreign institutional investors will pay a rate of 20% if at least 90% of the REIT's income is distributed to unit holders. These reductions are valid for a period of five years and effective since 1 January 2007, until December 31, 2011 (KPMG Budget Highlights Tax Commentary, 2007). In the 2009 budget, presented on August 29, 2008, the government further reduced the tax rates to those parties to 10% and effective since 1 January 2009. Finally, the government extended the period of tax reductions to December 31, 2016, in the 2012 budget, which was announced on October 7, 2011 (PWC Malaysian Tax and Business Booklet, 2012). The tax reduction has the main objective to promote further the development of REITs in Malaysia (KPMG Budget Highlights Tax Commentary, 2012).

The changes in the tax rates of REITs income would probably affect the performance of REITs. This has yet to be explored as thus far, there is a limited number of research looking into this issue. Thus, this study is implemented to check on the performance of REITs when there are changes in the tax rate of REITs income.

1.2. Problem Statement

A number of studies have been made to assess the performance of REITs against its market benchmark in the developed countries such as the US and Australia, the emerging markets such as Singapore, Hong Kong, and Japan, and also Malaysia. In the US and Australia, mixed results have been found where the REITs portfolio either outperformed,

underperformed or performed at par as their market benchmark. Burns and Epley (1982), Higgins and Ng (2008), Kuhle et al. (1986), Newell and Peng (2009), Smith and Shulman (1976), Titman and Warga (1986) have obtained the findings that the REITs portfolio outperformed the market benchmark. However, Chan et al. (1990), Goebel and Kim (1989), and Howe and Shilling (1990) found that the REITs portfolio underperformed the market benchmark; whereas Kim, Mattila, & Gu (2002) found that REITs portfolio performed as good as its market benchmark.

As for REITs in the emerging Asian markets, studies had been conducted by Pham (2012) and Coen and Lecomte (2014). Their results showed that emerging markets REITs had a superior performance as compared to REITs in developed markets. Other studies such as Newell, Yue, Kwong Wing, and Siu Kei (2010) who focused on Hong Kong, Koh et al. (2014) and Newell et al. (2015) on Singapore and Newell and Peng (2012) on Japan, found that HK-REITs, S-REITs, and J-REITs outperformed the overall stock market. For Malaysia, risk-adjusted performance studies on REITs had not achieved a consensus. Hwa (1999), Kok and Khoo (1995), Newell and Osmadi (2009), Olanrele, Said, & Daud (2014), and Wah and Johari (2014) found that REITs had a superior performance against the market benchmark. However, Newell et al. (2002) showed that REITs underperformed the market benchmark. Ahmad, Rozali, and Tahir (2010), Nai-Chiek (2014), and Ong et al. (2012) investigated REITs performance by focusing on the effect of the global financial crisis (GFC). They had a different result where outperformance or underperformance vary depending on the method and period of study.

There is a research that take into consideration on the effect of tax rate changes to REITs performance. Xu and Yiu (2010) focused on the impact of tax reforms on the REITs return

in the US and Australia. Their empirical result showed that REITs tax reforms affected the REITs return either positively or negatively depending on the tax reform period. Based on the author's knowledge, there has been no study on the Malaysian REITs performance that takes into account the different tax regimes implemented in 2007, 2009, and 2012. Thus, this study would examine the REITs return by using a REITs index that is adjusted on the different tax regimes. This is essential as performance is very much affected by the use of a reliable benchmark as stressed by Parker (2011). If the benchmark is not adjusted for tax, the performance of REITs might be downwardly bias. When that happens, the assessment of REITs performance is inaccurately done.

1.3. Research Objectives

Based on the problem statement, there are two objectives of this study which comprised:

(1) to examine the performance of the individual REITs in comparison to a tax-adjusted REITs index and other financial assets, i.e., Financial Times Bursa Malaysia Kuala Lumpur Property Index (FTSE BM KLPI), Financial Times Bursa Malaysia Kuala Lumpur Composite Index (FTSE BM KLCI), and Malaysia Treasury Bills (T-Bills).

(2) to examine the performance of the individual REITs in comparison to a tax-adjusted REITs index and other financial assets, i.e., Financial Times Bursa Malaysia Kuala Lumpur Property Index (FTSE BM KLPI), Financial Times Bursa Malaysia Kuala Lumpur Composite Index (FTSE BM KLCI), and Malaysia Treasury Bills (T-Bills) before and after the implementation of 2007 tax incentive.

1.4. Research Questions

(1) How is the performance of the individual REITs in comparison to a tax-adjusted REITs index and other financial assets, i.e., Financial Times Bursa Malaysia Kuala

Lumpur Property Index (FTSE BM KLPI), Financial Times Bursa Malaysia Kuala Lumpur Composite Index (FTSE BM KLCI), and Malaysia Treasury Bills (T-Bills)?

(2) How is the performance of the individual REITs in comparison to a tax-adjusted REITs index and other financial assets, i.e., Financial Times Bursa Malaysia Kuala Lumpur Property Index (FTSE BM KLPI), Financial Times Bursa Malaysia Kuala Lumpur Composite Index (FTSE BM KLCI), and Malaysia Treasury Bills (T-Bills) before and after the implementation of the 2007 tax incentive?

1.5. Significance of the Research

This study would benefit the regulator, fund managers, and investors. For the regulator, the finding would provide a clearer picture on the performance of REITs in Malaysia upon the changes in the tax rate on distributed income. Besides, it would help fund managers to get a more accurate assessment on funds' performance and on their ability to generate above average returns. As for investors, they would be able to make an informed decision on whether to invest in REITs. In addition, this study would extend the existing literature on REITs as thus far most of the studies on REITs performance have not looked into the use of a tax-adjusted REITs index.

1.6. Organisation of the Research

This research is arranged into five chapters. Chapter 1 discusses the background of the study, problem statement, the objective of the study, research questions, significance of the research, and organization of the research. Chapter 2 reviews the literature which consist of the introduction, Markowitz Modern Portfolio Theory, and empirical evidences on REITs performance. Chapter 3 describes the methodology of research while Chapter

4 analyses the results of the study. Chapter 5 concludes the study by suggesting on future research.

CHAPTER 2

LITERATURE REVIEW

2.1. Introduction

The purpose of this study is to examine the performance of the individual REITs in comparison to the tax-adjusted REITs index and other financial assets, i.e., Financial Times Bursa Malaysia Kuala Lumpur Property Index (FTSE BM KLPI), Financial Times Bursa Malaysia Kuala Lumpur Composite Index (FTSE BM KLCI), and Malaysia Treasury Bills (T-Bills) and also to look at the performance before and after the implementation of tax incentive. As such the aim of this chapter is to provide a discussion of Markowitz Modern Portfolio Theory and empirical findings from prior studies about REITs performance from developed markets, followed by emerging markets and ends with Malaysian REITs performance.

2.2. Markowitz Modern Portfolio Theory

The primary goal of investors is to maximize the utility which they obtain from an investment (Levy & Sarnat, 1984). In order to maximize the utility, investors can carry out assets diversification for their portfolio as a way to escalate the portfolio expected returns while reducing the volatility. Markowitz (1952) was the first in introducing assessment on an investment portfolio. It required statistical inputs to compute the expected rate of return, E(r), and standard deviation of returns (σ) for each investment asset.

Markowitz (1952) stressed the importance of calculating the variance of the rate of return as it measures the risk of a portfolio. The portfolio variance formula was not only showing the importance of investment diversification in reducing total risk portfolio but also

exhibited how portfolio could be diversified. Investors would need to diversify their portfolio by holding different assets combination that could reduce their risk and maximizing the expected return.

Markowitz (1952), portfolio theory works under four behavioral assumptions. "The first assumption stated that investors reflect the investment opportunity as being represented by the probability of returns in the same holding period. Second, the risk estimates are based on the variability of returns as measured by the standard deviation or equal to the variance of returns. The third assumption stated that investors' utility of returns function, U(r), is a sole function of variability of return (σ) and expected return [E(r)], symbolically as U (r) = f [σ, E(r)]. In other words, whatever happiness an investor gets from an investment can be completely explained by E(r) and σ. Lastly, for various given level of risk, investors prefer higher returns to lower returns where ∂U (r) / ∂E (r) > 0. In contrary, for various given level of rate of return, investors prefer less risk over more risk in which ∂U (r) / $\partial\sigma$ < 0. In other words, all investors are the risk-averse rate of return maximizers" (Markowitz, 1952, p. 79-83).

2.3. REITs Performance

Christopherson, Carino, and Ferson (2009) stated that performance is the return or the escalation in wealth over time of an investment relative to the amount of risk the investors are facing, that is, performance measurement provides a risk-adjusted return assessment. Investors will compare alternative investments which give the same return or the same payoff commitment, and will select the alternative which is less risky. The comparison is being done by using a standard quantifiable measure of performance. Normally, in every

investment performance assessment, benchmarks which are represented by the indexes, are used as the basis for investors to compare the portfolio returns.

According to Hudson-Wilson and Wurtzebach (1994), an index evaluated return for a defined segment of the capital market and a benchmark emulates how a particular participant or group participants performed within that market segment. The most common benchmarks used were the Standard & Poor 500 Index, Center Research Securities Prices (CRSP) Index, Kuala Lumpur Composite Index (KLCI), and Kuala Lumpur Property Index (KLPI) (Burns and Epley, 1982; Hamzah et al., 2010; Han & Liang, 1995; Hwa, 1999; Newell et al., 2002; Sagalyn, 1990; Smith and Shulman, 1976; Kuhle et al. 1986; Titman and Warga, 1986).

Initial REITs performance study originated from the US as the oldest and most developed REITs market in the world. Smith and Shulman (1976) compared 16 equity REITs by their quarterly returns to the S&P 500 Index, savings account, and 15 closed-end investment companies over 1963 to 1974. They found that REITs outperformed the S&P 500 Index from 1963 to 1973 while underperformed the S&P 500 Index in 1974 due to the poor performance of REITs stocks. However, Kuhle et al. (1986) evaluated the REITs performance after adjusting nominal returns for risk within 1973 to 1985 by comparing with the average performance of common stocks as measured by S&P 500 Index. The annual returns of 102 REITs were measured based on Jensen measure to evaluate the excess returns. They found that the REITs outperformed the S&P 500 Index during 1977 to 1985, but underperformed the S&P 500 Index during 1973 to 1976.

On the other hand, Burns and Epley (1982) had a different result. They incorporated diversified common stock portfolio of open- and closed-end investment in corporate

securities and REITs to find which mixed asset portfolio have a superior result compare to one consisting of a single asset. They tested the location and features of efficient frontiers formed with REITs, stocks, and portfolios comprise of both assets. The result which was derived from quarterly returns on 35 survivor REITs from 1973 to 1985 showed that the efficient frontier of mixed asset portfolios containing REITs outperformed the S&P 500 Index and single–asset portfolio.

Similarly, Sagalyn (1990) who examined the ex-post performance of 20 survivor REITs and 26 Real Estate Companies (RECs) from 1973 to 1987 covering several business cycles, found that survivor REITs and RECs returns which were computed on an equally-weighted basis outperformed the S&P 500 Index. In another study which was performed by Titman and Warga (1986), they used the CAPM (Capital Asset Pricing Model) based on a single-factor Jensen measure and APT (Arbitrage Pricing Theory) based on multiple-factors Jensen measure. Two models used the value-weighted market index on 16 equity REITs and 20 mortgage REITs from 1973 to 1982. They found that CAPM based and APT-based five-factor model can generate different estimates on REITs performance. The performance of REITs based on CAPM generated higher performance result than APT based five-factor model when compared to the market portfolio of Centre for Research on Security Prices (CRSP) index. APT which consisted of five factors and CAPM did not provide a reliable evaluation for real estate portfolio managers. The reason was REIT returns were very volatile with high measures of abnormal performance where it did not statistically significant than zero.

Goebel and Kim (1989) showed a different result from Burns and Epley (1982); Kuhle et al., (1986); Sagalyn (1990); Smith and Shulman (1976); Titman and Warga (1986). They

assessed REITs performance by contrasting finite-life trusts (FREIT) which have a limited time maturity with traditional REITs. They used Jensen index to evaluate the risk-adjusted performance against S&P 500 Index with 32 survivor REITs and FREITs from 1983-1987. They found that REITs and finite life REITs underperformed as compared to S&P 500 Index. However, risk-adjusted performance of FREITs portfolio is inferior as compared to REITs portfolio. The under-performance of REITs supported the finding Howe and Shilling (1990), who evaluated the performance of equally-weighted REITs Index based on advisor types. REITs advisor types were divided into 7 categories such as real estate advisor, syndicator, mortgage banker, insurance company, individual, others, and not known. They used Jensen Alpha Index of 105 REITs from 1973-1987. The results showed that REITs and most of different REITs advisor types underperformed the CRSP equally-weighted index. The results were supported by Chan et al. (1990) where REITs performance based on the equally-weighted index is worse than the New York Stock Exchange (NYSE) index on a risk–adjusted basis during the period from 1973-1987. However, REITs outperformed the long-term corporate and long–term government bonds.

Han and Liang (1995) studied the long-term US REITs performance. Previous researchers used shorter time periods such as Goebel and Kim (1989) employed 5 years, Burns and Epley (1982) utilized 13 years, and Howe and Shilling (1990) covered 15 years. According to Han and Liang (1995), the short-time period did not delineate conclusion of REITs performance which is characterized as a volatile industry. The volatility arose due to the sample period concurred with a peak and sluggish time. Thus, they used a longer period from 1970-1993 to test the stability of 255 REITs performance by composing

unbiased REIT portfolios e.g. equally weighted and value-weighted portfolio. Unbiased REIT portfolios were constructed to evade survivorship bias. Subsequently, eight REITs portfolio were built for four different classifications of REITs such as all REITs, equity REITs, mortgage REITs, and hybrid REITs.

All the portfolios performance were measured by using the Sharpe Index as compared to the CRSP index. The finding showed that six out of the eight portfolios had lower total risk-adjusted excess returns compared to the CRSP portfolio over the time studied. This study also tests performance stability over time. The period was divided into four six-year sub-periods: January 1970 to December 1975; January 1976 to December 1981; January 1982 to December 1987; and January 1988 to December 1993. The result showed that equally weighted REITs portfolio underperformed the market in 1970-1975. Both equally and value-weighted equity REITs portfolios had a more favorable performance against the market in 1976-1981 sub-period. The equally weighted mortgage REITs portfolio and the value-weighted all REIT portfolio and equity REIT portfolio outperformed the market in the 1982–1987 period. Lastly, the equally weighted mortgage REITs portfolio significantly underperformed the market, and the value-weighted equity REITs portfolio significantly outperformed the market in the 1988–1993.

The study of US REITs performance continued by Kim, Mattila, & Gu (2002) who used Jensen Index as a risk-adjusted performance measure for 183 REITs traded on the New York Stock Exchange (NYSE), American Stock Exchange (AMEX), and National Association of Securities Dealers Automated Quotations (NASDAQ) during 1993-1999. They contrasted hotel REITs with equally weighted NYSE index and six distinct REITs sectors. The outcome exhibited that hotel REITs carried the highest market risk as

compared to other REITs sectors and risk-adjusted return of hotel REITs was in line with that of the equally weighted NYSE. As a portfolio, office, diversified, and industrial REITs sector had superior performance than the hotel REITs sector. As an individual REIT, hotel REITs underperformed the office, diversified, industrial, and residential REITs but performed at par with retail and healthcare REITs. Another study was carried out by Kim, Matilla, and Gu (2002). They specifically examined the risk characteristics of hotel REITs by estimating beta, total risk, systematic risk, unsystematic risk, and diversification ability of 19 hotel REITs. The result showed that hotel REITs beta had an average below 1 and they are considered as defensive financial assets. Eighty-four percent (84%) of the total risks of REITs portfolio were contributed by unsystematic risk.

The most recent research was done by Brounnen and Koning (2012), which analyzed the performance of International REITs market of 210 REITs ranging from Australia, Hong Kong, Japan, Singapore, France, Netherlands, United Kingdom, Canada, and the United States. This study set sample time span from 1990-2010. The sample was split into 1990-2000 and 2000-2007 to capture real estate cycles within these periods. Capital Asset Pricing Model (CAPM) was used to analyze the REITs performance and national indices used as market benchmarks. The result showed that REITs present positive abnormal returns and outperformed their national indices specifically 2000-2007. REITs' susceptibility against exposure from market movement differed by countries. The US occupied the lowest rank whereas Asia placed the highest rank. Generally, REITs were less volatile than the overall stock market. This was in agreement with the characteristic of real estate as they provided more stable returns than the other asset classes.

Meanwhile, a different perspective was provided by Xu and Yiu (2010). They explored the influence of tax reform to the REITs performance in the US and Australia with a hypothesis that REITs will obtain more excess return after each tax reform implementation. Various tax reform had been conducted in the US such as Tax Reform Acts 1976 and 1986, the REIT Simplification Act (REITSA) 1997, the REIT Modernization Act (RMA) 1999, the REIT Improvement Act (RIA) 2003, and the REIT Investment Diversification and Empowerment Act (RIDEA) 2007. They employed event study and global funds control model. By utilizing both the US and Australia REITs in this model, the performance of each REITs before and after tax reforms was presented. Australian REITs were utilized as the control market. The sample consisted of 34 REITs from both the US and Australia during the period from January 1971–September 2009.

For event study method, multivariate regression method was used based on a single index market model on the REITs portfolio returns and stock market returns to compute abnormal return around the event dates. REITs portfolio return was represented by $portfolio\_return_{it}$ and daily return of S&P 500 index at time t was represented by $market\_return_{t}$. The finding showed that RMA 1999 and RIDEA 2008 obtained significant positive market reactions. However, RIA 2003 generated an insignificant positive market reactions. The others like REITSA 1997 and RMA 1999 enactment generated negative and significant market reactions. Meanwhile, global fund flow control model was built to overcome the limitation of event study. It took control the factors other than tax legislation changes. This model utilized excess return of REITs as the dependent variable. The excess return comprised of REITs in two countries (the US and Australia) in two periods of time (before and after the event).The finding exhibited the effect from

tax changes on REITs excess return were -0.05%, 0.10%, 0.07% and -0.09% from the REITSA 1997, RMA 1991 signed, RMA 1991 implemented, and RIDEA 2008 respectively. However, no notable influence from RIA 2003 had been observed.

In 2013, Brounen, Mathieu, and Veld (2013) published a paper on the effect of financial regulations on REITs performance by analyzing how the introduction of an entire set of rules and regulation of regime that apply to REITs has influenced the return dynamics of listed real estate investment firms internationally. Risk and return parameters of standard single-factor asset pricing models used to estimate each REITs related to the adoption of the REITs regime in 5 countries such as Japan, the United Kingdom, Germany, France, and Singapore. The sample tested was within December 1989-May 2013 which comprised of monthly total return indices of REITs-converting firms and firms that did not convert for each country. The result found that alpha as a parameter of REITs outperformance showed a decrease in the UK and pervasive changes in Japan, Germany, France, and Singapore after the REITs regime was adopted. However, a systematic risk which represented by beta decreased for all countries and joint stability test show that a higher percentage of significant break detected in the relationship between REIT returns and their explanatory variables.

As for Australia, Higgins and Ng (2008) conducted a study on the performance of Australian REITs (A-REITs) market. S&P/ASX 300 A-REIT series was chosen as a benchmark and 16 wholesale property funds were selected. They employed a risk-adjusted performance (RAP) model which was proposed by Modigliani and Modigliani (1997). RAP matched the individual risk level and the market by harmonizing the level of leverage in the fund. The finding showed the mean annual return of S&P/ASX 300

Australian REITs was 14.53%. It underperformed the 16 wholesale property funds which had mean annual return amounted to 15.08%. Annualized RAP measures for each wholesale property funds accounted for 12.90-16.66 percent range. Fourteen out of sixteen wholesale property funds showed the excess return above the market benchmark (S&P/ASX 300).

