Integration of Islamic real estate investment trusts in Malaysia: Is it an issue for investors?

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Abstract

Various stakeholders and academicians have shown their interest in the study of capital market instruments such as stock market, bond and real estate investment trust (REITs). As such, there rises a need to review the importance of capital markets integration. This study took a closer look at the co-integration between Islamic real estate investment trust counters in Malaysia by applying the Vector Auto Regression (VAR) method. Data were generated by processing monthly data from January 2007 to December 2013 obtained from authorized sources. The findings indicated that there was no long-run or equilibrium relationship between the Islamic *al-Aqar, al-Hadharah* and Axis counters. Based on the results, it can be concluded that the Islamic REIT companies in Malaysia do not integrate each other in the long run. This will create opportunity for investors to diversify their investment portfolios in Malaysia. As seen from the Granger causality view, the *Hadharah* and Axis returns were driven by *al-Aqar* returns in the short run.

Keywords: co-integration, Granger causality, investment portfolios, Islamic real estate investment trust, stake holders, variance decomposition

Introduction

Various stakeholders and academicians have shown their interest in the study of capital market instruments such as stock market, bond and real estate investment trust (REITs). As such, there rises a need to review the importance of capital markets integration. Firstly, it provides further opportunities in risk sharing among integrated stock market at a cost of taking away the diversification benefit of international investment (Siskawati, 2011). Secondly, the information about capital market instruments integration could be used by investors to set investment strategies based on the potential benefits, which could be gained by diversifying in different products (Kassim, 2010). Thirdly, as stated by Mohan (2005), capital market integration could generate a higher productivity and economic growth across the economy by stimulating domestic savings and investments.

Many researchers have studied the stock market integration among particular countries (see in Narayan *et al.* (2004), Floros *et al.* (2005), Majid *et al.* (2008) and Hussin *et al.(2013)*. In relation to the studies of market co-integration in the stock markets, there is little empirical research available, which examines the long run equilibrium among REITs counters, specifically in Malaysia. Therefore, this paper aims to show its contribution to the existing literature by providing new evidence on Islamic Real Estate Investment Trust (I-REITs) integration nexus, especially in the context Al-Aqar Healthcare REIT (Al-Aqar), Al-Hadharah Bousted REIT (Al-Hadaharah) and Axis REIT Manager Berhad (Axis). This paper will be laid out in the following structure: Section 2 provides an overview of Islamic Real Estate

Investment Trust while the literature review from previous researches about the REITs integration will be presented in Section 3. The next section, which is Section 4 describes the data and variables used in this study and Section 5 provides a discussion of the research methodology. The empirical results would be presented and analysed in Section 6. Lastly, the findings and conclusion would be presented in Section 7.

Islamic real estate investment trust

According to Ngadimon (2009), the capital market is one of the components of the financial system. It acts as an intermediate agent between parties with surplus funds and parties in need of funds to be invested in financial institutions (Yusof and Bakar, 2005). It has a very significant role in influencing economic growth. This is because the stability of capital markets is a key requirement in determining macroeconomic stability (Wahid *et al*. 2009).

The capital market in Malaysia is unique as it is composed of two different components operating in parallel to the conventional capital markets. The existence of the Islamic capital market is significant to provide a more efficient platform for fund mobilization, specifically among Muslims who want to avoid becoming involved in activities prohibited in Islam, such as usury, gambling and ambiguity (Bakar, 2009).

The Islamic capital market has continued to experience very rapid growth and contributed significantly in the overall capital market since its introduction in 1995. By the end of 2012, the total Islamic capital market in the country has reached RM1.4 trillion, which is about 78.57 per cent of the country's Islamic capital market, compared to RM249 billion in 2003 (Securities Commission, 2013).

In November 2005, The Malaysian Government through the Securities Commission of Malaysia issued the Guidelines for Islamic Real Estate Investment Trust (I-REITs Guidelines), as outlined by the Shariah Advisory Council (SAC) of the Securities Commission in order to facilitate the establishment of Islamic REITs in Malaysia. As proposed, these guidelines should be adhered to by the market players and be read together with the Guidelines on Real Estate Investment Trust (Securities Commission, 2005). With the introduction of I-REITs Guidelines, Malaysia has been recognised as the first jurisdiction in the global financial sector to issue such Guidelines in the industry. While conventional REITs are subject to the capital market laws, Islamic REITs are subject not only to the capital market laws but also to the Islamic Jurisprudence law of economics.

