

Conventional REITs, Islamic REITs and macroeconomic variables in Malaysia: a review

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Abstract

Purpose – The purpose of this paper is to empirically examine the return and dividend characteristics of two different types of Malaysian real estate investment trust (REIT) series, namely, conventional and Islamic, against macroeconomic variables over the period 2011–2017.

Design/methodology/approach – The required data are derived from Datastream database. Multiple regression analysis is used to determine the impact of macroeconomic variables on financial performance of 13 Malaysian REIT series.

Findings – Results show that the macroeconomic variables are able to predict future returns and dividends of Malaysian REITs. The analysis also suggests that Islamic REITs are seen to be less sensitive to macroeconomic variables and display better portfolio diversification benefits as compared to their conventional counterpart. The ongoing implications for large-cap and small-cap REITs are also highlighted.

Research limitations/implications – The main limitation of the study is the small percentage of Islamic REITs sample due to limited period of observation available. However, the two Islamic REITs included are representative of Islamic REITs in Malaysia as both of them are listed in the Bursa Malaysia with asset size and market capitalization values more than RM1bn.

Practical implications – The results of this study may serve as a useful input for financial market players on making strategic business decisions especially with regards to differences between conventional and Islamic REITs characteristics.

Originality/value – The main contribution of this paper is to explore the relationship between REITs and macroeconomic factors on a unique capital market (Malaysia) that allows comparison between conventional and its Islamic counterpart.

Keywords REIT, Islamic REIT, Malaysia, Macroeconomic variables, Dividend yield

Paper type Research paper

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Introduction

The demand for investable instruments has given rise to innovative investment opportunities around the world over the past few decades (Laeven *et al.*, 2015; Ajello, 2016). Despite the increasing sophistication in financial instruments, the real estate sector remains very popular (Lieser and Groh, 2014; Sun *et al.*, 2015). The conventional form of real estate investment is through purchasing and owning physical assets or equity in real estate firms. Nevertheless, the real estate investment spectrum has evolved and now includes real estate investment trusts (REITs). REITs are known as funds or trusts that own and manage income-producing commercial real estate, such as shopping complexes, hospitals, plantations, industrial properties, hotels and office blocks. They are relatively more liquid than other physical real estate because of their tradability in the stock market and smaller capital outlay requirement (Schulkin, 1971; Chen *et al.*, 2005).

The present study contributes to the limited published literature on REITs by comparing the Malaysian Islamic (i.e. Shari'ah-compliant) REITs with their conventional counterparts over the period 2011-2017. According to Osmadi (2006) and Dusuki (2008), Shari'ah-compliant REITs have similar objectives, administration and structures to conventional REITs. The key difference between them is that the Islamic REIT must adhere to Shari'ah principles. Studies comparing the similarities and differences between Islamic and conventional financial instruments have been a topic of growing interest, sparked by several developments in the Islamic financial market (Iqbal and Molyneux, 2005; Wilson, 2012; Johnes *et al.*, 2014; Abedifar *et al.*, 2015). This study assesses the dynamic linkages between these REITs and selected macroeconomic variables.

This study is important and focuses on the Malaysian REIT market for three reasons. First, the Malaysian REIT market is unique in that it offers two different types of REITs, namely, conventional and Islamic. As Shari'ah-compliant REITs display different characteristics than their conventional counterparts in terms of risk level and portfolio diversification benefits, this study will have the opportunity to test whether some of the findings and explanations provided in developed REIT markets that mainly trade conventional REITs are more widely applicable or are limited to those markets. Second, Malaysia was among the earliest markets to launch a REIT and has the advantage of being a country with a comprehensive, clear regulatory framework and flexibility allowing 70 per cent foreign shareholding in Islamic REITs (MIFC, 2013). The first Malaysian REIT was introduced under the structure of "Listed Property Trust" through the inception of Arab Malaysia First Property in September 1989, followed by Amanah Harta Tanah PNB in December 1990 (Ong *et al.*, 2012). Given this background, it is reasonable to expect that there might be a significant level of attraction to Malaysian REITs for both local and foreign investors. Third, Lim (2020) reported an increase in demand for Malaysian REITs between 2010 and 2019. This is partly because of the shortage of investing options for investors seeking Shari'ah-compliant investments due to a more than 30 per cent fall in the issuance of worldwide *sukuk* (Shari'ah-compliant bond) reported in 2018 (The Star, 2019). Therefore, this study sheds light on the recent behaviour of REITs in Malaysia, which will allow market dealers, and market players to be better informed about what they are getting themselves into and what to expect from their REIT investments.

This study covers the Malaysian REIT industry comprising both conventional and Islamic REITs and focuses on identifying the relationship between return, dividend yield and macroeconomic variables. The analysis is run separately for conventional and Islamic REITs. The motivation for this study arose from the diversification benefits that Malaysian REITs might offer. Accordingly, the present study has three main objectives. The first is to explore the relationship between Malaysian REITs' performance (return and dividend yield)

and macroeconomic variables. The second is to identify whether different types of REITs, i.e. conventional and Islamic, will have different relationships with the macroeconomic variables. The third objective is to assess the impact of REIT size on the relationship between REITs and macroeconomic variables.

The remainder of the paper is organized as follows. The next section reviews the literature and develops the hypotheses. It is then followed by the description of the data and research design. The empirical results and discussion are delineated next. Finally, the paper presents the overall conclusions.