Consistent to Higgins and Ng (2008), Newell and Peng (2009) studied Australian REITs performance by using monthly total returns from 26 A-REITs in ASX 300 within July 1996-November 2008. Australian REITs generated strong performance as compared to other major asset classes and became the best asset classes from 1996-2007. In 2008, Australian REITs was affected by the global financial crisis (GFC) where risks increased from 10.87% to 23.88% in 2007-2008. The risk of Australian REITs exceeded the stock market which indicates that Australian REITs returns were more volatile than the stock market. During that time, Australian REITs underperformed the other asset classes.

In Japan, Newell and Peng (2012) tested the risk-adjusted performance of Japan REITs (J-REITs) within October 2001-February 2011. Several J-REITs, shares of the stock market as a whole, listed property companies and bond series were evaluated by employing Sharpe ratio. J-REITs occupied first rank asset class outperforming the bonds, listed property companies, and the stock market as a whole. The strong risk-adjusted of J-REITs showed that J-REITs as an effective investment vehicle. Furthermore, Newell, Yue, Kwong Wing, & Siu Kei (2010) evaluated the risk-adjusted performance of Hong Kong REITs from 2005–2008 and the effect of global financial crisis (GFC). HK-REITs had a superior performance against the stock market and property companies. The HK-REITs return amounted to 3.48% annually as compared to the shares and property

companies accounted for 2.05% and 1.02% annually. This finding concurs to Newell and Peng (2012) where REITs outperformed the other asset classes. Furthermore, the period was divided into before the global financial crisis (GFC) period that was in December 2005 – September 2007 and during the global financial crisis in October 2007 – December 2008. The findings showed HK-REITs annual risk (25.31%) before GFC and provide the highest annual return (-21.85%) after GFC. HK-REITs risk rose by 18% (25.23% to 29.86%). It did not rise as much as shares amounted to 190% (12.36% to 35.84%) and property companies amounted to 124% (17.07% to 38.29%). Moreover, based on the reward-to-risk ratio and Sharpe ratio, HK-REITs were not much influenced with the global financial crisis as compared to the stock market and property companies, which is consistent to the finding reported by Pham (2012).

An almost similar study was conducted in Singapore by Newell et al. (2015) where they assessed the risk-adjusted performance of Singapore REITs (S-REITs) in a mixed asset portfolio within 2003 – 2013 and also the effect of GFC by dividing the period into before GFC (July 2003-August 2007), during GFC (September 2007-July 2009) and after GFC (August 2009-June 2013). They analyzed the monthly total returns of the S-REITs, property companies, and bonds which were represented by the FTSE Straits Times All-Share Series, FTSE Straits Times Real Estate Companies series, Singapore Government Long-Term Bonds and Singapore 3-Month Treasury Bills. Based on the reward-to-risk ratio and Sharpe ratio, S-REITs were found to outperform the overall stock market and the level of risk was higher than stocks but lower than the property companies. On a risk-adjusted basis, S-REITs had a superior performance as compared to the Singapore property companies and stocks. The impact of global financial crisis (GFC) affected all

asset classes and S-REITs became the least performed asset classes. During this period, the average annual returns of S-REITs plunged and delivered lesser risk-adjusted performance as compared to other asset classes. The reduction of S-REITs risk-adjusted performance was consistent with the developed REITs market such as in the US and Australia (Newell & Peng, 2009). The risk level of S-REITs also rose amounted to 25.8%. However, after the GFC, S-REITs outperformed the other asset classes.

Some authors focused their research on the Asian Markets. Pham (2012) studied the return and volatility dynamic within June 2006 to May 2011 over the REITs market in Japan, Hong Kong, Singapore, Malaysia, Taiwan, Thailand, and South Korea. Besides that, it also assessed the impact of global financial crisis (GFC). The data utilized were the daily closing prices of REITs indices from seven REITs markets in Asia. Standard and Poor REITs indices of Japan, Hong Kong, Singapore, and Taiwan were employed. However, value-weighted indices for Thailand, South Korea, and Malaysia were developed due to unavailability of REITs indices.

Hong Kong, Japan, and Singapore were categorized as developed REITs markets whereas the rest were classified as emerging markets. Value-weighted indices were also constructed to represent developed, emerging, and Asian markets where Asian REITs index comprised of all listed REITs in the seven markets. In the full sample period, the finding exhibited Malaysian REITs and Hong Kong REITs generated the highest average returns while South Korea had the lowest average returns. Emerging REITs index were less volatile than developed REITs index and also offered lower returns. However, on a risk-adjusted basis, emerging REITs index outperformed developed REITs index. In

addition, the GFC affects returns diminution to all Asian REITs markets except Hong Kong and South Korea.

Coen and Lecomte (2014) utilized Fama-French-Cahart asset pricing model adjusted for illiquidity and errors-in-variables together with the Jensen's alpha, information ratio, and generalized treynor ratio (GTR) to examine the performance of 206 Asian REITs during and after the global financial crisis (GFC) in the period from March 2005 to May 2013. The Asian REITs comprised of Hong Kong, Japan, Malaysia, New Zealand, Singapore, South Korea, Thailand, Taiwan and Australia. The sample was constructed become nine equally-weighted country indexes and an equally-weighted benchmark index. It was split into three periods which were before the crisis (July 2007 to December 2009), during the crisis (July 2007 to December 2009), and after the crisis (January 2010 to May 2013). The finding shows that Malaysian ranked number one in term of REITs performance, which is followed by Taiwan. Australia and New Zealand REITs were ranked the lowest among the sample.

Taiwan, Thailand, and Malaysia headed during GFC outperformed the other markets, while Malaysia, Thailand, and New Zealand showed superior risk-adjusted performance as compared to other REITs markets in post-GFC. Furthermore, the performance of Singapore and Hong Kong exhibited a poor to average performances throughout the global financial crisis (GFC) whereas Singapore and Hong Kong exhibited above average performance after GFC.

Koh et al. (2014) studied the performance of Singapore REITs as compared to the straits times index (STI) within January 2008 to December 2012. They found that S-REITs had an average annual return of 35% whereas STI average annual return accounted for 17%.

Average annual return appreciation was accompanied by bigger annualized volatility. Annualized standard deviation of S-REIT index accounted for 22% while STI amounted to 19.5% indicating that investors would be facing a greater return volatility in S-REITs than STI index. Furthermore, S-REIT dividend yield generated return between 5.3% and 12.8%. It was different with Singapore 10-year government bond which had return range between 3.1% and 10.1%.

In Malaysia, few studies on REITs performance have been conducted. The first research was carried out by Kok and Khoo (1995) who looked into the performance and the systematic risk of three property trust funds (PTF) i.e. Arab Malaysian First Property Trust, First Malaysia Property Trust and Amanah Harta Tanah PNB from January 1991 to April 1995. The period was split into three sub-periods which were bullish market, over speculated market and bearish market. By employing Sharpe Index, Treynor Index and Jensen Index, the findings showed that performance of property trusts fund were better than the market in a bearish market. However, property trusts fund performed worse than the market in a bullish market. It was also observed that systematic risk was inconsistent over time.

Malaysian REITs performance continued with the work of Newell et al. (2002) that looked into Arab Malaysian First Property Trust, First Malaysia Property Trust, Amanah Harta Tanah PNB and Mayban Property Trust Fund One. They found unfavorable performance of the four property trust as compared to the market benchmarks of Kuala Lumpur Composite Index (KLCI) and Kuala Lumpur Property Index (KLPI) on 1991-2000. The poor performance was caused by barriers related to the operational structure such as tax transparency and limited number of properties in property trusts in Malaysia

which was in contrast to the US REITs and Australia Listed Property Trust (LPT). However, Hwa (1999) found that two listed property trusts, i.e. Amanah Harta Tanah PNB (AHP) and First Malaysia Property Trust (FMPT) outperformed the market benchmark of KLCI and Property and Plantation sector sub-indices in 1991–1997 except for Arab Malaysian First Property Trust (AMFPT).

Newell and Osmadi (2009) continued the studies of Newell et al. (2002) and Hwa (1999) by assessing risk-adjusted performance specifically looking at Malaysian Islamic REITs performance. They built three market capitalization weighted Malaysian REITs (M-REITs) total return performance series such as overall M-REITs index consisting all 13 M-REITs, conventional M-REITs index consisting 11 non-Islamic M-REITs, and Islamic M-REITs index consisting two Islamic M-REITs within August 2006-December 2008. Overall M-REITs sector outperformed the overall stock market by showing the highest Sharpe ratio and return-to-risk ratio. Furthermore, conventional M-REITs had better risk-adjusted returns compared with Islamic M-REITs. Besides that, the effect of global financial crisis (GFC) was evaluated by dividing pre-GFC (August 2006-August 2007) and during GFC (September 2007-December 2008). The result showed that Islamic M-REITs generated lower returns (5.88% p.a.) than conventional M-REITs (31.57% p.a.) in the pre-GFC period, with no significant difference in the risk level. However, during GFC, Islamic M-REITs had better risk-adjusted performance compare to conventional M-REITs. Islamic M-REITs generated a lower negative returns than conventional M-REITs (-5.31% versus -16.21%) with the higher level of risk (13.41% versus 9.4%).

The studies continued by Ahmad, Rozali, and Tahir (2010) who assessed the REITs performance from April 1995–April 2005 by dividing the period into three pre-crisis,

during crisis, and post-crisis of the global financial crisis (GFC). They used three measurements which were the Sharpe Index, Treynor Index, and Jensen Index to compare the KLCI and KLPI performance with the REITs. The result showed that during the crisis, all REITs outperformed the KLCI and KLPI. However, REITs underperformed the KLCI and KLPI in the pre-crisis and post-crisis periods. REITs systematic risks exhibited higher than the KLCI and KLPI in pre-crisis and during crisis whereas significantly lower in the post-crisis period.

Ong et al. (2012) went further by investigating the performance of conventional and Islamic REITs within a shorter period from August 2005–December 2010. Based on Treynor Index and Sharpe Index, most REITs underperformed the market portfolio during and post global financial crisis period, but the Jensen Index showed that the REITs outperformed the market indices during and post GFC period. In a similar line of research, Nai-Chiek (2012) used the Sharpe Index to measure the performance of Malaysian REITs within 2001-2010. The period was divided into pre-crisis from 2001-2007, during crisis in 2008, and post-crisis from 2009-2010. Sharpe Index was used because it measured systematic and non-systematic risk to assess the level of investment returns and performance which is in contrast to Treynor and Jensen Indexes that only looked at systematic risks. Based on Sharpe index, M-REITs were found to outperform the FTSE BM KLCI, KLPI, and EMAS indexes during the crisis period whereas they underperformed in the pre-crisis and post-crisis period. This finding is consistent to Hamzah et al. (2010) and Ong et al. (2012) which had a similar finding in during crisis period.

Olaopin et al. (2014) performed the hedonic regression to construct the aggregate benchmark for Malaysian REITs. Hedonic regression can forecast the REITs return by considering simultaneity effect of all the factors such as NAV (net asset value), FFO (funds from operation), size, asset value, and leverage. They used three selected REITs companies by selecting purposively based on location and diversity in the portfolio, which were AmFirst REIT, Starhill REIT, and Amanah Raya REIT from 2008–2012. Average return forecast represented the aggregate benchmark for the REITs industry in Malaysia. The finding showed that M-REITs portfolio outperformed the KLCI by comparing September 2013 REITs return which was 6.26% with September KLCI of 5.3%. Furthermore, Wah and Johari (2014) assessed the performance using Sharpe, Treynor, Jensen, and M-Squared measure and risk features of Malaysian REIT funds from April 2007 to March 2012. Samples were taken by considering diversity in the portfolio. They comprised five office REITs, two retail REITs, two industrial REITs, two specialty REITs and one diversified REITs. The findings exhibited that Sharpe Index and M-Squared performance rankings were similar by looking at risk-adjusted returns and the standard deviation of returns. Al-Hadharah REIT, Amfirst REIT, Axis REIT, Tower REIT, AHP PNB REIT, and Al'-Aqar REIT outperformed the FBM KLCI. Based on the Treynor Index, Hektar REIT was the only one which outperformed the FBM KLCI. Furthermore, based on Jensen Alpha Index performance result, 10 REITs comprised of Al-Hadharah REIT, Amfirst REIT, Axis REIT, Tower REIT, AHP PNB REIT, Al'-Aqar REIT, Hektar REIT, UOA REIT, Atrium REIT, and Amanah Raya REIT generated positive alpha. It exhibited that performance of each REIT was better than the performance of the market.

Overall, the performance of REITs showed mixed findings. In the US and Australia, mixed results have been found where the REITs portfolio either outperformed, underperformed or performed at par as the market benchmark. Burns and Epley (1982), Higgins and Ng (2008), Kuhle et al. (1986), Newell and Peng (2009), Smith and Shulman (1976), Titman and Warga (1986) have obtained the findings that the REITs portfolio outperformed the market benchmark. However, Chan et al. (1990), Goebel and Kim (1989), and Howe and Shilling (1990) found that the REITs portfolio underperformed the market benchmark; whereas Kim, Mattila, & Gu (2002) found that REITs portfolio performed as good as its market benchmark.

As for REITs in the emerging Asian markets, studies had been conducted by Pham (2012) and Coen and Lecomte (2014). Their results showed that emerging markets REITs had a superior performance as compared to REITs in developed markets. Other studies such as Newell, Yue, Kwong Wing, and Siu Kei (2010) who focused on Hong Kong, Koh et al. (2014) and Newell et al. (2015) on Singapore and Newell and Peng (2012) on Japan also found that HK-REITs, S-REITs, and J-REITs outperformed the overall stock market. For Malaysia, risk-adjusted performance studies on REITs had not achieved a consensus. Hwa (1999), Kok and Khoo (1995), Newell and Osmadi (2009), Olanrele, Said, & Daud (2014), and Wah and Johari (2014) found that REITs had a superior performance against the market benchmark. However, Newell et al. (2002) showed that REITs underperformed the market benchmark. Ahmad, Rozali, and Tahir (2010), Nai-Chiek (2014), and Ong et al. (2012) investigated REITs performance with focusing on the effect of the global financial crisis (GFC). They had a different result where outperformance or underperformance vary depending on the method and period of study.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter focuses on the research methodology use to answer the research objectives which are to examine the performance of the individual REITs in comparison to a tax-adjusted REITs index and other financial assets, i.e., Financial Times Bursa Malaysia Kuala Lumpur Property Index (FTSE BM KLPI), Financial Times Bursa Malaysia Kuala Lumpur Composite Index (FTSE BM KLCI), and Malaysia Treasury Bills (T-Bills) and also to look at the performance before and after the implementation of the 2007 tax incentive. The data collection and sample selection are discussed which is followed by the hypotheses development. Subsequently, the method is presented.

3.2 Data Collection and Sample Selection

The sample comprises of all 19 M-REITs that are listed at Bursa Malaysia. KLCC REIT is excluded in M-REIT index because KLCC REITs was stapled securities with KLCC Property Holdings Berhad on May 9, 2013. Monthly return of M-REITs, FTSE BM KLPI, and FTSE BM KLCI were taken from Datastream Thomson Reuters from January 1999 to December 2014. Sixteen years period are tested because longer sample period can portray a better picture of REITs performance as they are considered to be in a volatile industry going through the peak and sluggish period as stressed by Han and Liang (1995). The 3-month Malaysia Treasury Bills (T-Bills) are also collected from the same source. A short term 3-month Malaysia Treasury Bills (T-Bills) is used because it is less volatile than a long-term Malaysian Government Securities (MGS). A self-constructed tax-adjusted Malaysia REITs value weighted index is developed as to fulfill part of the

objective. The M-REITs value weighted index used is self-constructed from the summation of each M-REITs total return index. FTSE BM KLCI is used as a benchmark for the performance of Bursa Malaysia. For comparison purposes, Bursa Malaysia sub-indices (property) which is represented by FTSE BM KLPI is also collected.

3.3 Hypotheses Development

Based on previous researches, studies in the US and Australia (Burns & Epley,1982; Higgins & Ng, 2008; Kuhle et al., 1986; Newell & Peng, 2009; Smith & Shulman, 1976; Titman & Warga,1986); Hong Kong (Newell, Yue, Kwong Wing, & Siu Kei, 2010); Singapore (Koh et al., 2014 and Newell et al., 2015); Japan (Newell & Peng, 2012) and Malaysia (Hwa, 1999; Kok & Khoo, 1995; Newell & Osmadi, 2009; Olanrele, Said, & Daud, 2014; Wah & Johari, 2014) found that REITs outperformed the market benchmark. However, another strand of literature from the US (Chan et al., 1990; Goebel & Kim, 1989; and Howe & Shilling, 1990) and Malaysia (Newell et al., 2002) showed that the REITs underperformed the market benchmark; whereas Kim, Mattila, and Gu (2002) found that REITs performed as good as their market benchmark. Based on those previous studies, there are mixed findings on the performance of REITs. Therefore, this study comes up with the first hypothesis as follows:

H_1 : There is a difference between the performance of individual REIT in comparison to tax-adjusted REITs index and other financial assets, i.e., KLCI, KLPI, and Malaysia Treasury Bills (T-Bills).

According to a study which by Xu and Yiu (2010), REITs tax reforms influenced the REITs return either positively or negatively. There is a likelihood that the implementation of the 2007 tax incentive would provide a different risk and return performance of REITs

and other financial indexes as compared to before the tax incentive was introduced. Therefore, this study comes up with the second hypothesis as follows:

H_2 : There is a difference between the performance of individual REIT in comparison to tax-adjusted REITs index and other financial assets, i.e., KLCI, KLPI, and Malaysia Treasury Bills (T-Bills) before and after the implementation of the 2007 tax incentive.

3.4 Method

In order to answer the objective of the study, three performance measures are utilized which are the Sharpe Index (1966), Treynor Index (1965) and Jensen's Alpha (1968). These measures have been used by prior REITs performance studies (Ahmad, Rozali, &Tahir, 2010; Chan et al., 1990; Goebel & Kim, 1989; Howe & Shilling, 1990; Kok & Khoo, 1995; Newell et al., 2010; Newell et al., 2015; Teh, Soh, & San, 2012; Titman & Warga, 1986; Wah & Johari, 2014). Parker (2011) emphasized that Sharpe Index, Treynor Index and Jensen's Alpha provided a theoretical solution to the real challenge in measuring risk-adjusted returns. Reilly and Brown (2012) argued that none of these measurements dominated the others. All of them perform equally well in evaluating portfolio's risk-adjusted performance.

Sharpe (1966) derived the model based on the capital asset pricing model (CAPM) and specifically emphasized on the capital market line (CML). Sharpe index quantified the total risk with the standard deviation of returns because it measures the total risk of a portfolio. The mean returns on the individual REITs are calculated by averaging the monthly returns of the individual REITs over a selected time period. The proxy employed in this study for the risk-free rate of return is the average yield on 3-month Malaysia

Treasury Bills (T-Bills). The total risk is measured by the standard deviation of returns, which can be calculated as follows:

$$Variance = \sum(Ri - \check{R})^2 / (n-1) \quad (1)$$

$$Standard\ Deviation, \sigma = \sqrt{Variance} \quad (2)$$

Systematic risk is estimated by beta. It is computed as the slope coefficient in the regression of the REITs rate of return on the market rate of return. Likewise, it is computed by dividing the covariance of the REITs returns and the market returns by the variance as follows:

$$\beta_{(REITs\ i)} = Cov_{(REITs\ i, KLCI)} / \sigma^2_{(KLCI)} \quad (3)$$

Monthly returns of the KLCI is used as a proxy for the market's returns. Thus, the Sharpe Index can be calculated as follows:

$$Sharpe\ Index\ (S_i) = \frac{R_i - R_f}{\sigma_i} \quad (4)$$

where R_i is the average monthly return of REITs, R_f is the average monthly return on a 3-month Treasury Bills, and σ_i is the standard deviation of monthly returns of REITs.