As stated by Dusuki (2007), Islamic REITs differ from conventional property fund mainly due to the requirement to observe strictly Islamic investment guidelines and the Shariah principles. Al-'Aqar KPJ REIT became the first Malaysian company and the first Islamic REIT in the world to establish and launch Islamic REITs which focused on hospital and healthcare facilities, followed by Al-Hadharah Boustead REIT as the second Islamic REIT listed on Bursa Malaysia and the first Islamic plantation REIT which is involved in palm oil plantations. The latest listed Islamic REITs is AXIS REIT (transformed from its conventional structure in December 2008) and now it offers more diversified investments incorporating both office and industrial assets.

Literature review

Tests of integration of REITs generally focus on the integration either with the broad stock market or with the private real estate market most often represented by the National Council of Real Estate Investment Fiduciaries (NCREIF) Property Index. Corgel, McIntosh and Ott (1995) provide a widespread review of the pre-1995 literature on this topic. This topic has intensified somewhat in recent years as institutional investors and pension plans in particular have struggled with the question of whether to include REITs in their stock or real estate allocations. According to Khoo, Hartzell and Hoesli (1993), the level of information about REITs increases along with more analysts covering the sector; on the other hand, the

variability of returns diminishes. This would suggest that increasing levels of information would increase the correlations among individual REITs or among groups of REITs categorized by property type. If correlations among groups of securities can be shown to increase over time, this can be viewed as evidence of integration among the groups and, looking deeper into this, we should find evidence that the performance distinctions among the groups are diminishing.

Integration of sectors (or subsectors if one considers all REITs as a single sector) within the REIT universe has received scant attention in the real estate literature. Nonetheless, two recent studies with different objectives have discussed property type sectors within the REIT universe. According to Gyourko and Nelling (1996), systematic risk of equity REITs appears to vary by property type, but that stock market data offer no evidence that diversification across REITs categorized by property types offers meaningful diversification as measured by *R*2 in the simple market model regression. As pointed out by Geltner and Kluger (1998), REITs seldom contain strictly one property type, although investors and market analysts typically group REITs by property type for the purpose of analysis and sector allocation.

If the integration of the domestic REIT market were complete, property-type sector factors would vanish entirely. As the REIT market moves towards integration, correlations among property-type sectors will perfect correlation**.** This study tests the hypothesis that the equity I-REIT market in Malaysia is integrated in such a way that property-type sector correlation differences are not statistically different. For reasons of liquidity, risk aversion and scale, investors and investment managers alike invariably hold equity REIT securities from a variety of property-type sectors, whether by design or accident. For the purpose of this study, we examine the I-REIT sectors categorized by property-type into three groups: hospitality, plantation and commercial property

Data description

The monthly data for this study were retrieved from Bloomberg Database, spanning from January 2007 to December 2013. The definitions of each variable and the time-series transformation are presented in Table 1.

Table 1. Definitions and transformation of variables

No	Variable	Description	Duration	Time Series Data Transformation Variable
1	AQAR	Islamic REIT that focused on hospitality and healthcare facilities	Monthly REIT price (January 2007 - December 2013)	$\Delta LNAQAR = Log\left[\frac{AQAR_{(t)}}{AQAR_{(t-1)}}\right]$
2	HADH	Islamic REIT that focused on palm oil plantations	Monthly REIT price (January 2007 - December 2013)	$\Delta LNHADH = Log\left[\frac{HADH_{(t)}}{HADH_{(t-1)}}\right]$
3	AXIS	Islamic REIT that focused on office and industrial asset.	Monthly REIT price (January 2007 - December 2013)	$\Delta LNAXIS = Log\left[\frac{AXIS_{(t)}}{AXIS_{(t-1)}}\right]$

Methodology

A Vector Autoregressive (VAR) model was adopted in order to examine the integration of Islamic stock market index between AQAR, HADH and AXIS. The equation is written as follows:

$$AQAR_t : \alpha_0 + \alpha_1 HADH_t + \alpha_2 AXIS_t + \mu_t \qquad (1)$$

The study aimed to investigate the market co-integration among REITs based on hospitality (AQAR), plantations (HADH) and commercial assets (AXIS). Deriving from equation 1, the estimation of expanded model of the integration of these Islamic Real Estate Investment Trust are shown below:

$$\begin{bmatrix} AQAR_t \\ HADH_t \\ AXIS_t \end{bmatrix} = \begin{bmatrix} A_1 \\ A_2 \\ A_3 \end{bmatrix} + R(L) \begin{bmatrix} AQAR_{t-1} \\ HADH_{t-1} \\ AXIS_{t-1} \end{bmatrix} + \begin{bmatrix} et_1 \\ et_2 \\ et_3 \end{bmatrix} \qquad (2)$$

where R is 3 x 3 matrix polynomial parameter estimators, (L) is lag length operators, A is an intercept, and *et* is a Gaussian error vector with mean zero and Ω is a Varian matrix.