The second performance measure was proposed by Treynor (1965). According to Treynor, there are two risks compositions that one has to look at. First, the risk generated from general market fluctuations. Second, the risk produced from the unique fluctuation in the portfolio securities. Risk arose from market fluctuations is represented with the characteristic line. This line explains the link between the returns of a managed portfolio

and the market portfolio. Unique return composition of the portfolio relative to the market portfolio is exhibited from the deviations of the characteristic line. When a portfolio is completely diversified, the unique risk would be diversified away. Therefore, Treynor did not take into account the unique or unsystematic risk in examining the portfolio performance.

According to Treynor, risk-averse investors prefer the portfolio line with the highest beta coefficient (steeper slope) because they require a higher risk premium. The portfolio possibility line slope (denoted by T) is equal to:

$$Treynor\ Index\ (T_i) = \frac{R_i - R_f}{\beta_i} \tag{5}$$

where R_i is the average monthly return of REITs, R_f is the average monthly return on a 3–month Malaysia T-Bills, β_i is the slope of the REITs index's characteristic line during the period of interest (indicating the fund's relative volatility). When Treynor index generates a larger value, it means the portfolio performs better.

The third model is Jensen's Alpha (α) (1968) which is based on the capital asset pricing model (CAPM). Jensen derived the model of portfolio performance based on the work by Sharpe (1964), Lintner (1965) and Treynor (1965), who used the capital asset pricing models. All three models proposed the expected one-period return, E (R_i), on any security (portfolio) i as follows:

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

Equation 6 indicates that any security or portfolio is expected to generate return given to its level of systematic risk, β_j. Equation (6) can be re-adjusted to estimate the forecasting

ability of a portfolio manager overtime to take into account heterogeneous horizon periods. Thus, Eq.(6) can be re-written as follows:

$$E\left(\mathrm{R}_{jt}\right) = \mathrm{R}_{ft} + \beta_i\left[E\left(\mathrm{R}_{mt}\right) - \mathrm{R}_{ft}\right] \tag{7}$$

Subsequently, Eq.(7) can be modified in terms of ex-post returns to become:

$$\mathrm{R}_{it} = \mathrm{R}_{ft} + \beta_i\left[\mathrm{R}_{mt} - \mathrm{R}_{ft}\right] + \varepsilon_{it} \tag{8}$$

Eq. (8) assumes that asset pricing model is empirically valid. It states that the returns on any portfolio or security is a linear function of its systematic risk, the realized returns on the market portfolio, the risk-free rate and a random error, ε_{it},which has an expected value of zero. R_{ft} can be substracted from both sides of eq.(8) to form equation (9) as follows:

$$\mathrm{R}_{it} - \mathrm{R}_{ft} = \beta_i\left[\mathrm{R}_{mt} - \mathrm{R}_{ft}\right] + \varepsilon_{it} \tag{9}$$

$\mathrm{R}_{it} - \mathrm{R}_{ft}$ is the risk premium generated on the i'th portfolio. When the asset pricing model is valid, this premium is equal to $\beta_i\left[\mathrm{R}_{mt} - \mathrm{R}_{ft}\right] + \varepsilon_{it}$. From Eq.(9), systematic risk estimation of any individual security or an unmanaged portfolio has a regression estimate of β_i. If the portfolio managers have a superior forecasting capability, they will choose securities which have $\varepsilon_{it} > 0$. Thus, their portfolio will generate more than the expected risk premium for its level of risk. This can be calculated without limiting the regression estimation to pass through the origin. Thus, it enabled for the potential existence of a non-zero constant in Eq.(9) by using Eq.(10) as follows:

$$R_{it} - \mathrm{R}_{ft} = \alpha_i + \beta_i\left[\mathrm{R}_{mt} - \mathrm{R}_{ft}\right] + \varepsilon_{it} \tag{10}$$

where R_{it} is the return of REITs in month t, R_{ft} is the return on a 3–month Malaysia T-Bills in month t, ε_{it} is the random error term, β_i is the systematic risk for security or portfolio i and $\alpha_i$and β_i are the parameters estimated from the ordinary least-squares (OLS) regression model. R_{mt} would be proxied by the Kuala Lumpur Composite Index (KLCI). The alpha value, or α_i indicates whether the portfolio manager is superior or inferior in market timing and/or stock selection. If the portfolio manager has an ability to forecast security prices, the intercept, α_i, will be positive.

When a portfolio manager could not forecast security prices well, α_i will be negative. Thus, Jensen's alpha represents an average incremental rate of return on the portfolio which is attributable to the manager's ability to predict future security prices. Superior risk–adjusted returns indicate that the manager is good at either predicting market returns, or selecting undervalued REITs, or both. Therefore, a positive alpha for each individual REITs indicates that the performance of each REIT is better than the performance of the market. As long as the model is valid, the specific nature of general economic conditions or the specific market conditions within the sample or evaluation period has no effect on the performance measurement. Therefore, Jensen Alpha (α) can be compared across funds in every different risk levels and across various time periods.

CHAPTER 4

ANALYSIS OF RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the results of data analysis. The data were gathered and subsequently analyzed in response to the problem arise in chapter one of this study. The main objective of this study is to examine the performance of the individual REITs in comparison to the tax-adjusted REITs index and other financial assets, i.e., Financial Times Bursa Malaysia Kuala Lumpur Property Index (FTSE BM KLPI), Financial Times Bursa Malaysia Kuala Lumpur Composite Index (FTSE BM KLCI), and Malaysia Treasury Bills (T-Bills) and also to look at the performance before and after the implementation of the tax incentive.

4.2 Analysis of Result

In order to answer the first objective, Table 4.1 exhibits the returns and risks of the Malaysian REITs on January 1999 to December 2014. It shows the risk-adjusted performance of Malaysian REITs against its market benchmark which is KLCI, KLPI, and 3-Month Malaysia Treasury Bills (T-Bills). The Malaysian REITs are presented in an alphabetical order. The average monthly returns for 16 out of the 19 REITs were higher than the KLCI during the study period (January 1999 – December 2014). This superior mean return is supported by Newell and Peng (2009) who stated that Australian REITs generated robust performance as compared to other major asset classes from 1996-2007. In comparison, the average monthly return of the market benchmark, which was represented by KLCI amounted to 0.7100%. The highest mean return was shown by First Malaysia Property Trust, with an average monthly return of 2.8440%. If every Malaysian

REITs is compared to the KLPI, only IGB had lower average return than KLPI. IGB had the average return accounted for 0.2444% whereas KLPI had the average return amounted to 0.5167%. Furthermore, all Malaysian REITs had the average return higher than monthly 3-Months Malaysia Treasury Bills (T-Bills). The highest total risk (measured by the standard deviation of returns) is exhibited by First Malaysian Property Trusts, with a monthly standard deviation of 19.0055%. Standard deviation of the monthly return for 6 Malaysian REITs, out of the 19 Malaysian REITs surpassed the KLCI standard deviation which was 5.1154%. Malaysian REITs' standard deviations ranged from 2.5498% to 19.0055%. Twelve out of 19 Malaysian REITs had a higher standard deviation as compared to the standard deviation of the value-weighted Malaysian REITs Index. If every Malaysian REITs' standard deviation were compared to the KLPI, only First Malaysian Property Trusts had a higher standard deviation. It means that First Malaysia Property Trusts was more volatile than the KLPI. However, 18 Malaysian REITs revealed lower volatility against the KLPI. Moreover, all Malaysian REITs exhibit that they were more volatile than the 3-Months Malaysian Treasury Bills.

The results of the Sharpe measure indicate that 16 out of the 19 Malaysian REITs outperformed the market index of KLCI which was 0.0918. The highest Sharpe measure was obtained by Sunway which was 0.3584. It was shown that Sunway was the most attractive Malaysian REITs in terms of risk-adjusted return. This result is supported by Wah and Johari (2014) where Al-Hadharah REIT, AmFirst REIT, Axis REIT, Tower REIT, Amanah Harta Tanah PNB, and Al-Aqar REIT that were also covered in this study outperformed the FBM KLCI. The higher value of Sharpe ratio indicates that investors would be receiving a higher excess return per unit of total risks.

Table 4.1
Monthly performance measures for nineteen Malaysian REITs[a]: January 1999 – December 2014.

REITs	MEAN (%)	SD (%)	Sharpe	Rank	Beta	Treynor	Rank	Jensen	Rank
Aqar Healthcare REIT	1.0708	4.0357	0.2042	8	0.2991	0.0275	5	0.0069	10
Al Hadharah Boustead REIT	1.6448	4.8719	0.2880	3	0.3786	0.0371	3	0.0125*	4
Amanah Harta Tanah PNB	0.7982	5.5429	0.1006	16	0.5497	0.0101	16	0.0030	16
Amanah Harta Tanah PNB2	0.5346	6.7050	0.0434	18	0.2881	0.0101	17	0.0022	18
AmanahRaya REIT	0.7478	3.7125	0.1356	14	0.2699	0.0187	10	0.0043	14
AmFirst Property Trust	1.4954	4.9734	0.2543	5	0.4745	0.0267	8	0.0103*	6
AmFirst REIT	0.9947	2.9652	0.2528	6	0.2948	0.0254	9	0.0065*	11
Atrium REIT	1.0619	4.5044	0.1816	10	0.5762	0.0142	13	0.0070	9
Axis REIT	2.2391	6.2630	0.3179	2	0.7393	0.0269	6	0.0168*	2
Capitamalls REIT	1.1682	4.3915	0.2088	7	0.3407	0.0269	7	0.0084	8
First Malaysia Property Trust	2.8440	19.0055	0.1366	13	0.5810	0.0447	1	0.0220	1
Hektar REIT	1.3657	5.4947	0.2039	9	0.6141	0.0182	11	0.0091	7
IGB REIT	0.2444	2.5498	-0.0043	19	-0.1704	0.0006	19	0.0000	19
MRCB-Quill REIT	0.6633	6.1716	0.0678	17	0.4939	0.0085	18	0.0029	17
Pavilion REIT	1.3801	4.0576	0.2772	4	0.2614	0.0430	2	0.0106	5
Sunway REIT	1.6209	3.8218	0.3584	1	0.4243	0.0323	4	0.0128*	3
Tower REIT	1.0647	4.8189	0.1694	11	0.5047	0.0162	12	0.0060	12
UOA REIT	0.9631	4.4569	0.1604	12	0.5633	0.0127	15	0.0046	13
YTL Hospitality REIT[a]	0.7415	3.7763	0.1306	15	0.3603	0.0137	14	0.0033	15
Average Return of REITs	1.0690	4.4293	0.1870	NA	0.4778	0.0173	NA	0.0060*	NA
Value Weighted REITs Index	1.0082	4.2780	0.1795	NA	0.4865	0.0158	NA	0.0054*	NA
KLCI	0.7100	5.1154	0.0918	NA	1	0.0047	NA	0.0000	NA
KLPI	0.5167	6.8446	0.0403	NA	1.0580	0.0026	NA	-0.0022	NA
Monthly 3-Month Malaysia T-Bills	0.2405	0.0396	NA	NA	NA	NA	NA	NA	NA

*statistically significant at 5% level

[a] For REITs that are introduced after 1999, analysis begins with the listing month

The average Sharpe ratio of Malaysian REITs (0.1870) surpassed the KLCI Sharpe ratio (0.0918). This result is consistent to the finding reported by Newell and Osmadi (2009) where the Malaysian REITs sector outperformed the overall stock market by showing the highest Sharpe ratio. Similarly, the Sharpe ratio of the value weighted REITs index also outperformed the KLCI Sharpe ratio. This is in contrast to Han and Liang (1995) who generated a different result where six out of the eight REITs portfolio had lower risk-adjusted excess returns by using the Sharpe index against Center for Research in Security Prices (CRSP) index as market benchmark. Subsequently, the KLPI Sharpe ratio was the lowest among the indexes. If Malaysian REITs were compared against the KLPI, only IGB had a lower Sharpe ratio against the KLPI. It occurred because IGB had the smallest average return and the smallest standard deviation against all Malaysian REITs. The Malaysian REITs' beta in this study ranged from -0.1704 to 0.7393 which is lower than the KLCI's beta of 1. The Malaysian REITs with the highest systematic risk of 0.7393 is AXIS. It implies that, AXIS REIT is 26.07% less sensitive against KLCI. A low beta exhibits that REITs are less volatile than the market.

As for the Treynor measure, the Malaysian REITs with the highest Treynor measure is the First Malaysia Property Trusts, with a Treynor measure of 0.0447 as compared to the Treynor measure of the market index represented by KLCI, which is 0.0047. Eighteen out of the 19 Malaysian REITs outperformed the market index (KLCI) and KLPI in terms of returns measured by the Treynor index. This is in contrast to the finding obtained by Wah and Johari (2014), where based on the Treynor Index, Hektar REIT was the only one which outperformed the FBM KLCI. In this study, Hektar REIT ranked number 11. The lowest rank REIT was still IGB REIT which is similar to the Sharpe and Jensen index

ranking. For most counters, the results of Sharpe and Treynor measures did not generate the same performance ranking except for Al Hadharah Boustead REIT and Capitamalls REIT that ranked at third and seventh places. An examination on the value weighted REITs index based on Sharpe Index was 0.1795 and Treynor Index was 0.0158. Average return of REITs based on Sharpe Index amounted to 0.1870 and Treynor Index amounted to 0.0173. Both of the risk-adjusted performance measurement for value weighted REITs index and average return of REITs outperformed the KLCI and KLPI. During this period, investing in REITs is better than investing in other financial assets, i.e., KLCI and KLPI.

The Jensen's alphas ranged from 0.0000 to 0.0220, where the Malaysian REITs with the highest Jensen's alpha was the First Malaysia Property Trusts as was identified in the Treynor measure. It means that this REIT could provide an excess return of 2.2% per month more than expected given the REITs' risk level. All of the Malaysian REITs exhibited that Jensen's alpha generated a positive results beyond the KLPI. This result is supported by Kuhle et al. (1986) who also used Jensen alpha to measure excess return. He found that the REITs outperformed the S&P 500 Index during 1977 to 1985. The positive Jensen's alpha indicates that Malaysian REITs are a financially attractive investment on a risk-adjusted basis and that the portfolio manager has a superior investment ability. Malaysian REITs with positive and statistically significant alpha are Al Hadharah Boustead REIT, AmFirst Property Trust, Amfirst REIT, AXIS REIT, and Sunway REIT. These five Malaysian REITs outperformed the market index (KLCI). This would mean that the fund managers were either good in selecting undervalued assets to be included in their portfolio or in timing the market. Thirteen Malaysian REITs have positive alpha but not statistically significant. These result is supported by Wah and Johari

(2014) where Jensen Alpha Index performance result of 10 REITs i.e., Al-Hadharah Boustead REIT, Amfirst REIT, Axis REIT, Tower REIT, AHP PNB REIT, Al'-Aqar REIT, Hektar REIT, UOA REIT, Atrium REIT, Amanah Raya REIT generated positive alpha. Similarly, it is also consistent to the finding of Titman and Warga (1986) who also found that REITs generated higher performance as compared to the market portfolio of CRSP indexes by using the Jensen alpha. Moreover, IGB has zero alpha which means that there is equality of return between the IGB and the market benchmark (KLCI) on a risk-adjusted basis. Furthermore, value weighted REITs index (0.0054) and average return of REITs (0.0060) exhibited positive and statistically significant Jensen alpha, outperforming the KLCI and KLPI which were having an insignificant 0.0000 and -0.0022 Jensen alpha. This result indicated that the value weighted REITs index and average return of REITs could generate an excess return of about 0.54 basis points per month and 0.60 basis points more than what would have been anticipated given the level of risk.

Examination of the performance of the 3-Month Malaysia Treasury Bills (T-Bills) shows that on a monthly average, it underperformed the market return (KLCI), KLPI as well as the REITs' returns. Furthermore, it was also lower than the value weighted REITs index. The standard deviation of the monthly return on the 3-Month Malaysia T-Bills was also lower than the KLCI, KLPI, value weighted REITs index and Malaysian REITs' standard deviations. Based on the results, H_1 is accepted which means performance differed between the individual REITs in comparison to the tax-adjusted REITs index and other financial assets, i.e., KLCI, KLPI, and Malaysia Treasury Bills. This hypothesis is supported by finding of Higgins and Ng (2008) found that fourteen out of sixteen

wholesale property funds showed the excess return above the market benchmark (S&P/ASX 300). It is also supported by Wah and Johari (2014) found Al-Hadharah REIT, Amfirst REIT, Axis REIT, Tower REIT, AHP PNB REIT, and Al'-Aqar REIT outperformed the FBM KLCI. Based on the Treynor Index, Hektar REIT was the only one which outperformed the FBM KLCI. Furthermore, based on Jensen Alpha Index performance result, 10 REITs comprised of Al-Hadharah REIT, Amfirst REIT, Axis REIT, Tower REIT, AHP PNB REIT, Al'-Aqar REIT, Hektar REIT, UOA REIT, Atrium REIT, and Amanah Raya REIT generated positive alpha. It exhibited that performance of each REIT was better than the performance of the market.

In order to answer the second objective, Table 4.2 and Table 4.3 present the monthly performance of Malaysian REITs before and after the implementation of 2007 tax incentive. Table 4.2 exhibits the monthly performance measures for nine Malaysian REITs in January 1999 to December 2006 and Table 4.3 exhibits the monthly performance measures for seventeen Malaysian REITs in January 2007 to December 2014. Before 2007, Al Hadharah Boustead REIT, AmanahRaya REIT, AmFirst REIT, Atrium REIT, Capitamalls REIT, Hektar REIT, IGB REIT, MRCB-Quill REIT, Pavilion REIT, and Sunway REIT had not been listed on Bursa Malaysia. The average monthly returns for 3 out of the 9 REITs were higher than the KLCI during the study period (January 1999 – December 2006). In comparison, the average monthly return of the market, which was represented by KLCI amounted to 0.8305%. Three out of 9 Malaysian REITs had higher average return compared to the value-weighted Malaysian REITs Index.

Table 4.2

Monthly performance measures for nine Malaysian REITs[a]: January 1999 – December 2006.

REITs	MEAN (%)	SD (%)	Sharpe	Rank	Beta	Treynor	Rank	Jensen	Rank
Al Aqar Healthcare REIT	-0.3154	2.3806	-0.2538	7	0.4130	-0.0146	7	-0.0216	8
Amanah Harta Tanah PNB	0.4174	7.1239	0.0256	4	0.6841	0.0027	4	-0.0023	5
Amanah Harta Tanah PNB2	0.2617	6.9021	0.0038	5	0.3386	0.0008	5	-0.0018	4
AmFirst Property Trust	1.4954	4.9734	0.2538	1	0.4745	0.0266	2	0.0103*	2
Axis REIT	1.1462	5.4302	0.1625	2	0.3633	0.0243	3	0.0055	3
First Malaysia Property Trust	2.8440	19.005	0.1363	3	0.5810	0.0446	1	0.0220	1
Tower REIT	-1.0380	4.0106	-0.3306	8	0.7306	-0.0182	8	-0.0252	9
UOA REIT	-0.3607	3.1870	-0.1987	6	0.7130	-0.0089	6	-0.0166	7
YTL Hospitality REIT	-1.1713	2.3292	-0.6200	9	0.0814	-0.1773	9	-0.0156	6
Average Return of REITs	0.8916	5.7104	0.1149	NA	0.4968	0.0132	NA	0.0036	NA
Value Weighted REITs Index	0.7846	5.3497	0.1027	NA	0.5073	0.0108	NA	0.0025	NA
KLCI	0.8305	6.2111	0.0958	NA	1	0.0060	NA	0.0000	NA
KLPI	0.0861	7.1919	-0.0208	NA	0.5073	0.0057	NA	-0.0072	NA
Monthly 3-Month Malaysia T-Bills	0.2353	0.0408	NA	NA	NA	NA	NA	NA	NA

*statistically significant at 5% level

[a] For REITs that are introduced after 1999, analysis begins with the listing month

If every Malaysian REITs is compared to the KLPI, 4 out of 9 Malaysian REITs i.e., Al Akqar Healthcare REIT (-0.3154%), UOA REIT (-0.3607%), Tower REIT (-1.0380), and YTL Hospitality REIT (-1.1713%) underperformed the KLPI (0.0861%) and also underperformed the 3-month Malaysia Treasury Bills (0.2353%). The highest total risk (measured by the standard deviation of returns) is exhibited by First Malaysian Property

Trusts, with a monthly standard deviation of 19.0055%. Standard deviations for 3 Malaysian REITs exceeded the KLCI. In comparison, the standard deviation of the market (KLCI) was 6.2111%. Malaysian REITs' standard deviations ranged from 2.3292% to 19.0055%. Four out of 9 Malaysian REITs had higher standard deviation as compared to the value-weighted Malaysian REITs Index. If every Malaysian REITs were compared to the KLPI, only First Malaysia Property Trusts had a higher standard deviation than the KLPI. It means that First Malaysia Property Trusts was more volatile than the KLPI. Moreover, all Malaysian REITs exhibit that they were more volatile than the 3-Month Malaysian Treasury Bills. The Malaysian REITs' beta in this study ranged from 0.0814 to 0.7306 which is lower than the KLCI's beta of 1. The Malaysian REITs with the highest systematic risk of 0.7306 is Tower REIT. It implies that, Tower REIT is 26.94% less sensitive against KLCI. A low beta exhibits that REITs are less volatile than the market.

The result of Sharpe and Treynor measures shows similar findings. AmFirst Property Trust, AXIS REIT, and First Malaysia Property Trust outperformed the KLCI. Based on the Sharpe measure, AmFirst Property Trust ranked first while AXIS REIT and First Malaysia Property Trust ranked the second and third place. However, Treynor measure indicated that First Malaysia Property Trusts placed at the first rank and followed by AmFirst Property Trust and AXIS REIT at the second and the third rank. For most counters, the result of Sharpe and Treynor measures exhibited the same rankings i.e. Amanah Harta Tanah PNB, Amanah Harta Tanah PNB2, UOA REIT, Al Aqar Healthcare REIT, Tower REIT, and YTL Hospitality REIT. Based on the Sharpe index and Treynor index, the average return of REITs and value weighted REITs index outperformed the KLCI and KLPI.

The Jensen's alpha ranged from -0.0252 to 0.0220, where the Malaysian REITs with the highest Jensen's alpha was the First Malaysia Property Trusts as was identified in the Treynor measure. It implied that this REIT could provide an excess return of 2.2% per month more than expected given the REIT's risk level. Malaysian REITs with positive and statistically significant alpha is AmFirst Property Trusts. Two Malaysian REITs which are First Malaysia Property Trusts and AXIS have positive but not statistically significant alpha. Amanah Harta Tanah PNB2, Amanah Harta Tanah PNB, YTL Hospitality, UOA REIT, Al Akqar Healthcare REIT, and Tower REIT exhibited negative but not statistically significant alpha. Jensen alpha of KLPI exhibited an insignificant negative result. However, value weighted REITs index and average return of REITs show a positive but not statistically significant Jensen's alpha. Examination of the performance of the 3-Month Malaysia Treasury Bills (T-Bills) shows that on a monthly average, it underperformed the market return of KLCI, value weighted REITs index as well as the Malaysian REITs' returns (First Malaysia Property Trust, AmFirst Property Trust, and AXIS REIT). Standard deviation of 3-Month Malaysian T-Bills was also lower than the KLCI, KLPI, value weighted REITs index and Malaysian REITs' standard deviations.

After 2007, 17 REITs were listed on Bursa Malaysia. AmFirst Property Trust was suspended in 2006 and First Malaysia Property Trust was delisted in 2002. The average monthly returns for 16 out of the 17 REITs were higher than the KLCI during the sub-period (January 2007 – December 2014). In comparison, the average monthly return of the market benchmark, which was represented by KLCI amounted to 0.5908%. The highest mean return was shown by AXIS REIT, with an average monthly return of 2.4099%. Six out of 17 Malaysian REITs had higher average return as compared to the

value-weighted Malaysian REITs Index. If every Malaysian REITs is compared to the KLPI, three REITs which were Amanah Raya REIT (0.7478%), IGB (0.2444%), and MRCB-Quill REIT (0.6633%) had lower average return than KLPI (0.9428%). Furthermore, all Malaysian REITs had an average return higher than the 3-Month Malaysia Treasury Bills (T-Bills) except for IGB. The highest total risk (measured by the standard deviation of returns) is exhibited by AXIS REIT, with a monthly standard deviation of 6.3918%. The standard deviation of the monthly return for 13 Malaysian REITs, out of the 17 Malaysian REITs surpassed the KLCI standard deviation which was 3.7596%. Malaysian REITs' standard deviations ranged from 2.5498% to 6.3918%.

All Malaysian REITs except IGB had a higher standard deviation as compared to the standard deviation of the value-weighted Malaysian REITs Index. However, in comparison to the KLPI, all Malaysian REITs had lower standard deviation. Moreover, all Malaysian REITs are found to be more volatile than the 3-Month Malaysia Treasury Bills. The results of the Sharpe measure indicate that 15 out of the 17 Malaysian REITs outperformed the market index represented by the KLCI which was 0.0918. The highest Sharpe measure was obtained by Sunway REIT which was 0.3584.

It was shown that Sunway REIT was the most attractive Malaysian REITs in terms of risk adjusted return after 2007. The average Sharpe ratio of Malaysian REITs (0.2104), value weighted REITs index (0.3439), and KLPI (0.1074) surpassed the KLCI Sharpe ratio (0.0918). The Malaysian REITs' beta in this study ranged from -0.1704 to 0.7789 which is lower than the KLCI's beta of 1. The Malaysian REITs with the highest systematic risk of 0.7789 is AXIS REIT. It implies that AXIS REIT is 22.11% less sensitive against KLCI. A low beta exhibits that REITs are less volatile than the market.

Table 4.3
Monthly performance measures for seventeen Malaysian REITs[a]: January 2007 – December 2014

REITs	MEAN (%)	SD (%)	Sharpe	Rank	Beta	Treynor	Rank	Jensen	Rank
Al Aqar Heakthcare REIT	1.1141	4.0767	0.2131	8	0.3141	0.0277	7	0.0076	10
Al Hadharah Boustead REIT	1.6448	4.8719	0.2880	4	0.3510	0.0400	4	0.0117	4
Amanah Harta Tanah PNB	1.1751	3.3082	0.2810	5	0.1943	0.0479	2	0.0086*	7
Amanah Harta Tanah PNB2	1.4607	6.0109	0.1980	11	0.0662	0.1797	1	0.0125	3
AmanahRaya REIT	0.7478	3.7125	0.1356	15	0.2526	0.0199	10	0.0039	15
AmFirst REIT	0.9947	2.9652	0.2528	7	0.2940	0.0255	9	0.0064*	13
Atrium REIT	1.0619	4.5044	0.1812	14	0.5762	0.0142	15	0.0070	11
Axis REIT	2.4099	6.3918	0.3386	3	0.7789	0.0278	6	0.0189*	1
Capitamalls REIT	1.1682	4.3915	0.2088	9	0.3407	0.0269	8	0.0084	8
Hektar REIT	1.3657	5.4947	0.2039	10	0.6141	0.0182	12	0.0091	6
IGB REIT	0.2444	2.5498	-0.0043	17	-0.1704	0.0006	17	0.0000	17
MRCB-Quill REIT	0.6633	6.1716	0.0678	16	0.4660	0.0090	16	0.0024	16
Pavilion REIT	1.3801	4.0576	0.2772	6	0.2614	0.0430	3	0.0106	5
Sunway REIT	1.6209	3.8218	0.3584	2	0.4243	0.0323	5	0.0128*	2
Tower REIT	1.2180	4.8546	0.2003	1	0.5102	0.0191	11	0.0080	9
UOA REIT	1.1148	4.5682	0.1903	12	0.5715	0.0152	14	0.0067	12
YTL Hospitality REIT	0.9607	3.8560	0.1855	13	0.3982	0.0180	13	0.0058	14
Average Return of REITs	1.2445	2.6286	0.3800	NA	0.4302	0.0232	NA	0.0085*	NA
Value Weighted REITs Index	1.2295	2.8609	0.3439	NA	0.4352	0.0226	NA	0.0083*	NA
KLCI	0.5908	3.7596	0.0918	NA	1	0.0035	NA	0.0000	NA
KLPI	0.9428	6.4923	0.1074	NA	1.3082	0.0053	NA	0.0025	NA
Monthly 3-Month Malaysia T-Bills	0.2456	0.0380	NA	NA	NA	NA	NA	NA	NA

*statistically significant at 5% level

[a] For REITs that are introduced after 2006, analysis begins with the listing month

As for the Treynor measure, the Malaysian REITs with the highest Treynor measure is the Amanah Harta Tanah PNB2, with a Treynor measure of 0.1797 as compared to the Treynor measure of the market index represented by KLCI, which is 0.0035. Sixteen out of the 17 Malaysian REITs outperformed the market index based on the Treynor index. The lowest rank REIT was still IGB REIT which is similar to the Sharpe and Jensen index ranking. For most counters, the result of Sharpe, Treynor, and Jensen measures did not generate the same performance ranking except for Al Hadharah Boustead REIT, MRCB-Quill REIT, and IGB REIT. Examination on the value weighted REITs index based on Sharpe Index was 0.3439 and Treynor Index was 0.0226. Both of the risk-adjusted performance measurements showed that the value weighted REITs index outperformed the KLCI and KLPI. For the average return of all REITs, both measures also outperformed the KLCI and KLPI. During this period, investing in REITs is better than investing in the KLCI and KLPI.

The Jensen's alphas ranged from 0.0000 to 0.0189, where the Malaysian REITs with the highest Jensen's alpha was the AXIS REIT. It means that this REIT could provide an excess return of 1.89% per month more than expected given the REITs' risk level. All of the Malaysian REITs exhibited that Jensen's alpha generated a positive result. MRCB Quill and IGB had Jensen's alpha value less than KLPI. The positive Jensen's alpha indicates that Malaysian REITs are a financially attractive investment on a risk-adjusted basis and that the portfolio manager has a superior investment ability. This would mean that the fund managers were either good in selecting undervalued assets to be included in their portfolio or in timing the market. Malaysian REITs with positive and statistically significant alpha are Amanah Harta Tanah PNB, AmFirst REIT, AXIS REIT, and Sunway

REIT. Thirteen out of 17 REITs have positive and not statistically significant alpha. Moreover, IGB has zero alpha which means that there is equality of return between the IGB and the market benchmark (KLCI) on a risk-adjusted basis. Furthermore, the value weighted REITs index and average return of REITs exhibited a positive and statistically significant Jensen's alpha of 0.0083 and 0.0085 respectively beyond the KLCI (0.0000) and KLPI (0.0025).

Examination of the performance of the Malaysia 3-Months Treasury Bills (T-Bills) shows that on a monthly average, it underperformed the market return (KLCI), KLPI as well as the average REITs' returns. Furthermore, it was also lower than the value weighted REITs index. The standard deviation of the monthly return on the Malaysia 3-Months T-Bills was also lower than the market KLCI, KLPI, value weighted REITs index and Malaysian REITs' standard deviations. Table 4.4 shows the performance comparison for seven Malaysian REITs which have been listed before and after the tax incentive 2007. This analysis is used for robustness check on the impact of the 2007 tax incentive. Most of the REITs counters had better mean returns once the 2007 tax incentive was implemented. Similarly, based on the Sharpe index, Treynor index and Jensen alpha, the risk adjusted returns for the individual REIT has also outperformed the KLCI and KLPI. Amanah Harta Tanah PNB and Axis REIT have a positive and statistically significant Jensen alpha indicating that these REITs had generated a respective excess return of 0.86 percent and 1.89 percent per month more than what would have been anticipated given the level of risk. Furthermore, based on the Sharpe and Treynor measures, the average return of REITs and value weighted REITs index outperformed the KLCI and KLPI. As for the Jensen alpha, the average return of REITs and the value weighted REITs index exhibited a

positive and significant Jensen alpha of 0.0097 and 0.0083. In addition, mean return of REITs had outperformed to the KLCI, KLPI, and the 3-Month Malaysia T-Bills. Overall, upon the implementation of the 2007 tax incentive, most of the REITs counters, the value weighted REITs index and average return of REITs had better risk-adjusted performance conforming the earlier results.

Table 4.4
Performance for seven Malaysian REITs before and after the tax incentive 2007

REITs	Mean (%)	SD (%)	Sharpe	Beta	Treynor	Jensen
	Before 2007 (January 1999-December 2006)[a]					
Al Aqar Healthcare REIT	-0.3154	2.3806	-0.2538	0.4130	-0.0146	-0.0216
Amanah Harta Tanah PNB	0.4174	7.1239	0.0256	0.6841	0.0027	-0.0023
Amanah Harta Tanah PNB2	0.2617	6.9021	0.0038	0.3386	0.0008	-0.0018
Axis REIT	1.1462	5.4302	0.1625	0.3633	0.0243	0.0055
Tower REIT	-1.0380	4.0106	-0.3306	0.7306	-0.0182	-0.0252
UOA REIT	-0.3607	3.1870	-0.1987	0.7130	-0.0089	-0.0166
YTL Hospitality REIT	-1.1713	2.3292	-0.6200	0.0814	-0.1773	-0.0156
Average Return of REITs	0.2435	5.7690	0.0014	0.5083	0.0002	-0.0030
Value Weighted REITs Index	0.7846	5.3497	0.1027	0.9689	0.0057	-0.0072
KLCI	0.8305	6.2111	0.0958	1.0000	0.0060	0.0000
KLPI	0.0861	7.1919	-0.0208	0.5073	-0.0029	0.0025
Monthly 3-Month Malaysia T-Bills	0.2353	0.0408	NA	NA	NA	NA
REITs	After 2007 (January 2007-December 2014)[a]					
Al Aqar Healthcare REIT	1.1141	4.0767	0.2131	0.3141	0.0277	0.0076
Amanah Harta Tanah PNB	1.1751	3.3082	0.2810	0.1943	0.0479	0.0086*
Amanah Harta Tanah PNB2	1.4607	6.0109	0.1980	0.0662	0.1797	0.0125
Axis REIT	2.4099	6.3918	0.3386	0.7789	0.0278	0.0189*
Tower REIT	1.2180	4.8546	0.2003	0.5102	0.0191	0.0080
UOA REIT	1.1148	4.5681	0.1903	0.5715	0.0152	0.0067
YTL Hospitality REIT	0.9607	3.8560	0.1855	0.3982	0.0180	0.0058
Average Return of REITs	1.3615	2.8630	0.3898	0.4352	0.0226	0.0097*
Value Weighted REITs Index	1.2295	2.8609	0.3439	0.4352	0.0226	0.0083*
KLCI	0.5908	3.7596	0.0918	1.0000	0.0035	0.0000
KLPI	0.9428	6.4923	0.1074	1.3082	0.0053	0.0025
Monthly 3-Month Malaysia T-Bills	0.2456	0.0380	NA	NA	NA	NA

*statistically significant at 5% level
[a] For REITs that are introduced after 1999, analysis begins with the listing month

Based on the results analysis, H_2 is accepted which means performance differed between the individual REITs in comparison to the tax-adjusted REITs index and other financial assets, i.e., KLCI, KLPI, and Malaysia Treasury Bills before and after the implementation

of the tax incentive in 2007. This hypothesis is supported by Xu and Yiu (2010) where the effect from tax changes to REITs excess return were 0.10% (RMA 1991 signed) and 0.07% (RIDEA 2008).

CHAPTER 5

CONCLUSION

5.1 Introduction

This chapter summarizes the findings. Subsequently, it is followed by the implications of the study. Review of limitations and recommendation for future research conclude the chapter.

5.2 Summary of findings

In this study, the effect of tax rate regimes implemented in 2007, 2009, and 2012 are tested to see the impact of Malaysian REITs performance. The study improves upon the existing literature on REITs by looking at the REITs return by utilizing REITs index which is adjusted on the different tax regimes. Performance of Malaysian REITs is measured by using Sharpe (1966), Treynor (1965), and Jensen (1968) risk-adjusted performance measures for the period between January 1999 to December 2014, before, and after the implementation of the 2007 tax incentive.

For the whole period between January 1999 and December 2014, most of REITs counters exhibited favorable performance against KLCI, KLPI, value weighted REITs index, and Malaysia 3-Months Treasury Bills. Based on the individual performance, First Malaysia Property Trust generated the highest mean return with the highest standard deviation. Furthermore, it was also placed at the first rank for Treynor and Jensen performance measurements. Value weighted REITs index outperformed the KLCI and KLPI by having higher Sharpe and Treynor indexes. Moreover, it also had positive and statistically significant Jensen's alpha. When the sample was split into before and after the implementation of the 2007 tax incentive, most of REITs counters showed unfavorable

performance against KLCI, KLPI, value weighted REITs index, and Malaysia 3-Month Treasury Bills (T-Bills) before the 2007 tax incentive. Before the 2007 tax incentive, based on individual performance, First Malaysia Property Trust, AmFirst Property Trust, and AXIS REIT outperformed the KLCI, KLPI, and value weighted REITs index based on Sharpe and Treynor performance measurements. Those three REITs had positive Jensen alpha and only AmFirst Property Trust had positive and statistically significant Jensen's alpha. Six REITs have identical rank order based on Sharpe and Treynor performance measurements whereas First Malaysia Property Trust, AmFirst Property Trust, and AXIS REIT have identical rank order based on the Treynor and Jensen performance measurements. Value weighted REITs index outperformed the KLCI and KLPI based on the Sharpe and Treynor measures. However, it generated an insignificant positive Jensen's alpha which is different from the result for the whole period between January 1999 and December 2014.

After 2007, the result was similar with the whole period from January 1999 and December 2014 where Malaysian REITs have favorable performance against KLCI, KLPI, value weighted REITs index and Malaysia 3-Month Treasury Bills (T-Bills). Based on individual performance, AXIS REIT generated the highest mean return with the highest standard deviation. Value weighted REITs index outperformed the KLCI and KLPI by showing a higher Sharpe and Treynor measures. Moreover, it also has positive and statistically significant Jensen's alpha. Overall, before 2007, Malaysian REITs underperformed the KLCI, KLPI, value weighted REITs index and Malaysia 3-Month Treasury Bills (T-Bills) as the tax incentive had not been implemented. However, after

2007, REITs exhibited favorable performance against the KLCI, KLPI, value-weighted REITs index and Malaysia 3-Month Treasury Bills (T-Bills).

5.3 Implication of the study

Tax adjusted REITs index has been created to accommodate the dividend tax rate changes in 2007, 2009, and 2012. Tax adjusted REITs index has been constructed over 16 years from January 1999 to December 2006 which could provide an important historical information. As regulators, they can see the different Malaysian REITs' performance based on the Sharpe, Treynor and Jensen performance measurements before and after the implementation of the tax incentive in 2007. The findings of this study indicates that after the tax incentive was implemented in 2007, the REITs listed on Bursa Malaysia has grown both in numbers and market capitalization. Thus, this policy should be continued.

For investors, they can use the result of this study to compare the performance of REITs and other financial assets for better investment decision making. For fund managers, they can obtain a more accurate assessment on REITs performance in order to decide on the investment mix to be included in their portfolio based on investor's needs and risk tolerance level. Moreover, fund managers' performance can be assessed whether they perform better or worse than the market by looking at the risk and return performance of REITs and other financial indexes presented in this study.

5.4 Limitation of the study

As this is the first study that looked at the dividend tax rate changes to the Malaysian REITs performance, there might be some deficiencies. This study does not consider the global financial crisis 2008 effect (GFC) on the REITs performance. It is likely that GFC

might have affected the result. In addition, the choice of using monthly data as compared to weekly or daily data is also a concern as it might affect beta estimation.