In order to specify properly the VAR model properly, the standard procedure of time series analyses was followed. First, the commonly used augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests were applied to determine the variables' stationarity properties or integration order. Briefly stated, a variable is said to be integrated of order d, written 1(d), if it requires differencing d times to achieve stationarity. Thus, the variable is non-stationary if it is integrated of order 1 or higher. Classification of the variables into stationary and non-stationary variables is crucial since standard statistical procedures can handle only stationary series. Moreover, there also exists a possible long-run co-movement, termed co-integration, among non-stationary variables having the same integration order. In this study, the lag is determined based on Akaike Information Criterion (AIC) which is commonly used for the VAR model.

The next step was to apply VAR-based approach of the cointegration test suggested by Johansen (1988) and Johansen and Juselius (1990) to investigate the long run relationships among these variables. The co-integration test was based on the maximum likelihood estimation of the VAR model. If these variables were not co-integrated, the standard Granger causality test would be applied on the first difference of these variables. If these variables were co-integrated, a Granger causality test would be conducted based on a VAR with the introduction of an error correction term following the suggestion of Granger (1986). Granger causality tests are performed to identify the existence and nature of the causality relationship between the variables.

The final step was to perform the Variance Decomposition (VDC) to obtain the degree of exogeneity between variables outside of the sampling period. The VDC shows the percentage of forecast error variance for each variable which is attributed to its own shocks and fluctuations in the other variables in the system.

Empirical results

Table 2 provides the summary statistic of the Islamic Real Estate Investment Trust (*i.e.* I-REITs in first difference). AXIS had been the most active and profitable, showing the highest average daily returns of 0.652. This was followed by HADH at 0.203 and AQAR at -0.083. Morever, other market indexes, AXIS return (as reflected by the standard deviation) could be considered very high and it showed the highest

volatility 0.393, commensurating with its return. The smallest risk was experienced by AQAR 0.284. The positive value of skewness indicated that the series distributions were skewed to the right. All stock markets showed positive kurtosis value with the highest value belonging to AXIS at 1.841. This indicates that the distribution of stock market was platykurtic than the normal distribution. The Jarque-Bera test rejects normality for all distribution.

Table 2. Descriptive statistics

	LNAQAR	LNAXIS	LNHAD
Mean	-0.083	0.652	0.203
Median	-0.091	0.634	0.140
Maximum	0.371	1.381	0.727
Minimum	-0.514	-0.146	-0.318
Std. Dev.	0.284	0.393	0.327
Skewness	0.118	0.036	0.244
Kurtosis	1.535	1.841	1.779
Jarque-Bera	7.611*	4.660*	5.977*

Note: *denote significant at 1%

Table 3 summarizes the results of both Augmented Dickey-Fuller (ADF) and Phillip Perron (PP) tests for all variables. As shown below, the null hypothesis of non-stationarity for the ADF and PP tests was accepted for all variables; this indicates that all variables were non-stationary in level but became stationary after first differencing. They are integrated of order 1, or I(1).

Table 3. Unit Root Test results

Test	ADF				PP			
Variables	Level		First Difference		Level		First Difference	
	Trend	Trend & Intercept	Trend	Trend & Intercept	Trend	Trend & Intercept	Trend	Trend & Intercept
LNAQAR	-0.751 (4)	-2.658 (4)	-3.372 (3)**	-3.346 (0)***	-0.606 (4)	-2.342 (1)	-11.474 (0)*	-11.407 (0)*
LNAXIS	-0.853 (0)	-2.139 (1)	-7.348 (0)*	-7.296 (0)*	-0.893 (2)	-1.967 (3)	-7.348 (0)*	-7.305 (1)*
LNHADH	-0.614 (0)	-2.685 (3)	-8.103 (0)*	-8.058 (0)*	-0.721 (4)	-2.279 (4)	-8.130 (3)*	-8.085 (3)*

Note: *denote significant at 1%

After establishing that the variables are stationary and have the same order of integration, the researchers proceeded to test whether they were co-integrated. To achieve this, the Johansen Multivariate Co-integration test was employed. The results of the Johansen's Trace and Max Eigen-value tests are shown in Table 4, where it was found that there was no co integration among variables. This could be observed from the values of trace statistic and Max Eigen value, which are smaller than their critical values, respectively. Therefore, it could be concluded that there was no long-run or equilibrium relationship between AQAR, AXIS and HADH. Based on the result, the researchers can conclude that the Islamic REIT counters of Malaysia do not integrate in the long run. This will create opportunity for investors to diversify their investment portfolios, which puts Malaysia as one of their preferred investment destinations.