5.5 Recommendation for future research

Further research should take into consideration the global financial crisis (GFC) 2008 impact to the REITs performance. One possible way is to use multifactor model so as the GFC factor could be included. In addition, future studies should estimate beta by using a weekly or daily data versus a monthly data so as to produce a reliable estimation.

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APPENDIXES

January 1999 – December 2014

Jensen Alpha

Al Aqar Healthcare REIT

Dependent Variable: Y
Method: Least Squares
Date: 11/20/15 Time: 12:34
Sample: 2006M10 2014M12
Included observations: 99

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.006884	0.003941	1.746791	0.0838
X	0.302059	0.103117	2.929278	0.0042

R-squared	0.081271	Mean dependent var	0.008239
Adjusted R-squared	0.071800	S.D. dependent var	0.040421
S.E. of regression	0.038943	Akaike info criterion	-3.633440
Sum squared resid	0.147106	Schwarz criterion	-3.581014
Log likelihood	181.8553	Hannan-Quinn criter.	-3.612229
F-statistic	8.580668	Durbin-Watson stat	2.576516
Prob(F-statistic)	0.004235		

Al Hadharah Boustead REIT

Dependent Variable: Y
Method: Least Squares
Date: 11/20/15 Time: 18:24
Sample: 2007M04 2014M01
Included observations: 82

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.012526	0.005187	2.414804	0.0180
X	0.381748	0.132607	2.878785	0.0051

R-squared	0.093868	Mean dependent var	0.014030
Adjusted R-squared	0.082542	S.D. dependent var	0.048791
S.E. of regression	0.046734	Akaike info criterion	-3.264586
Sum squared resid	0.174728	Schwarz criterion	-3.205886
Log likelihood	135.8480	Hannan-Quinn criter.	-3.241019
F-statistic	8.287406	Durbin-Watson stat	2.157880
Prob(F-statistic)	0.005119		

Amanah Harta Tanah PNB

Dependent Variable: Y
Method: Least Squares
Date: 11/20/15 Time: 12:45
Sample: 1999M02 2014M12
Included observations: 191

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002989	0.003482	0.858392	0.3918
X	0.551364	0.067838	8.127693	0.0000

R-squared	0.258996	Mean dependent var	0.005577
Adjusted R-squared	0.255075	S.D. dependent var	0.055518
S.E. of regression	0.047917	Akaike info criterion	-3.228273
Sum squared resid	0.433953	Schwarz criterion	-3.194218
Log likelihood	310.3001	Hannan-Quinn criter.	-3.214479
F-statistic	66.05939	Durbin-Watson stat	2.314174
Prob(F-statistic)	0.000000		

Amanah Harta Tanah PNB2

Dependent Variable: Y
Method: Least Squares
Date: 11/20/15 Time: 18:28
Sample: 1999M02 2009M04
Included observations: 123

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002159	0.005877	0.367398	0.7140
X	0.288962	0.099499	2.904162	0.0044

R-squared	0.065162	Mean dependent var	0.002913
Adjusted R-squared	0.057436	S.D. dependent var	0.067068
S.E. of regression	0.065113	Akaike info criterion	-2.609251
Sum squared resid	0.513008	Schwarz criterion	-2.563525
Log likelihood	162.4690	Hannan-Quinn criter.	-2.590677
F-statistic	8.434158	Durbin-Watson stat	1.939885
Prob(F-statistic)	0.004379		

AmanahRaya REIT

Dependent Variable: Y
Method: Least Squares
Date: 11/20/15 Time: 12:41
Sample: 2007M04 2014M12
Included observations: 93

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.004309	0.003737	1.153130	0.2519
X	0.273237	0.100209	2.726656	0.0077

R-squared	0.075529	Mean dependent var	0.005036
Adjusted R-squared	0.065370	S.D. dependent var	0.037184
S.E. of regression	0.035948	Akaike info criterion	-3.792197
Sum squared resid	0.117598	Schwarz criterion	-3.737733
Log likelihood	178.3372	Hannan-Quinn criter.	-3.770206
F-statistic	7.434655	Durbin-Watson stat	2.607157
Prob(F-statistic)	0.007676		

AmFirst Property Trust

Dependent Variable: Y
Method: Least Squares
Date: 11/20/15 Time: 18:29
Sample: 1999M02 2006M10
Included observations: 93

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.010275	0.004187	2.453765	0.0160
X	0.474920	0.067440	7.042108	0.0000

R-squared	0.352734	Mean dependent var	0.012612
Adjusted R-squared	0.345621	S.D. dependent var	0.049763
S.E. of regression	0.040255	Akaike info criterion	-3.565885
Sum squared resid	0.147464	Schwarz criterion	-3.511421
Log likelihood	167.8137	Hannan-Quinn criter.	-3.543894
F-statistic	49.59129	Durbin-Watson stat	2.102742
Prob(F-statistic)	0.000000		

AmFirst REIT

Dependent Variable: Y
Method: Least Squares
Date: 11/20/15 Time: 12:38
Sample: 2007M02 2014M12
Included observations: 95

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.006491	0.002852	2.275956	0.0251
X	0.298871	0.075324	3.967785	0.0001

R-squared	0.144775	Mean dependent var	0.007495
Adjusted R-squared	0.135579	S.D. dependent var	0.029780
S.E. of regression	0.027688	Akaike info criterion	-4.314839
Sum squared resid	0.071294	Schwarz criterion	-4.261073
Log likelihood	206.9548	Hannan-Quinn criter.	-4.293113
F-statistic	15.74332	Durbin-Watson stat	2.342832
Prob(F-statistic)	0.000143		

Atrium REIT

Dependent Variable: Y
Method: Least Squares
Date: 11/20/15 Time: 12:42
Sample: 2007M05 2014M12
Included observations: 92

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.006954	0.004167	1.668940	0.0986
X	0.579684	0.112328	5.160662	0.0000

R-squared	0.228345	Mean dependent var	0.008180
Adjusted R-squared	0.219771	S.D. dependent var	0.045171
S.E. of regression	0.039900	Akaike info criterion	-3.583394
Sum squared resid	0.143279	Schwarz criterion	-3.528572
Log likelihood	166.8361	Hannan-Quinn criter.	-3.561267
F-statistic	26.63244	Durbin-Watson stat	1.836968
Prob(F-statistic)	0.000001		

AXIS REIT

Dependent Variable: Y
Method: Least Squares
Date: 11/20/15 Time: 11:40
Sample: 2005M10 2014M12
Included observations: 111

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.016769	0.005432	3.087083	0.0026
X	0.742520	0.148638	4.995481	0.0000

R-squared	0.186293	Mean dependent var	0.019910
Adjusted R-squared	0.178828	S.D. dependent var	0.062728
S.E. of regression	0.056843	Akaike info criterion	-2.879189
Sum squared resid	0.352194	Schwarz criterion	-2.830369
Log likelihood	161.7950	Hannan-Quinn criter.	-2.859384
F-statistic	24.95483	Durbin-Watson stat	1.890516
Prob(F-statistic)	0.000002		

CapitaMalls REIT

Dependent Variable: Y
Method: Least Squares
Date: 11/20/15 Time: 12:47
Sample: 2010M10 2014M12
Included observations: 51

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.008449	0.006091	1.387190	0.1717
X	0.341957	0.224695	1.521871	0.1345

R-squared	0.045134	Mean dependent var	0.009171
Adjusted R-squared	0.025647	S.D. dependent var	0.043933
S.E. of regression	0.043366	Akaike info criterion	-3.399879
Sum squared resid	0.092148	Schwarz criterion	-3.324121
Log likelihood	88.69691	Hannan-Quinn criter.	-3.370929
F-statistic	2.316091	Durbin-Watson stat	1.731818
Prob(F-statistic)	0.134469		

First Malaysia Property Trust

Dependent Variable: Y
Method: Least Squares
Date: 11/20/15 Time: 18:26
Sample: 1999M02 2002M02
Included observations: 37

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.022023	0.030582	0.720139	0.4762
X	0.582083	0.346415	1.680304	0.1018

R-squared	0.074647	Mean dependent var	0.025967
Adjusted R-squared	0.048209	S.D. dependent var	0.190110
S.E. of regression	0.185471	Akaike info criterion	-0.479296
Sum squared resid	1.203984	Schwarz criterion	-0.392220
Log likelihood	10.86698	Hannan-Quinn criter.	-0.448598
F-statistic	2.823422	Durbin-Watson stat	2.150650
Prob(F-statistic)	0.101804		

Hektar REIT

Dependent Variable: Y
Method: Least Squares
Date: 11/20/15 Time: 12:36
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.009074	0.005139	1.765853	0.0807
X	0.616307	0.136359	4.519732	0.0000

R-squared	0.178523	Mean dependent var	0.011202
Adjusted R-squared	0.169783	S.D. dependent var	0.055025
S.E. of regression	0.050137	Akaike info criterion	-3.127515
Sum squared resid	0.236287	Schwarz criterion	-3.074091
Log likelihood	152.1207	Hannan-Quinn criter.	-3.105920
F-statistic	20.42797	Durbin-Watson stat	1.926726
Prob(F-statistic)	0.000018		

IGB REIT

Dependent Variable: Y
Method: Least Squares
Date: 11/20/15 Time: 18:22
Sample: 2012M11 2014M12
Included observations: 26

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.99E-05	0.005034	0.003949	0.9969
X	-0.169654	0.211810	-0.800972	0.4310

R-squared	0.026036	Mean dependent var	-0.000110
Adjusted R-squared	-0.014546	S.D. dependent var	0.025472
S.E. of regression	0.025657	Akaike info criterion	-4.414230
Sum squared resid	0.015798	Schwarz criterion	-4.317453
Log likelihood	59.38499	Hannan-Quinn criter.	-4.386362
F-statistic	0.641556	Durbin-Watson stat	1.364963
Prob(F-statistic)	0.431007		

MRCB-Quill REIT

Dependent Variable: Y
Method: Least Squares
Date: 11/20/15 Time: 12:39
Sample: 2007M03 2014M12
Included observations: 94

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002932	0.006127	0.478595	0.6334
X	0.496722	0.165105	3.008523	0.0034

R-squared	0.089571	Mean dependent var	0.004186
Adjusted R-squared	0.079675	S.D. dependent var	0.061777
S.E. of regression	0.059265	Akaike info criterion	-2.792549
Sum squared resid	0.323135	Schwarz criterion	-2.738437
Log likelihood	133.2498	Hannan-Quinn criter.	-2.770692
F-statistic	9.051209	Durbin-Watson stat	2.327668
Prob(F-statistic)	0.003386		

Pavilion REIT

Dependent Variable: Y
Method: Least Squares
Date: 11/20/15 Time: 12:48
Sample: 2012M03 2014M12
Included observations: 34

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.010647	0.007026	1.515321	0.1395
X	0.261716	0.312179	0.838355	0.4081

R-squared	0.021492	Mean dependent var	0.011249
Adjusted R-squared	-0.009087	S.D. dependent var	0.040572
S.E. of regression	0.040756	Akaike info criterion	-3.505391
Sum squared resid	0.053154	Schwarz criterion	-3.415605
Log likelihood	61.59165	Hannan-Quinn criter.	-3.474772
F-statistic	0.702838	Durbin-Watson stat	1.535614
Prob(F-statistic)	0.408050		

Sunway REIT

Dependent Variable: Y
Method: Least Squares
Date: 11/20/15 Time: 12:44
Sample: 2010M10 2014M12
Included observations: 51

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.012801	0.005168	2.476996	0.0167
X	0.424736	0.190645	2.227894	0.0305

R-squared	0.091979	Mean dependent var	0.013697
Adjusted R-squared	0.073448	S.D. dependent var	0.038224
S.E. of regression	0.036794	Akaike info criterion	-3.728543
Sum squared resid	0.066336	Schwarz criterion	-3.652785
Log likelihood	97.07784	Hannan-Quinn criter.	-3.699593
F-statistic	4.963511	Durbin-Watson stat	1.734599
Prob(F-statistic)	0.030511		

Tower REIT

Dependent Variable: Y
Method: Least Squares
Date: 11/20/15 Time: 12:32
Sample: 2006M06 2014M12
Included observations: 103

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.005970	0.004419	1.351067	0.1797
X	0.507024	0.117305	4.322267	0.0000

R-squared	0.156097	Mean dependent var	0.008163
Adjusted R-squared	0.147741	S.D. dependent var	0.048257
S.E. of regression	0.044550	Akaike info criterion	-3.365204
Sum squared resid	0.200451	Schwarz criterion	-3.314044
Log likelihood	175.3080	Hannan-Quinn criter.	-3.344483
F-statistic	18.68199	Durbin-Watson stat	1.553962
Prob(F-statistic)	0.000036		

UOA REIT

Dependent Variable: Y
Method: Least Squares
Date: 11/20/15 Time: 12:31
Sample: 2006M02 2014M12
Included observations: 107

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.004562	0.003862	1.181008	0.2403
X	0.565297	0.104279	5.421019	0.0000

R-squared	0.218677	Mean dependent var	0.007148
Adjusted R-squared	0.211236	S.D. dependent var	0.044642
S.E. of regression	0.039648	Akaike info criterion	-3.599055
Sum squared resid	0.165053	Schwarz criterion	-3.549095
Log likelihood	194.5494	Hannan-Quinn criter.	-3.578802
F-statistic	29.38744	Durbin-Watson stat	2.416610
Prob(F-statistic)	0.000000		

YTL Hospitality REIT

Dependent Variable: Y
Method: Least Squares
Date: 11/20/15 Time: 12:28
Sample: 2006M02 2014M12
Included observations: 107

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.003273	0.003461	0.945730	0.3465
X	0.362409	0.093449	3.878156	0.0002

R-squared	0.125292	Mean dependent var	0.004931
Adjusted R-squared	0.116962	S.D. dependent var	0.037810
S.E. of regression	0.035530	Akaike info criterion	-3.818363
Sum squared resid	0.132550	Schwarz criterion	-3.768403
Log likelihood	206.2824	Hannan-Quinn criter.	-3.798110
F-statistic	15.04010	Durbin-Watson stat	2.085094
Prob(F-statistic)	0.000184		

Value Weighted REITs Index

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/28/15 Time: 16:03
Sample (adjusted): 1999M02 2014M12
Included observations: 191 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.005386	0.002537	2.123234	0.0350
_RM_RF__X	0.488045	0.049422	9.874977	0.0000

R-squared	0.340349	Mean dependent var	0.007677
Adjusted R-squared	0.336859	S.D. dependent var	0.042869
S.E. of regression	0.034909	Akaike info criterion	-3.861703
Sum squared resid	0.230328	Schwarz criterion	-3.827648
Log likelihood	370.7927	Hannan-Quinn criter.	-3.847909
F-statistic	97.51516	Durbin-Watson stat	2.006202
Prob(F-statistic)	0.000000		

KLPI

Dependent Variable: Y
Method: Least Squares
Date: 11/20/15 Time: 18:32
Sample: 1999M02 2014M12
Included observations: 191

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.002204	0.003053	-0.722106	0.4711
X	1.057749	0.059476	17.78440	0.0000

R-squared	0.625953	Mean dependent var	0.002762
Adjusted R-squared	0.623974	S.D. dependent var	0.068510
S.E. of regression	0.042011	Akaike info criterion	-3.491357
Sum squared resid	0.333570	Schwarz criterion	-3.457302
Log likelihood	335.4246	Hannan-Quinn criter.	-3.477563
F-statistic	316.2847	Durbin-Watson stat	1.786156
Prob(F-statistic)	0.000000		

Average Return of REITs

Dependent Variable: RI_RF
Method: Least Squares
Date: 12/14/15 Time: 12:59
Sample (adjusted): 1999M02 2014M12
Included observations: 191 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.006035	0.002693	2.241335	0.0262
RM_RF	0.479186	0.052463	9.133827	0.0000

R-squared	0.306236	Mean dependent var	0.008285
Adjusted R-squared	0.302565	S.D. dependent var	0.044373
S.E. of regression	0.037057	Akaike info criterion	-3.742305
Sum squared resid	0.259538	Schwarz criterion	-3.708250
Log likelihood	359.3901	Hannan-Quinn criter.	-3.728511
F-statistic	83.42679	Durbin-Watson stat	2.035095
Prob(F-statistic)	0.000000		

BETA

Al Aqar Healthcare REIT

Dependent Variable: AL_AKQAR_HEALTHCARE_REIT
Method: Least Squares
Date: 11/20/15 Time: 19:12
Sample: 2006M10 2014M12
Included observations: 99

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.008628	0.003977	2.169455	0.0325
FBMKLCI___RETURN	0.299108	0.103357	2.893931	0.0047

R-squared	0.079477	Mean dependent var	0.010708
Adjusted R-squared	0.069987	S.D. dependent var	0.040357
S.E. of regression	0.038919	Akaike info criterion	-3.634656
Sum squared resid	0.146927	Schwarz criterion	-3.582230
Log likelihood	181.9155	Hannan-Quinn criter.	-3.613444
F-statistic	8.374834	Durbin-Watson stat	2.579479
Prob(F-statistic)	0.004699		

Al Hadharah Boustead REIT

Dependent Variable: AL_HADHARAH_BOUS_
Method: Least Squares
Date: 11/20/15 Time: 19:31
Sample: 2007M04 2014M01
Included observations: 82

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.014041	0.005228	2.685947	0.0088
FBMKLCI___RETURN	0.378557	0.133039	2.845449	0.0056

R-squared	0.091906	Mean dependent var	0.016448
Adjusted R-squared	0.080555	S.D. dependent var	0.048719
S.E. of regression	0.046715	Akaike info criterion	-3.265396
Sum squared resid	0.174587	Schwarz criterion	-3.206696
Log likelihood	135.8812	Hannan-Quinn criter.	-3.241829
F-statistic	8.096578	Durbin-Watson stat	2.157870
Prob(F-statistic)	0.005631		

Amanah Harta Tanah PNB

Dependent Variable: AMANAH_HARTA_TANAH_PNB
Method: Least Squares
Date: 11/20/15 Time: 19:21
Sample: 1999M02 2014M12
Included observations: 191

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.004080	0.003499	1.165981	0.2451
FBMKLCI___RETURN	0.549667	0.067925	8.092258	0.0000

R-squared	0.257323	Mean dependent var	0.007982
Adjusted R-squared	0.253393	S.D. dependent var	0.055429
S.E. of regression	0.047895	Akaike info criterion	-3.229212
Sum squared resid	0.433546	Schwarz criterion	-3.195156
Log likelihood	310.3897	Hannan-Quinn criter.	-3.215418
F-statistic	65.48465	Durbin-Watson stat	2.315915
Prob(F-statistic)	0.000000		

Amanah Harta Tanah PNB2

Dependent Variable: AMANAH_HARTA_TANAH_PNB2_
Method: Least Squares
Date: 11/20/15 Time: 19:34
Sample: 1999M02 2009M04
Included observations: 123

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.003894	0.005893	0.660826	0.5100
FBMKLCI___RETURN	0.288069	0.099632	2.891332	0.0045

R-squared	0.064624	Mean dependent var	0.005346
Adjusted R-squared	0.056894	S.D. dependent var	0.067050
S.E. of regression	0.065115	Akaike info criterion	-2.609206
Sum squared resid	0.513031	Schwarz criterion	-2.563479
Log likelihood	162.4661	Hannan-Quinn criter.	-2.590631
F-statistic	8.359799	Durbin-Watson stat	1.938997
Prob(F-statistic)	0.004549		

AmanahRaya REIT

Dependent Variable: AMANAHRAYA_REIT_TST_
Method: Least Squares
Date: 11/20/15 Time: 19:19
Sample: 2007M04 2014M12
Included observations: 93

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.006102	0.003761	1.622276	0.1082
FBMKLCI___RETURN	0.269922	0.100543	2.684628	0.0086

R-squared	0.073388	Mean dependent var	0.007478
Adjusted R-squared	0.063205	S.D. dependent var	0.037125
S.E. of regression	0.035932	Akaike info criterion	-3.793094
Sum squared resid	0.117492	Schwarz criterion	-3.738629
Log likelihood	178.3789	Hannan-Quinn criter.	-3.771103
F-statistic	7.207227	Durbin-Watson stat	2.608361
Prob(F-statistic)	0.008628		

AmFirst Property Trust

Dependent Variable: AMFIRST_PROPERTY_TRUST_D
Method: Least Squares
Date: 11/20/15 Time: 19:35
Sample: 1999M02 2006M10
Included observations: 93

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.011508	0.004204	2.737265	0.0075
FBMKLCI___RETURN	0.474482	0.067546	7.024567	0.0000

R-squared	0.351596	Mean dependent var	0.014954
Adjusted R-squared	0.344470	S.D. dependent var	0.049734
S.E. of regression	0.040267	Akaike info criterion	-3.565296
Sum squared resid	0.147551	Schwarz criterion	-3.510832
Log likelihood	167.7863	Hannan-Quinn criter.	-3.543305
F-statistic	49.34454	Durbin-Watson stat	2.100635
Prob(F-statistic)	0.000000		

AmFirst REIT

Dependent Variable: AMFIRST_REIT_TST_
Method: Least Squares
Date: 12/04/15 Time: 08:38
Sample: 2007M02 2014M12
Included observations: 95

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.008233	0.002868	2.870525	0.0051
FBMKLCI___RETURN	0.294841	0.075418	3.909424	0.0002

R-squared	0.141144	Mean dependent var	0.009947
Adjusted R-squared	0.131909	S.D. dependent var	0.029652
S.E. of regression	0.027628	Akaike info criterion	-4.319178
Sum squared resid	0.070985	Schwarz criterion	-4.265413
Log likelihood	207.1610	Hannan-Quinn criter.	-4.297453
F-statistic	15.28359	Durbin-Watson stat	2.351297
Prob(F-statistic)	0.000176		

Atrium REIT

Dependent Variable: ATRIUM_REIT_TRUST
Method: Least Squares
Date: 11/20/15 Time: 19:20
Sample: 2007M05 2014M12
Included observations: 92

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.007995	0.004189	1.908679	0.0595
FBMKLCI___RETURN	0.576177	0.112703	5.112350	0.0000

R-squared	0.225047	Mean dependent var	0.010619
Adjusted R-squared	0.216437	S.D. dependent var	0.045044
S.E. of regression	0.039873	Akaike info criterion	-3.584738
Sum squared resid	0.143087	Schwarz criterion	-3.529916
Log likelihood	166.8979	Hannan-Quinn criter.	-3.562612
F-statistic	26.13613	Durbin-Watson stat	1.839860
Prob(F-statistic)	0.000002		

AXIS REIT

Dependent Variable: AXIS_REAL_EST_INV_TST_
Method: Least Squares
Date: 11/20/15 Time: 11:25
Sample: 2005M10 2014M12
Included observations: 111

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.017429	0.005486	3.177046	0.0019
FBMKLCI___RETURN	0.739303	0.149035	4.960595	0.0000

R-squared	0.184178	Mean dependent var	0.022391
Adjusted R-squared	0.176693	S.D. dependent var	0.062630
S.E. of regression	0.056828	Akaike info criterion	-2.879716
Sum squared resid	0.352009	Schwarz criterion	-2.830896
Log likelihood	161.8243	Hannan-Quinn criter.	-2.859911
F-statistic	24.60751	Durbin-Watson stat	1.891189
Prob(F-statistic)	0.000003		

CapitaMalls REIT

Dependent Variable: CAPITAMALLS_MAL_TRUST
Method: Least Squares
Date: 11/20/15 Time: 19:26
Sample: 2010M10 2014M12
Included observations: 51

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.010108	0.006159	1.641023	0.1072
FBMKLCI___RETURN	0.340676	0.224823	1.515310	0.1361

R-squared	0.044763	Mean dependent var	0.011682
Adjusted R-squared	0.025268	S.D. dependent var	0.043915
S.E. of regression	0.043357	Akaike info criterion	-3.400289
Sum squared resid	0.092110	Schwarz criterion	-3.324531
Log likelihood	88.70736	Hannan-Quinn criter.	-3.371339
F-statistic	2.296165	Durbin-Watson stat	1.732632
Prob(F-statistic)	0.136119		

First Malaysia Property Trust

Dependent Variable: FIRST_MALAYSIA_PR_TRUST_
Method: Least Squares
Date: 11/20/15 Time: 19:32
Sample: 1999M02 2002M02
Included observations: 37

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.023067	0.030658	0.752385	0.4569
FBMKLCI___RETURN	0.580978	0.346880	1.674868	0.1029

R-squared	0.074201	Mean dependent var	0.028440
Adjusted R-squared	0.047750	S.D. dependent var	0.190055
S.E. of regression	0.185462	Akaike info criterion	-0.479400
Sum squared resid	1.203859	Schwarz criterion	-0.392324
Log likelihood	10.86891	Hannan-Quinn criter.	-0.448702
F-statistic	2.805184	Durbin-Watson stat	2.151118
Prob(F-statistic)	0.102874		

Hektar REIT

Dependent Variable: HEKTAR_REIT
Method: Least Squares
Date: 11/20/15 Time: 19:15
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.010030	0.005179	1.936436	0.0558
FBMKLCI___RETURN	0.614060	0.136793	4.488964	0.0000

R-squared	0.176528	Mean dependent var	0.013657
Adjusted R-squared	0.167768	S.D. dependent var	0.054947
S.E. of regression	0.050126	Akaike info criterion	-3.127929
Sum squared resid	0.236189	Schwarz criterion	-3.074505
Log likelihood	152.1406	Hannan-Quinn criter.	-3.106334
F-statistic	20.15080	Durbin-Watson stat	1.926458
Prob(F-statistic)	0.000020		

IGB REIT

Dependent Variable: IGB
Method: Least Squares
Date: 11/20/15 Time: 19:30
Sample: 2012M11 2014M12
Included observations: 26

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.003010	0.005086	0.591909	0.5594
FBMKLCI___RETURN	-0.170414	0.212313	-0.802653	0.4301

R-squared	0.026142	Mean dependent var	0.002444
Adjusted R-squared	-0.014435	S.D. dependent var	0.025498
S.E. of regression	0.025681	Akaike info criterion	-4.412300
Sum squared resid	0.015829	Schwarz criterion	-4.315524
Log likelihood	59.35991	Hannan-Quinn criter.	-4.384432
F-statistic	0.644251	Durbin-Watson stat	1.361624
Prob(F-statistic)	0.430053		

MRCB-Quill REIT

Dependent Variable: MRCB_QUILL_REIT
Method: Least Squares
Date: 11/20/15 Time: 19:18
Sample: 2007M03 2014M12
Included observations: 94

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.004178	0.006167	0.677486	0.4998
FBMKLCI___RETURN	0.493939	0.165708	2.980781	0.0037

R-squared	0.088071	Mean dependent var	0.006633
Adjusted R-squared	0.078159	S.D. dependent var	0.061716
S.E. of regression	0.059255	Akaike info criterion	-2.792893
Sum squared resid	0.323024	Schwarz criterion	-2.738780
Log likelihood	133.2660	Hannan-Quinn criter.	-2.771035
F-statistic	8.885056	Durbin-Watson stat	2.327735
Prob(F-statistic)	0.003678		

Pavilion REIT

Dependent Variable: PAVILION_REIT_TST_
Method: Least Squares
Date: 11/20/15 Time: 19:27
Sample: 2012M03 2014M12
Included observations: 34

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.012532	0.007153	1.751954	0.0894
FBMKLCI___RETURN	0.261416	0.312636	0.836167	0.4093

R-squared	0.021382	Mean dependent var	0.013801
Adjusted R-squared	-0.009200	S.D. dependent var	0.040576
S.E. of regression	0.040763	Akaike info criterion	-3.505077
Sum squared resid	0.053171	Schwarz criterion	-3.415291
Log likelihood	61.58631	Hannan-Quinn criter.	-3.474457
F-statistic	0.699176	Durbin-Watson stat	1.535119
Prob(F-statistic)	0.409261		

Sunway REIT

Dependent Variable: SUNWAY_RLST_INV_TRUST
Method: Least Squares
Date: 11/20/15 Time: 19:24
Sample: 2010M10 2014M12
Included observations: 51

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.014248	0.005227	2.725701	0.0089
FBMKLCI___RETURN	0.424300	0.190793	2.223874	0.0308

R-squared	0.091678	Mean dependent var	0.016209
Adjusted R-squared	0.073141	S.D. dependent var	0.038218
S.E. of regression	0.036794	Akaike info criterion	-3.728537
Sum squared resid	0.066336	Schwarz criterion	-3.652779
Log likelihood	97.07769	Hannan-Quinn criter.	-3.699587
F-statistic	4.945617	Durbin-Watson stat	1.734640
Prob(F-statistic)	0.030798		

Tower REIT

Dependent Variable: TOWER_RLST_INV_TRUST
Method: Least Squares
Date: 11/20/15 Time: 19:11
Sample: 2006M06 2014M12
Included observations: 103

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.007211	0.004461	1.616426	0.1091
FBMKLCI___RETURN	0.504737	0.117619	4.291271	0.0000

R-squared	0.154210	Mean dependent var	0.010647
Adjusted R-squared	0.145836	S.D. dependent var	0.048189
S.E. of regression	0.044537	Akaike info criterion	-3.365787
Sum squared resid	0.200334	Schwarz criterion	-3.314627
Log likelihood	175.3380	Hannan-Quinn criter.	-3.345066
F-statistic	18.41500	Durbin-Watson stat	1.554752
Prob(F-statistic)	0.000041		

UOA REIT

Dependent Variable: UOA_REAL_ESTATE_IT_
Method: Least Squares
Date: 11/20/15 Time: 19:08
Sample: 2006M02 2014M12
Included observations: 107

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.005656	0.003902	1.449302	0.1502
FBMKLCI___RETURN	0.563273	0.104560	5.387083	0.0000

R-squared	0.216539	Mean dependent var	0.009631
Adjusted R-squared	0.209077	S.D. dependent var	0.044569
S.E. of regression	0.039637	Akaike info criterion	-3.599611
Sum squared resid	0.164962	Schwarz criterion	-3.549651
Log likelihood	194.5792	Hannan-Quinn criter.	-3.579358
F-statistic	29.02066	Durbin-Watson stat	2.418062
Prob(F-statistic)	0.000000		

YTL Hospitality REIT

Dependent Variable: YTL_HOSPITALITY_REIT
Method: Least Squares
Date: 11/20/15 Time: 19:07
Sample: 2006M02 2014M12
Included observations: 107

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.004872	0.003497	1.393018	0.1666
FBMKLCI___RETURN	0.360293	0.093712	3.844660	0.0002

R-squared	0.123403	Mean dependent var	0.007415
Adjusted R-squared	0.115055	S.D. dependent var	0.037763
S.E. of regression	0.035525	Akaike info criterion	-3.818668
Sum squared resid	0.132510	Schwarz criterion	-3.768708
Log likelihood	206.2987	Hannan-Quinn criter.	-3.798415
F-statistic	14.78141	Durbin-Watson stat	2.086249
Prob(F-statistic)	0.000207		

Value Weighted REITs Index

Dependent Variable: AVERAGE_TAX_ADJUSTED_REI
Method: Least Squares
Date: 12/04/15 Time: 15:24
Sample (adjusted): 1999M02 2014M12
Included observations: 191 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.006628	0.002549	2.600483	0.0100
FTSE_BM_KLCI___RETURN	0.486547	0.049476	9.833934	0.0000

R-squared	0.338481	Mean dependent var	0.010082
Adjusted R-squared	0.334981	S.D. dependent var	0.042780
S.E. of regression	0.034886	Akaike info criterion	-3.863031
Sum squared resid	0.230023	Schwarz criterion	-3.828975
Log likelihood	370.9194	Hannan-Quinn criter.	-3.849237
F-statistic	96.70626	Durbin-Watson stat	2.008551
Prob(F-statistic)	0.000000		

KLPI

Dependent Variable: KLPI___RETURN
Method: Least Squares
Date: 12/04/15 Time: 15:27
Sample (adjusted): 1999M02 2014M12
Included observations: 191 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.002345	0.003069	-0.764172	0.4457
FTSE_BM_KLCI__RETURN	1.058044	0.059580	17.75847	0.0000

R-squared	0.625270	Mean dependent var	0.005167
Adjusted R-squared	0.623287	S.D. dependent var	0.068446
S.E. of regression	0.042010	Akaike info criterion	-3.491390
Sum squared resid	0.333559	Schwarz criterion	-3.457335
Log likelihood	335.4278	Hannan-Quinn criter.	-3.477596
F-statistic	315.3631	Durbin-Watson stat	1.786266
Prob(F-statistic)	0.000000		

Average Return of REITs

Dependent Variable: MONTHLY_AVERAGE_RETURN
Method: Least Squares
Date: 12/14/15 Time: 12:58
Sample (adjusted): 1999M02 2014M12
Included observations: 191 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.007298	0.002706	2.697043	0.0076
FBMKLCI___RETURN	0.477763	0.052528	9.095365	0.0000

R-squared	0.304446	Mean dependent var	0.010690
Adjusted R-squared	0.300765	S.D. dependent var	0.044293
S.E. of regression	0.037038	Akaike info criterion	-3.743323
Sum squared resid	0.259274	Schwarz criterion	-3.709267
Log likelihood	359.4873	Hannan-Quinn criter.	-3.729529
F-statistic	82.72567	Durbin-Watson stat	2.036938
Prob(F-statistic)	0.000000		

January 1999 – December 2006

Jensen Alpha

Al Aqar Healthcare REIT

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/23/15 Time: 22:13
Sample: 2006M10 2006M12
Included observations: 3

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.021585	0.017401	-1.240433	0.4319
_RM_RF__X	0.413609	0.331127	1.249096	0.4298

R-squared	0.609412	Mean dependent var	-0.006043
Adjusted R-squared	0.218824	S.D. dependent var	0.023838
S.E. of regression	0.021069	Akaike info criterion	-4.647270
Sum squared resid	0.000444	Schwarz criterion	-5.248195
Log likelihood	8.970904	Hannan-Quinn criter.	-5.855206
F-statistic	1.560241	Durbin-Watson stat	2.739075
Prob(F-statistic)	0.429778		

Amanah Harta Tanah PNB

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/23/15 Time: 22:15
Sample: 1999M02 2006M12
Included observations: 95

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.002261	0.005929	-0.381412	0.7038
_RM_RF__X	0.685890	0.095410	7.188848	0.0000

R-squared	0.357200	Mean dependent var	0.001821
Adjusted R-squared	0.350288	S.D. dependent var	0.071359
S.E. of regression	0.057519	Akaike info criterion	-2.852573
Sum squared resid	0.307685	Schwarz criterion	-2.798807
Log likelihood	137.4972	Hannan-Quinn criter.	-2.830847
F-statistic	51.67953	Durbin-Watson stat	2.338129
Prob(F-statistic)	0.000000		

Amanah Harta Tanah PNB2

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/23/15 Time: 22:22
Sample: 1999M02 2006M12
Included observations: 95

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.001754	0.006811	-0.257572	0.7973
_RM_RF__X	0.339008	0.109610	3.092859	0.0026

R-squared	0.093265	Mean dependent var	0.000263
Adjusted R-squared	0.083515	S.D. dependent var	0.069025
S.E. of regression	0.066080	Akaike info criterion	-2.575088
Sum squared resid	0.406085	Schwarz criterion	-2.521322
Log likelihood	124.3167	Hannan-Quinn criter.	-2.553363
F-statistic	9.565776	Durbin-Watson stat	1.879613
Prob(F-statistic)	0.002617		

AmFirst Property Trust

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/23/15 Time: 22:25
Sample: 1999M02 2006M10
Included observations: 93

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.010275	0.004187	2.453774	0.0160
_RM_RF__X	0.474920	0.067440	7.042100	0.0000

R-squared	0.352733	Mean dependent var	0.012612
Adjusted R-squared	0.345620	S.D. dependent var	0.049763
S.E. of regression	0.040255	Akaike info criterion	-3.565886
Sum squared resid	0.147463	Schwarz criterion	-3.511422
Log likelihood	167.8137	Hannan-Quinn criter.	-3.543895
F-statistic	49.59117	Durbin-Watson stat	2.102744
Prob(F-statistic)	0.000000		

AXIS REIT

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/23/15 Time: 22:00
Sample: 2005M10 2006M12
Included observations: 15

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.005454	0.015141	0.360219	0.7245
_RM_RF__X	0.365427	0.537478	0.679893	0.5085

R-squared	0.034337	Mean dependent var	0.008823
Adjusted R-squared	-0.039945	S.D. dependent var	0.054337
S.E. of regression	0.055412	Akaike info criterion	-2.824481
Sum squared resid	0.039916	Schwarz criterion	-2.730074
Log likelihood	23.18361	Hannan-Quinn criter.	-2.825486
F-statistic	0.462254	Durbin-Watson stat	2.057906
Prob(F-statistic)	0.508499		

First Malaysia Property Trust

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/23/15 Time: 22:20
Sample: 1999M02 2002M02
Included observations: 37

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.022023	0.030582	0.720140	0.4762
_RM_RF__X	0.582082	0.346416	1.680301	0.1018

R-squared	0.074647	Mean dependent var	0.025968
Adjusted R-squared	0.048209	S.D. dependent var	0.190110
S.E. of regression	0.185471	Akaike info criterion	-0.479296
Sum squared resid	1.203984	Schwarz criterion	-0.392220
Log likelihood	10.86698	Hannan-Quinn criter.	-0.448598
F-statistic	2.823413	Durbin-Watson stat	2.150650
Prob(F-statistic)	0.101804		

Tower REIT

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/23/15 Time: 22:11
Sample: 2006M06 2006M12
Included observations: 7

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.025168	0.013803	-1.823322	0.1279
_RM_RF__X	0.731082	0.368506	1.983909	0.1041

R-squared	0.440459	Mean dependent var	-0.013261
Adjusted R-squared	0.328551	S.D. dependent var	0.040135
S.E. of regression	0.032887	Akaike info criterion	-3.756511
Sum squared resid	0.005408	Schwarz criterion	-3.771965
Log likelihood	15.14779	Hannan-Quinn criter.	-3.947523
F-statistic	3.935893	Durbin-Watson stat	1.428445
Prob(F-statistic)	0.104057		

UOA REIT

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/23/15 Time: 22:06
Sample: 2006M02 2006M12
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.016572	0.008792	-1.884982	0.0921
_RM_RF__X	0.712323	0.285043	2.498998	0.0339

R-squared	0.409642	Mean dependent var	-0.006334
Adjusted R-squared	0.344047	S.D. dependent var	0.031855
S.E. of regression	0.025799	Akaike info criterion	-4.313968
Sum squared resid	0.005990	Schwarz criterion	-4.241623
Log likelihood	25.72682	Hannan-Quinn criter.	-4.359571
F-statistic	6.244993	Durbin-Watson stat	2.626332
Prob(F-statistic)	0.033918		

YTL Hospitality REIT

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/23/15 Time: 22:04
Sample: 2006M02 2006M12
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.015582	0.008299	-1.877574	0.0932
_RM_RF__X	0.079420	0.269069	0.295164	0.7746

R-squared	0.009587	Mean dependent var	-0.014441
Adjusted R-squared	-0.100458	S.D. dependent var	0.023215
S.E. of regression	0.024354	Akaike info criterion	-4.429311
Sum squared resid	0.005338	Schwarz criterion	-4.356966
Log likelihood	26.36121	Hannan-Quinn criter.	-4.474914
F-statistic	0.087122	Durbin-Watson stat	1.896619
Prob(F-statistic)	0.774564		