Table 4. Johansen Test of Co-integration

Model	Null Hypothesis	Statistical Trace	Critical Value (5%)	Maximum Eigen Statistical Trace	Critical Value (5%)	Results
Lag Length = 2#	r ≤ 0	19.233	29.797	11.310	21.131	Trace and Max Eigen statistics showed no cointegration vectors
	r ≤ 1	7.923	15.494	7.540	14.264	
	r ≤ 2	0.382	3.841	0.382	3.841	

* : Denote significance at 5% respectively
: Critical Value obtained from Osterwald-Lenum (1992)
#: lag length based on Akaike Information Criterion (AIC)

Table 5. Granger Causality Test result

Null Hypothesis:	F-Statistic	P-Value
LNAXIS does not Granger Cause LNAQAR	0.745	0.390
LNAQAR does not Granger Cause LNAXIS	7.122	0.0092*
LNHAD does not Granger Cause LNAQAR	4.035	0.048**
LNAQAR does not Granger Cause LNHAD	9.336	0.003*
LNHAD does not Granger Cause LNAXIS	1.091	0.299
LNAXIS does not Granger Cause LNHAD	2.644	0.107

Note: * significant at 1% **significant at 5% *** significant at 10%

Table 5 shows the Pairwise Granger Causality Test for the log series of AQAR, AXIS and HADH. The results of the Granger causality test show two significant causal relationships. First, there is a bi-directional causality result between HADH and AQAR. Second, there is a significant uni-directional causality relationship between AQAR and AXIS suggesting that the return of IREIT-based on Commercial property significantly affected by the return of Hospitality IREIT in Malaysia. This result leads the researchers to conclude that the return of AXIS and HADH were driven by the return of AQAR. The pattern of this causal relationship could be simplified as in figure 1.

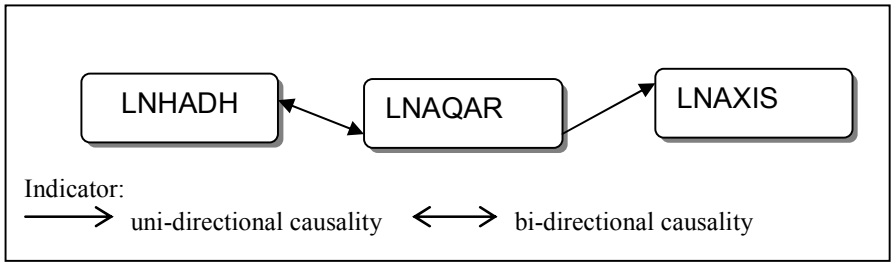

Figure 1. *Analysis on Short Term Granger Causal Relationship*

The results of the VDC analysis are presented in Table 6 for a 24-month horizon. The results for AQAR could be explained by its rise of over 93.8 percent. Only 0.3 percent and 5.9 percent of the variations had been contributed by AXIS and HADH respectively. For AXIS return, over 82 percent of the variations had been contributed by AQAR and HADH. Between the two variations, AQAR is the most significant variable, explaining about 78 percent of the AXIS forecast error variance. Furthermore,

over 32 percent of the variations of HADH return were explained by variations of AQAR while only 2 percent is explained by AXIS. This result is consistent with finding of Granger causality test.

Table 6. Results of Variance Decompositions Analysis

Variance Decomposition of	Period (Months)	Innovations in		
		LNAQAR	LNAXIS	LNHADH
LNAQAR	1	100	0.000	0.000
	4	93.598	0.716	5.684
	8	93.402	0.560	6.037
	12	93.575	0.430	5.994
	24	93.877	0.269	5.852
LNAXIS	1	10.647	89.352	0.000
	4	30.571	69.251	0.177
	8	52.741	45.693	1.565
	12	64.723	32.391	2.885
	24	77.957	17.327	4.714
LNHAD	1	1.932	8.399	89.668
	4	13.788	5.055	81.156
	8	22.021	2.608	75.369
	12	26.727	2.115	71.157
	24	32.490	2.102	65.406

Conclusion

This paper aimed to investigate the integration among Islamic real estate investment trust (I-REITs) counters in Malaysia. Using VAR estimation technique, it was found that there was no co-integration relationship (long-term equilibrium) between these Islamic REITs, implying that the Malaysian Islamic REIT counters do not integrate with each other in the long run. This will create opportunities for both local and international investors to diversify their Islamic investment portfolios, which will put Malaysia as one of their investment destination. On the other hand, the results of the Granger causality test show a significant bi-directional causality between I-REITs based on hospitality and plantation industries and a significant uni-directional causality relationship between AQAR and AXIS. These situations suggest that the return of Islamic REIT based on Plantation and Commercial property industries were significantly affected by the return of Islamic Hospitality REIT in Malaysia. Hence, this leads to the conclusion that the return of AXIS and HADH were driven by the return of AQAR in the short run.

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