Value Weighted REITs Index

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/24/15 Time: 07:56
Sample: 1999M02 2006M12
Included observations: 95

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002466	0.004483	0.550042	0.5836
_RM_RF__X	0.508549	0.072142	7.049234	0.0000

R-squared	0.348245	Mean dependent var	0.005492
Adjusted R-squared	0.341237	S.D. dependent var	0.053585
S.E. of regression	0.043492	Akaike info criterion	-3.411663
Sum squared resid	0.175913	Schwarz criterion	-3.357897
Log likelihood	164.0540	Hannan-Quinn criter.	-3.389938
F-statistic	49.69170	Durbin-Watson stat	2.129409
Prob(F-statistic)	0.000000		

KLPI

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/24/15 Time: 07:54
Sample: 1999M02 2006M12
Included observations: 95

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.007259	0.004081	-1.778826	0.0785
_RM_RF__X	0.968843	0.065670	14.75326	0.0000

R-squared	0.700636	Mean dependent var	-0.001493
Adjusted R-squared	0.697417	S.D. dependent var	0.071971
S.E. of regression	0.039590	Akaike info criterion	-3.599670
Sum squared resid	0.145763	Schwarz criterion	-3.545905
Log likelihood	172.9843	Hannan-Quinn criter.	-3.577945
F-statistic	217.6587	Durbin-Watson stat	1.576059
Prob(F-statistic)	0.000000		

Average Return of REITs

Dependent Variable: RI_RF
Method: Least Squares
Date: 12/14/15 Time: 13:01
Sample (adjusted): 1999M02 2006M12
Included observations: 95 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.003600	0.004981	0.722681	0.4717
RM_RF	0.497831	0.080157	6.210710	0.0000

R-squared	0.293168	Mean dependent var	0.006562
Adjusted R-squared	0.285567	S.D. dependent var	0.057171
S.E. of regression	0.048323	Akaike info criterion	-3.200976
Sum squared resid	0.217168	Schwarz criterion	-3.147211
Log likelihood	154.0464	Hannan-Quinn criter.	-3.179251
F-statistic	38.57292	Durbin-Watson stat	2.094780
Prob(F-statistic)	0.000000		

BETA

Al Aqar Healthcare REIT

Dependent Variable: AL_AKQAR_HEALTHCARE_REIT
Method: Least Squares
Date: 11/23/15 Time: 22:12
Sample: 2006M10 2006M12
Included observations: 3

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.019868	0.018113	-1.096852	0.4706
FBMKLCI___RETURN	0.413039	0.331577	1.245680	0.4306

R-squared	0.608107	Mean dependent var	-0.003154
Adjusted R-squared	0.216214	S.D. dependent var	0.023806
S.E. of regression	0.021076	Akaike info criterion	-4.646683
Sum squared resid	0.000444	Schwarz criterion	-5.247608
Log likelihood	8.970025	Hannan-Quinn criter.	-5.854619
F-statistic	1.551718	Durbin-Watson stat	2.739298
Prob(F-statistic)	0.430629		

Amanah Harta Tanah PNB

Dependent Variable: AMANAH_HARTA_TANAH_PNB
Method: Least Squares
Date: 11/23/15 Time: 22:15
Sample: 1999M02 2006M12
Included observations: 95

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.001507	0.005951	-0.253221	0.8007
FBMKLCI___RETURN	0.684080	0.095465	7.165753	0.0000

R-squared	0.355724	Mean dependent var	0.004174
Adjusted R-squared	0.348796	S.D. dependent var	0.071239
S.E. of regression	0.057488	Akaike info criterion	-2.853657
Sum squared resid	0.307352	Schwarz criterion	-2.799891
Log likelihood	137.5487	Hannan-Quinn criter.	-2.831932
F-statistic	51.34802	Durbin-Watson stat	2.340343
Prob(F-statistic)	0.000000		

Amanah Harta Tanah PNB2

Dependent Variable: AMANAH_HARTA_TANAH_PNB2_
Method: Least Squares
Date: 11/23/15 Time: 22:22
Sample: 1999M02 2006M12
Included observations: 95

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000195	0.006842	-0.028534	0.9773
FBMKLCI___RETURN	0.338592	0.109754	3.085019	0.0027

R-squared	0.092836	Mean dependent var	0.002617
Adjusted R-squared	0.083082	S.D. dependent var	0.069021
S.E. of regression	0.066092	Akaike info criterion	-2.574707
Sum squared resid	0.406239	Schwarz criterion	-2.520942
Log likelihood	124.2986	Hannan-Quinn criter.	-2.552982
F-statistic	9.517344	Durbin-Watson stat	1.878375
Prob(F-statistic)	0.002681		

AmFirst Property Trust

Dependent Variable: AMFIRST_PROPERTY_TRUST_D
Method: Least Squares
Date: 11/23/15 Time: 22:25
Sample: 1999M02 2006M10
Included observations: 93

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.011508	0.004204	2.737265	0.0075
FBMKLCI___RETURN	0.474482	0.067546	7.024567	0.0000

R-squared	0.351596	Mean dependent var	0.014954
Adjusted R-squared	0.344470	S.D. dependent var	0.049734
S.E. of regression	0.040267	Akaike info criterion	-3.565296
Sum squared resid	0.147551	Schwarz criterion	-3.510832
Log likelihood	167.7863	Hannan-Quinn criter.	-3.543305
F-statistic	49.34454	Durbin-Watson stat	2.100635
Prob(F-statistic)	0.000000		

AXIS REIT

Dependent Variable: AXIS_REAL_EST_INV_TST_
Method: Least Squares
Date: 11/23/15 Time: 21:59
Sample: 2005M10 2006M12
Included observations: 15

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.007154	0.015651	0.457113	0.6551
FBMKLCI___RETURN	0.363272	0.536449	0.677178	0.5102

R-squared	0.034073	Mean dependent var	0.011462
Adjusted R-squared	-0.040229	S.D. dependent var	0.054302
S.E. of regression	0.055383	Akaike info criterion	-2.825514
Sum squared resid	0.039875	Schwarz criterion	-2.731107
Log likelihood	23.19135	Hannan-Quinn criter.	-2.826519
F-statistic	0.458570	Durbin-Watson stat	2.059933
Prob(F-statistic)	0.510165		

First Malaysia Property Trust

Dependent Variable: FIRST_MALAYSIA_PR_TRUST_
Method: Least Squares
Date: 11/23/15 Time: 22:20
Sample: 1999M02 2002M02
Included observations: 37

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.023067	0.030658	0.752385	0.4569
FBMKLCI___RETURN	0.580978	0.346880	1.674868	0.1029

R-squared	0.074201	Mean dependent var	0.028440
Adjusted R-squared	0.047750	S.D. dependent var	0.190055
S.E. of regression	0.185462	Akaike info criterion	-0.479400
Sum squared resid	1.203859	Schwarz criterion	-0.392324
Log likelihood	10.86891	Hannan-Quinn criter.	-0.448702
F-statistic	2.805184	Durbin-Watson stat	2.151118
Prob(F-statistic)	0.102874		

Tower REIT

Dependent Variable: TOWER_RLST_INV_TRUST
Method: Least Squares
Date: 11/23/15 Time: 22:10
Sample: 2006M06 2006M12
Included observations: 7

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.024384	0.014299	-1.705359	0.1488
FBMKLCI___RETURN	0.730602	0.368776	1.981152	0.1044

R-squared	0.439774	Mean dependent var	-0.010380
Adjusted R-squared	0.327728	S.D. dependent var	0.040106
S.E. of regression	0.032884	Akaike info criterion	-3.756714
Sum squared resid	0.005407	Schwarz criterion	-3.772168
Log likelihood	15.14850	Hannan-Quinn criter.	-3.947725
F-statistic	3.924965	Durbin-Watson stat	1.428653
Prob(F-statistic)	0.104424		

UOA REIT

Dependent Variable: UOA_REAL_ESTATE_IT_
Method: Least Squares
Date: 11/23/15 Time: 22:06
Sample: 2006M02 2006M12
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.015799	0.009183	-1.720503	0.1195
FBMKLCI___RETURN	0.713009	0.285183	2.500179	0.0339

R-squared	0.409871	Mean dependent var	-0.003607
Adjusted R-squared	0.344301	S.D. dependent var	0.031870
S.E. of regression	0.025807	Akaike info criterion	-4.313384
Sum squared resid	0.005994	Schwarz criterion	-4.241039
Log likelihood	25.72361	Hannan-Quinn criter.	-4.358987
F-statistic	6.250896	Durbin-Watson stat	2.626616
Prob(F-statistic)	0.033852		

YTL Hospitality

Dependent Variable: YTL_HOSPITALITY_REIT
Method: Least Squares
Date: 11/23/15 Time: 22:03
Sample: 2006M02 2006M12
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.013106	0.008693	-1.507677	0.1659
FBMKLCI___RETURN	0.081428	0.269954	0.301637	0.7698

R-squared	0.010008	Mean dependent var	-0.011713
Adjusted R-squared	-0.099991	S.D. dependent var	0.023292
S.E. of regression	0.024429	Akaike info criterion	-4.423147
Sum squared resid	0.005371	Schwarz criterion	-4.350802
Log likelihood	26.32731	Hannan-Quinn criter.	-4.468750
F-statistic	0.090985	Durbin-Watson stat	1.888928
Prob(F-statistic)	0.769782		

Value Weighted REITs Index

Dependent Variable: VALUE_WEIGHTED_REITS_IND
Method: Least Squares
Date: 11/24/15 Time: 07:56
Sample: 1999M02 2006M12
Included observations: 95

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.003632	0.004499	0.807305	0.4216
FBMKLCI___RETURN	0.507345	0.072175	7.029367	0.0000

R-squared	0.346965	Mean dependent var	0.007846
Adjusted R-squared	0.339943	S.D. dependent var	0.053497
S.E. of regression	0.043463	Akaike info criterion	-3.412990
Sum squared resid	0.175679	Schwarz criterion	-3.359225
Log likelihood	164.1170	Hannan-Quinn criter.	-3.391265
F-statistic	49.41200	Durbin-Watson stat	2.132023
Prob(F-statistic)	0.000000		

KLPI

Dependent Variable: KLSEPRP___RETURN
Method: Least Squares
Date: 11/24/15 Time: 07:53
Sample: 1999M02 2006M12
Included observations: 95

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.007186	0.004098	-1.753346	0.0828
FBMKLCI___RETURN	0.968912	0.065744	14.73771	0.0000

R-squared	0.700194	Mean dependent var	0.000861
Adjusted R-squared	0.696970	S.D. dependent var	0.071919
S.E. of regression	0.039590	Akaike info criterion	-3.599654
Sum squared resid	0.145765	Schwarz criterion	-3.545888
Log likelihood	172.9836	Hannan-Quinn criter.	-3.577929
F-statistic	217.2002	Durbin-Watson stat	1.576053
Prob(F-statistic)	0.000000		

Average Return of REITs

Dependent Variable: MONTHLY_AVERAGE_RETURN
Method: Least Squares
Date: 12/14/15 Time: 13:00
Sample (adjusted): 1999M02 2006M12
Included observations: 95 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.004790	0.005001	0.957790	0.3407
FBMKLCI___RETURN	0.496839	0.080217	6.193652	0.0000

R-squared	0.292029	Mean dependent var	0.008916
Adjusted R-squared	0.284417	S.D. dependent var	0.057104
S.E. of regression	0.048306	Akaike info criterion	-3.201699
Sum squared resid	0.217012	Schwarz criterion	-3.147934
Log likelihood	154.0807	Hannan-Quinn criter.	-3.179974
F-statistic	38.36133	Durbin-Watson stat	2.096113
Prob(F-statistic)	0.000000		

January 2007 – December 2014

Jensen Alpha

Al Aqar Healthcare REIT

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/24/15 Time: 00:06
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.007591	0.004022	1.887365	0.0622
_RM_RF__X	0.317103	0.106730	2.971077	0.0038

R-squared	0.085846	Mean dependent var	0.008686
Adjusted R-squared	0.076121	S.D. dependent var	0.040827
S.E. of regression	0.039243	Akaike info criterion	-3.617498
Sum squared resid	0.144758	Schwarz criterion	-3.564074
Log likelihood	175.6399	Hannan-Quinn criter.	-3.595903
F-statistic	8.827297	Durbin-Watson stat	2.608456
Prob(F-statistic)	0.003767		

Al Hadharah Boustead REIT

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/24/15 Time: 00:29
Sample: 2007M01 2014M01
Included observations: 85

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.011737	0.005050	2.324094	0.0226
_RM_RF__X	0.354281	0.127924	2.769460	0.0069

R-squared	0.084592	Mean dependent var	0.013434
Adjusted R-squared	0.073563	S.D. dependent var	0.048015
S.E. of regression	0.046215	Akaike info criterion	-3.287782
Sum squared resid	0.177273	Schwarz criterion	-3.230307
Log likelihood	141.7307	Hannan-Quinn criter.	-3.264664
F-statistic	7.669906	Durbin-Watson stat	2.136777
Prob(F-statistic)	0.006925		

Amanah Harta Tanah PNB

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/24/15 Time: 00:20
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.008613	0.003327	2.589226	0.0111
_RM_RF__X	0.197521	0.088274	2.237597	0.0276

R-squared	0.050571	Mean dependent var	0.009295
Adjusted R-squared	0.040470	S.D. dependent var	0.033134
S.E. of regression	0.032457	Akaike info criterion	-3.997217
Sum squared resid	0.099022	Schwarz criterion	-3.943793
Log likelihood	193.8664	Hannan-Quinn criter.	-3.975622
F-statistic	5.006839	Durbin-Watson stat	2.394801
Prob(F-statistic)	0.027610		

Amanah Harta Tanah PNB2

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/24/15 Time: 00:31
Sample: 2007M01 2009M04
Included observations: 28

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.012517	0.011788	1.061850	0.2981
_RM_RF__X	0.070432	0.249935	0.281803	0.7803

R-squared	0.003045	Mean dependent var	0.011901
Adjusted R-squared	-0.035299	S.D. dependent var	0.060241
S.E. of regression	0.061295	Akaike info criterion	-2.677478
Sum squared resid	0.097685	Schwarz criterion	-2.582321
Log likelihood	39.48470	Hannan-Quinn criter.	-2.648388
F-statistic	0.079413	Durbin-Watson stat	2.308915
Prob(F-statistic)	0.780325		

AmanahRaya REIT

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/24/15 Time: 00:16
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.003906	0.003640	1.073155	0.2859
_RM_RF__X	0.255807	0.096582	2.648596	0.0095

R-squared	0.069446	Mean dependent var	0.004789
Adjusted R-squared	0.059546	S.D. dependent var	0.036618
S.E. of regression	0.035511	Akaike info criterion	-3.817310
Sum squared resid	0.118540	Schwarz criterion	-3.763886
Log likelihood	185.2309	Hannan-Quinn criter.	-3.795715
F-statistic	7.015059	Durbin-Watson stat	2.593280
Prob(F-statistic)	0.009481		

AmFirst REIT

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/24/15 Time: 00:12
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.006359	0.002826	2.250233	0.0268
_RM_RF__X	0.298042	0.074989	3.974501	0.0001

R-squared	0.143872	Mean dependent var	0.007388
Adjusted R-squared	0.134764	S.D. dependent var	0.029641
S.E. of regression	0.027572	Akaike info criterion	-4.323430
Sum squared resid	0.071459	Schwarz criterion	-4.270006
Log likelihood	209.5246	Hannan-Quinn criter.	-4.301835
F-statistic	15.79666	Durbin-Watson stat	2.338280
Prob(F-statistic)	0.000138		

Atrium REIT

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/24/15 Time: 00:18
Sample: 2007M05 2014M12
Included observations: 92

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.006954	0.004167	1.668943	0.0986
_RM_RF__X	0.579683	0.112328	5.160652	0.0000

R-squared	0.228344	Mean dependent var	0.008180
Adjusted R-squared	0.219770	S.D. dependent var	0.045171
S.E. of regression	0.039900	Akaike info criterion	-3.583394
Sum squared resid	0.143279	Schwarz criterion	-3.528573
Log likelihood	166.8361	Hannan-Quinn criter.	-3.561268
F-statistic	26.63232	Durbin-Watson stat	1.836968
Prob(F-statistic)	0.000001		

AXIS REIT

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/23/15 Time: 23:46
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.018945	0.005855	3.235582	0.0017
_RM_RF__X	0.781632	0.155370	5.030764	0.0000

R-squared	0.212127	Mean dependent var	0.021643
Adjusted R-squared	0.203745	S.D. dependent var	0.064020
S.E. of regression	0.057127	Akaike info criterion	-2.866475
Sum squared resid	0.306766	Schwarz criterion	-2.813051
Log likelihood	139.5908	Hannan-Quinn criter.	-2.844880
F-statistic	25.30858	Durbin-Watson stat	1.915907
Prob(F-statistic)	0.000002		

Capitamalls REIT

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/24/15 Time: 00:24
Sample: 2010M10 2014M12
Included observations: 51

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.008449	0.006091	1.387196	0.1717
_RM_RF__X	0.341955	0.224695	1.521864	0.1345

R-squared	0.045133	Mean dependent var	0.009171
Adjusted R-squared	0.025646	S.D. dependent var	0.043933
S.E. of regression	0.043365	Akaike info criterion	-3.399879
Sum squared resid	0.092148	Schwarz criterion	-3.324121
Log likelihood	88.69692	Hannan-Quinn criter.	-3.370930
F-statistic	2.316070	Durbin-Watson stat	1.731819
Prob(F-statistic)	0.134471		

Hektar REIT

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/24/15 Time: 00:08
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.009074	0.005139	1.765855	0.0807
_RM_RF__X	0.616306	0.136359	4.519727	0.0000

R-squared	0.178522	Mean dependent var	0.011202
Adjusted R-squared	0.169783	S.D. dependent var	0.055025
S.E. of regression	0.050137	Akaike info criterion	-3.127515
Sum squared resid	0.236286	Schwarz criterion	-3.074091
Log likelihood	152.1207	Hannan-Quinn criter.	-3.105920
F-statistic	20.42793	Durbin-Watson stat	1.926726
Prob(F-statistic)	0.000018		

IGB REIT

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/24/15 Time: 00:27
Sample: 2012M11 2014M12
Included observations: 26

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.99E-05	0.005034	0.003955	0.9969
_RM_RF__X	-0.169656	0.211809	-0.800985	0.4310

R-squared	0.026036	Mean dependent var	-0.000110
Adjusted R-squared	-0.014545	S.D. dependent var	0.025472
S.E. of regression	0.025657	Akaike info criterion	-4.414234
Sum squared resid	0.015798	Schwarz criterion	-4.317457
Log likelihood	59.38504	Hannan-Quinn criter.	-4.386365
F-statistic	0.641578	Durbin-Watson stat	1.364961
Prob(F-statistic)	0.430999		

MRCB-Quill REIT

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/24/15 Time: 00:14
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002421	0.006029	0.401511	0.6890
_RM_RF__X	0.468889	0.159995	2.930641	0.0042

R-squared	0.083719	Mean dependent var	0.004039
Adjusted R-squared	0.073972	S.D. dependent var	0.061132
S.E. of regression	0.058827	Akaike info criterion	-2.807811
Sum squared resid	0.325300	Schwarz criterion	-2.754387
Log likelihood	136.7749	Hannan-Quinn criter.	-2.786216
F-statistic	8.588659	Durbin-Watson stat	2.315490
Prob(F-statistic)	0.004246		

Pavilion REIT

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/24/15 Time: 00:26
Sample: 2012M03 2014M12
Included observations: 34

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.010647	0.007026	1.515327	0.1395
_RM_RF__X	0.261715	0.312179	0.838351	0.4081

R-squared	0.021491	Mean dependent var	0.011249
Adjusted R-squared	-0.009087	S.D. dependent var	0.040572
S.E. of regression	0.040756	Akaike info criterion	-3.505392
Sum squared resid	0.053154	Schwarz criterion	-3.415606
Log likelihood	61.59166	Hannan-Quinn criter.	-3.474772
F-statistic	0.702833	Durbin-Watson stat	1.535612
Prob(F-statistic)	0.408052		

Sunway REIT

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/24/15 Time: 00:22
Sample: 2010M10 2014M12
Included observations: 51

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.012801	0.005168	2.477001	0.0167
_RM_RF__X	0.424736	0.190645	2.227891	0.0305

R-squared	0.091979	Mean dependent var	0.013697
Adjusted R-squared	0.073448	S.D. dependent var	0.038224
S.E. of regression	0.036794	Akaike info criterion	-3.728542
Sum squared resid	0.066336	Schwarz criterion	-3.652785
Log likelihood	97.07783	Hannan-Quinn criter.	-3.699593
F-statistic	4.963500	Durbin-Watson stat	1.734600
Prob(F-statistic)	0.030511		

Tower REIT

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/24/15 Time: 00:01
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.007957	0.004595	1.731531	0.0866
_RM_RF__X	0.512093	0.121942	4.199462	0.0001

R-squared	0.157974	Mean dependent var	0.009725
Adjusted R-squared	0.149016	S.D. dependent var	0.048603
S.E. of regression	0.044836	Akaike info criterion	-3.351002
Sum squared resid	0.188964	Schwarz criterion	-3.297578
Log likelihood	162.8481	Hannan-Quinn criter.	-3.329407
F-statistic	17.63548	Durbin-Watson stat	1.604175
Prob(F-statistic)	0.000061		

UOA REIT

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/23/15 Time: 23:59
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.006713	0.004154	1.615975	0.1095
_RM_RF__X	0.573289	0.110242	5.200280	0.0000

R-squared	0.223416	Mean dependent var	0.008692
Adjusted R-squared	0.215154	S.D. dependent var	0.045754
S.E. of regression	0.040534	Akaike info criterion	-3.552744
Sum squared resid	0.154441	Schwarz criterion	-3.499321
Log likelihood	172.5317	Hannan-Quinn criter.	-3.531150
F-statistic	27.04291	Durbin-Watson stat	2.479216
Prob(F-statistic)	0.000001		

YTL Hospitality REIT

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/23/15 Time: 23:50
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.005771	0.003661	1.576288	0.1183
_RM_RF__X	0.399928	0.097144	4.116840	0.0001

R-squared	0.152759	Mean dependent var	0.007151
Adjusted R-squared	0.143746	S.D. dependent var	0.038600
S.E. of regression	0.035718	Akaike info criterion	-3.805705
Sum squared resid	0.119924	Schwarz criterion	-3.752281
Log likelihood	184.6738	Hannan-Quinn criter.	-3.784110
F-statistic	16.94837	Durbin-Watson stat	2.204151
Prob(F-statistic)	0.000082		

Value Weighted REITs Index

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/24/15 Time: 09:47
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.008328	0.002421	3.440104	0.0009
_RM_RF__X	0.437837	0.064240	6.815636	0.0000

R-squared	0.330736	Mean dependent var	0.009839
Adjusted R-squared	0.323617	S.D. dependent var	0.028720
S.E. of regression	0.023620	Akaike info criterion	-4.632844
Sum squared resid	0.052442	Schwarz criterion	-4.579420
Log likelihood	224.3765	Hannan-Quinn criter.	-4.611249
F-statistic	46.45290	Durbin-Watson stat	1.592241
Prob(F-statistic)	0.000000		

KLPI

Dependent Variable: _RI_RF__Y
Method: Least Squares
Date: 11/24/15 Time: 09:28
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002462	0.004367	0.563741	0.5743
_RM_RF__X	1.306570	0.115890	11.27421	0.0000

R-squared	0.574868	Mean dependent var	0.006972
Adjusted R-squared	0.570345	S.D. dependent var	0.065007
S.E. of regression	0.042611	Akaike info criterion	-3.452814
Sum squared resid	0.170672	Schwarz criterion	-3.399390
Log likelihood	167.7351	Hannan-Quinn criter.	-3.431219
F-statistic	127.1078	Durbin-Watson stat	2.111463
Prob(F-statistic)	0.000000		

Average Return of REITs

Dependent Variable: RI_RF
Method: Least Squares
Date: 12/14/15 Time: 13:03
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.008494	0.002139	3.971510	0.0001
RM_RF	0.433143	0.056756	7.631615	0.0000

R-squared	0.382560	Mean dependent var	0.009990
Adjusted R-squared	0.375992	S.D. dependent var	0.026417
S.E. of regression	0.020868	Akaike info criterion	-4.880562
Sum squared resid	0.040935	Schwarz criterion	-4.827138
Log likelihood	236.2670	Hannan-Quinn criter.	-4.858967
F-statistic	58.24155	Durbin-Watson stat	1.695854
Prob(F-statistic)	0.000000		

BETA

Al Aqar Healthcare REIT

Dependent Variable: AL_AKQAR_HEALTHCARE_REIT
Method: Least Squares
Date: 11/24/15 Time: 00:05
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.009286	0.004053	2.291009	0.0242
FBMKLCI___RETURN	0.314122	0.107047	2.934447	0.0042

R-squared	0.083919	Mean dependent var	0.011141
Adjusted R-squared	0.074173	S.D. dependent var	0.040767
S.E. of regression	0.039226	Akaike info criterion	-3.618344
Sum squared resid	0.144635	Schwarz criterion	-3.564920
Log likelihood	175.6805	Hannan-Quinn criter.	-3.596749
F-statistic	8.610980	Durbin-Watson stat	2.610447
Prob(F-statistic)	0.004199		

Al Hadharah Boustead REIT

Dependent Variable: AL_HADHARAH_BOUS_REIT_DE
Method: Least Squares
Date: 11/24/15 Time: 00:29
Sample: 2007M01 2014M01
Included observations: 85

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.013332	0.005095	2.616794	0.0105
FBMKLCI___RETURN	0.350954	0.128269	2.736084	0.0076

R-squared	0.082733	Mean dependent var	0.015867
Adjusted R-squared	0.071681	S.D. dependent var	0.047938
S.E. of regression	0.046188	Akaike info criterion	-3.288935
Sum squared resid	0.177068	Schwarz criterion	-3.231461
Log likelihood	141.7797	Hannan-Quinn criter.	-3.265817
F-statistic	7.486155	Durbin-Watson stat	2.137522
Prob(F-statistic)	0.007602		

Amanah Harta Tanah PNB

Dependent Variable: AMANAH_HARTA_TANAH_PNB
Method: Least Squares
Date: 11/24/15 Time: 00:19
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.010603	0.003352	3.163583	0.0021
FBMKLCI___RETURN	0.194251	0.088520	2.194429	0.0307

R-squared	0.048732	Mean dependent var	0.011751
Adjusted R-squared	0.038613	S.D. dependent var	0.033082
S.E. of regression	0.032437	Akaike info criterion	-3.998417
Sum squared resid	0.098903	Schwarz criterion	-3.944993
Log likelihood	193.9240	Hannan-Quinn criter.	-3.976822
F-statistic	4.815517	Durbin-Watson stat	2.396631
Prob(F-statistic)	0.030669		

Amanah Harta Tanah PNB2

Dependent Variable: AMANAH_HARTA_TANAH_PNB2_
Method: Least Squares
Date: 11/24/15 Time: 00:30
Sample: 2007M01 2009M04
Included observations: 28

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.015006	0.011658	1.287210	0.2094
FBMKLCI___RETURN	0.066237	0.249612	0.265358	0.7928

R-squared	0.002701	Mean dependent var	0.014607
Adjusted R-squared	-0.035657	S.D. dependent var	0.060109
S.E. of regression	0.061172	Akaike info criterion	-2.681519
Sum squared resid	0.097291	Schwarz criterion	-2.586361
Log likelihood	39.54126	Hannan-Quinn criter.	-2.652428
F-statistic	0.070415	Durbin-Watson stat	2.315751
Prob(F-statistic)	0.792827		

AmanahRaya REIT

Dependent Variable: AMANAHRAYA_REIT_TST_
Method: Least Squares
Date: 11/24/15 Time: 00:15
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.005753	0.003667	1.568723	0.1201
FBMKLCI___RETURN	0.252562	0.096851	2.607751	0.0106

R-squared	0.067464	Mean dependent var	0.007245
Adjusted R-squared	0.057543	S.D. dependent var	0.036557
S.E. of regression	0.035490	Akaike info criterion	-3.818532
Sum squared resid	0.118395	Schwarz criterion	-3.765108
Log likelihood	185.2896	Hannan-Quinn criter.	-3.796938
F-statistic	6.800363	Durbin-Watson stat	2.595283
Prob(F-statistic)	0.010601		

AmFirst REIT

Dependent Variable: AMFIRST_REIT_TST_
Method: Least Squares
Date: 11/24/15 Time: 00:11
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.008107	0.002843	2.851843	0.0053
FBMKLCI___RETURN	0.293991	0.075076	3.915912	0.0002

R-squared	0.140252	Mean dependent var	0.009844
Adjusted R-squared	0.131106	S.D. dependent var	0.029513
S.E. of regression	0.027511	Akaike info criterion	-4.327866
Sum squared resid	0.071143	Schwarz criterion	-4.274442
Log likelihood	209.7376	Hannan-Quinn criter.	-4.306271
F-statistic	15.33436	Durbin-Watson stat	2.346890
Prob(F-statistic)	0.000171		

Atrium REIT

Dependent Variable: ATRIUM_REIT_TRUST__NA_
Method: Least Squares
Date: 11/24/15 Time: 00:17
Sample: 2007M05 2014M12
Included observations: 92

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.007995	0.004189	1.908679	0.0595
FBMKLCI___RETURN	0.576177	0.112703	5.112350	0.0000

R-squared	0.225047	Mean dependent var	0.010619
Adjusted R-squared	0.216437	S.D. dependent var	0.045044
S.E. of regression	0.039873	Akaike info criterion	-3.584738
Sum squared resid	0.143087	Schwarz criterion	-3.529916
Log likelihood	166.8979	Hannan-Quinn criter.	-3.562612
F-statistic	26.13613	Durbin-Watson stat	1.839860
Prob(F-statistic)	0.000002		

AXIS REIT

Dependent Variable: AXIS_REAL_EST_INV_TST_
Method: Least Squares
Date: 11/23/15 Time: 23:46
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.019497	0.005902	3.303603	0.0014
FBMKLCI___RETURN	0.778945	0.155868	4.997464	0.0000

R-squared	0.209916	Mean dependent var	0.024099
Adjusted R-squared	0.201511	S.D. dependent var	0.063918
S.E. of regression	0.057116	Akaike info criterion	-2.866850
Sum squared resid	0.306651	Schwarz criterion	-2.813426
Log likelihood	139.6088	Hannan-Quinn criter.	-2.845255
F-statistic	24.97464	Durbin-Watson stat	1.916191
Prob(F-statistic)	0.000003		

Capitamalls REIT

Dependent Variable: CAPITAMALLS_MAL_TRUST__N
Method: Least Squares
Date: 11/24/15 Time: 00:23
Sample: 2010M10 2014M12
Included observations: 51

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.010108	0.006159	1.641023	0.1072
FBMKLCI___RETURN	0.340676	0.224823	1.515310	0.1361

R-squared	0.044763	Mean dependent var	0.011682
Adjusted R-squared	0.025268	S.D. dependent var	0.043915
S.E. of regression	0.043357	Akaike info criterion	-3.400289
Sum squared resid	0.092110	Schwarz criterion	-3.324531
Log likelihood	88.70736	Hannan-Quinn criter.	-3.371339
F-statistic	2.296165	Durbin-Watson stat	1.732632
Prob(F-statistic)	0.136119		

Hektar REIT

Dependent Variable: HEKTAR_REIT
Method: Least Squares
Date: 11/24/15 Time: 00:08
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.010030	0.005179	1.936436	0.0558
FBMKLCI___RETURN	0.614060	0.136793	4.488964	0.0000

R-squared	0.176528	Mean dependent var	0.013657
Adjusted R-squared	0.167768	S.D. dependent var	0.054947
S.E. of regression	0.050126	Akaike info criterion	-3.127929
Sum squared resid	0.236189	Schwarz criterion	-3.074505
Log likelihood	152.1406	Hannan-Quinn criter.	-3.106334
F-statistic	20.15080	Durbin-Watson stat	1.926458
Prob(F-statistic)	0.000020		

IGB REIT

Dependent Variable: IGB__NA_
Method: Least Squares
Date: 11/24/15 Time: 00:27
Sample: 2012M11 2014M12
Included observations: 26

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.003010	0.005086	0.591909	0.5594
FBMKLCI___RETURN	-0.170414	0.212313	-0.802653	0.4301

R-squared	0.026142	Mean dependent var	0.002444
Adjusted R-squared	-0.014435	S.D. dependent var	0.025498
S.E. of regression	0.025681	Akaike info criterion	-4.412300
Sum squared resid	0.015829	Schwarz criterion	-4.315524
Log likelihood	59.35991	Hannan-Quinn criter.	-4.384432
F-statistic	0.644251	Durbin-Watson stat	1.361624
Prob(F-statistic)	0.430053		

MRCB-Quill REIT

Dependent Variable: MRCB_QUILL_REIT
Method: Least Squares
Date: 11/24/15 Time: 00:13
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.003742	0.006077	0.615778	0.5395
FBMKLCI___RETURN	0.466012	0.160500	2.903505	0.0046

R-squared	0.082303	Mean dependent var	0.006495
Adjusted R-squared	0.072540	S.D. dependent var	0.061070
S.E. of regression	0.058813	Akaike info criterion	-2.808285
Sum squared resid	0.325146	Schwarz criterion	-2.754861
Log likelihood	136.7977	Hannan-Quinn criter.	-2.786690
F-statistic	8.430341	Durbin-Watson stat	2.315920
Prob(F-statistic)	0.004598		

Pavilion REIT

Dependent Variable: PAVILION_REIT_TST___NA_
Method: Least Squares
Date: 11/24/15 Time: 00:25
Sample: 2012M03 2014M12
Included observations: 34

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.012532	0.007153	1.751954	0.0894
FBMKLCI___RETURN	0.261416	0.312636	0.836167	0.4093

R-squared	0.021382	Mean dependent var	0.013801
Adjusted R-squared	-0.009200	S.D. dependent var	0.040576
S.E. of regression	0.040763	Akaike info criterion	-3.505077
Sum squared resid	0.053171	Schwarz criterion	-3.415291
Log likelihood	61.58631	Hannan-Quinn criter.	-3.474457
F-statistic	0.699176	Durbin-Watson stat	1.535119
Prob(F-statistic)	0.409261		

Sunway REIT

Dependent Variable: SUNWAY_RLST_INV_TRUST__N
Method: Least Squares
Date: 11/24/15 Time: 00:21
Sample: 2010M10 2014M12
Included observations: 51

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.014248	0.005227	2.725701	0.0089
FBMKLCI___RETURN	0.424300	0.190793	2.223874	0.0308

R-squared	0.091678	Mean dependent var	0.016209
Adjusted R-squared	0.073141	S.D. dependent var	0.038218
S.E. of regression	0.036794	Akaike info criterion	-3.728537
Sum squared resid	0.066336	Schwarz criterion	-3.652779
Log likelihood	97.07769	Hannan-Quinn criter.	-3.699587
F-statistic	4.945617	Durbin-Watson stat	1.734640
Prob(F-statistic)	0.030798		

Tower REIT

Dependent Variable: TOWER_RLST_INV_TRUST
Method: Least Squares
Date: 11/24/15 Time: 00:00
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.009166	0.004632	1.978728	0.0508
FBMKLCI___RETURN	0.510210	0.122346	4.170214	0.0001

R-squared	0.156123	Mean dependent var	0.012180
Adjusted R-squared	0.147146	S.D. dependent var	0.048546
S.E. of regression	0.044832	Akaike info criterion	-3.351161
Sum squared resid	0.188934	Schwarz criterion	-3.297737
Log likelihood	162.8557	Hannan-Quinn criter.	-3.329566
F-statistic	17.39069	Durbin-Watson stat	1.604281
Prob(F-statistic)	0.000068		

UOA REIT

Dependent Variable: UOA_REAL_ESTATE_IT_
Method: Least Squares
Date: 11/23/15 Time: 23:55
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.007772	0.004188	1.855948	0.0666
FBMKLCI___RETURN	0.571466	0.110600	5.166944	0.0000

R-squared	0.221192	Mean dependent var	0.011148
Adjusted R-squared	0.212907	S.D. dependent var	0.045682
S.E. of regression	0.040528	Akaike info criterion	-3.553025
Sum squared resid	0.154398	Schwarz criterion	-3.499601
Log likelihood	172.5452	Hannan-Quinn criter.	-3.531430
F-statistic	26.69731	Durbin-Watson stat	2.479872
Prob(F-statistic)	0.000001		

YTL Hospitality REIT

Dependent Variable: YTL_HOSPITALITY_REIT
Method: Least Squares
Date: 11/23/15 Time: 23:49
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.007255	0.003691	1.965322	0.0523
FBMKLCI___RETURN	0.398156	0.097491	4.084023	0.0001

R-squared	0.150699	Mean dependent var	0.009607
Adjusted R-squared	0.141664	S.D. dependent var	0.038560
S.E. of regression	0.035724	Akaike info criterion	-3.805351
Sum squared resid	0.119966	Schwarz criterion	-3.751927
Log likelihood	184.6568	Hannan-Quinn criter.	-3.783756
F-statistic	16.67925	Durbin-Watson stat	2.203573
Prob(F-statistic)	0.000093		

Value Weighted REIs Index

Dependent Variable: VALUE_WEIGHTED_REITS_IND
Method: Least Squares
Date: 11/24/15 Time: 09:46
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.009724	0.002438	3.988839	0.0001
FBMKLCI___RETURN	0.435166	0.064387	6.758638	0.0000

R-squared	0.327029	Mean dependent var	0.012295
Adjusted R-squared	0.319870	S.D. dependent var	0.028609
S.E. of regression	0.023594	Akaike info criterion	-4.635057
Sum squared resid	0.052326	Schwarz criterion	-4.581633
Log likelihood	224.4827	Hannan-Quinn criter.	-4.613462
F-statistic	45.67918	Durbin-Watson stat	1.594110
Prob(F-statistic)	0.000000		

KLPI

Dependent Variable: KLSEPRP___RETURN
Method: Least Squares
Date: 11/24/15 Time: 09:33
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.001699	0.004402	0.386040	0.7003
FBMKLCI___RETURN	1.308221	0.116266	11.25197	0.0000

R-squared	0.573902	Mean dependent var	0.009428
Adjusted R-squared	0.569370	S.D. dependent var	0.064923
S.E. of regression	0.042604	Akaike info criterion	-3.453110
Sum squared resid	0.170622	Schwarz criterion	-3.399686
Log likelihood	167.7493	Hannan-Quinn criter.	-3.431515
F-statistic	126.6068	Durbin-Watson stat	2.112596
Prob(F-statistic)	0.000000		

Average Return of REITs

Dependent Variable: MONTHLY_AVERAGE_RETURN
Method: Least Squares
Date: 12/14/15 Time: 13:02
Sample: 2007M01 2014M12
Included observations: 96

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.009904	0.002152	4.601515	0.0000
FBMKLCI___RETURN	0.430230	0.056843	7.568686	0.0000

R-squared	0.378656	Mean dependent var	0.012445
Adjusted R-squared	0.372046	S.D. dependent var	0.026286
S.E. of regression	0.020830	Akaike info criterion	-4.884272
Sum squared resid	0.040784	Schwarz criterion	-4.830848
Log likelihood	236.4450	Hannan-Quinn criter.	-4.862677
F-statistic	57.28501	Durbin-Watson stat	1.699686
Prob(F-statistic)	0.000000		