Literature review

Since the establishment of REITs, studies on this investment instrument have been conducted in a variety of markets and forms. This section will first focus on an overview of Malaysian REIT development, followed by a discussion on Islamic REITs. It then reviews literature on the relationship between REIT performance, size and macroeconomic variables. This section concludes with a discussion on the hypotheses developed in this study that correspond to the research objectives.

An overview of Malaysian real estate investment trust development

Many academic papers have stated that the first REIT in Asia was established in Japan following the listing of the Nippon Building Fund Inc. on the Tokyo Stock Exchange in 2001. However, the first REIT in Asia was in fact introduced in Malaysia, under the previously existing structure of the “Listed Property Trust” through the inception of Arab Malaysia First Property in September 1989, followed by Amanah Harta Tanah PNB in December 1990 (Ong *et al.*, 2012). “Listed Property Trust” is similar to other types of mutual funds that provide individual investors access to professionally managed real estate portfolios (Newell *et al.*, 2002). In 2005, the “Listed Property Trust” in Malaysia was rebranded to REITs. REITs offer investors with a better liquid method of investing in real estate where those REITs can be bought and sold like stocks in the stock exchange. Despite being the first in Asia to launch a REIT, Malaysian REITs have not attracted much attention from foreign investors or the global market due to their small asset size and low exchange value (Ong *et al.*, 2012). In addition, institutional investors have not been attracted to property trust investments due to the absence of tax transparency on their income receivables and the rigid approval process required in the regulatory framework.

The Securities Commission of Malaysia (SC), in its effort to boost the real estate investment industry, introduced ‘REIT Guidelines’ on 3 January 2005, which superseded the 2002 “Guidelines on Property Trust Fund”. These guidelines also adopted the standardized global term “real estate investment trust” to describe a fund that invests primarily in real estate (Securities Commission, 2005a). The key features of the REIT Guidelines include the liberalization of REITs’ borrowing limits, relaxation on acquisitions of leasehold properties and flexibility accorded to acquisitions of real estate that is encumbered by financial charges. The SC’s oversight in the establishment of REITs implies that these are subject to the SC’s regulation and compliance requirements, which ensure disclosure of comprehensive and timely information to investors and of prospects. Greater transparency is expected to make the REIT industry more attractive and dynamic. Dynamism in the local industry also attracts greater flows of international capital (APREA, 2014). Submission requirements and procedures have also been revised to promote faster decision turnaround times, which would ultimately improve efficiency in fundraising exercises for REITs for the purpose of attracting more industry players (Securities Commission, 2005a).

This move by the SC created a turnaround in the REIT market as more REIT listings were seen on the main board of Bursa Malaysia subsequent to the announcement. Axis REIT, a REIT company managed by Axis REIT Managers Berhad that deals with commercial, office and industrial real estate, was the first REIT to be listed under the new REIT Guidelines in June 2005. As of 31 December 2019, a total of 18 REITs are listed on Bursa Malaysia: 14 conventional REITs and 4 Islamic REITs. The Malaysian REIT industry captured a market capitalization of RM43.83bn, with Islamic REITs contributing 41.6 per cent of this market capitalization, amounting to RM18.24bn ([Securities Commission, 2020](#)).

A number of studies have documented that Malaysia REITs are a viable form of investment that can be material to an individual's investment portfolio. Nevertheless, there is still a lack of studies about the relationship between Malaysian REITs and macroeconomic variables. For example, [Jing and Samsudin \(2018\)](#) find that from year 2008 until 2015, on average, Malaysia REITs have performed better than its adopted benchmark, i.e. FBM KLCI index. Similarly, [Jalil et al. \(2015\)](#) show that during an economic downturn, inclusion of Malaysian REITs in an investment portfolio between 41.54 and 49.44 per cent will contribute to a higher investment return. [Mokhtar and Masih \(2014\)](#) and [Ahmad and Nafiah \(2020\)](#) also suggest that optimal diversification benefits through Malaysia REITs can be achieved if these REITs belong to different sectors.

Islamic real estate investment trusts in Malaysia

In November 2005, the Shariah Advisory Council (SAC) of SC Malaysia paved the way for the establishment of Islamic REITs with the release of the "Guidelines of Islamic REIT" ([Securities Commission, 2005b](#)). This has opened up opportunities to investors who wish to invest in real estate through regulated Shari'ah-compliant capital market instruments and to have ownership in prestigious Shari'ah-compliant real estate in prime locations.

The first Malaysian Islamic REIT (Al-'Aqar Healthcare REIT) was established by the Johor Corporation on 27 June 2006. This REIT was primarily invested in six hospitals with an estimated total market value of RM480m. It was also listed on the Bursa Malaysia on 10 August 2006 and has set many milestones as the first Islamic REIT in the world and the first health-care REIT in Asia. As of 31 December 2017, the Al-'Aqar REIT's asset size stood at RM1.56bn with a market capitalization of RM1.04bn. According to [Al-'Aqar REIT \(2018\)](#), market capitalization decreased slightly to RM0.96bn. However, its asset size experienced a slight increment of 1.3 per cent to RM1.58bn.

The second Islamic REIT was introduced the following year on 8 February 2007. This is the Al-Hadharah Boustead REIT, which invests in plantation estates and mills and is valued at RM611.1m. On 19 February 2014, the Al-Hadharah Boustead REIT was made private by its parent company ([Boustead Holdings Berhad, 2014](#)) and was delisted from the stock exchange Bursa Malaysia, making it the first REIT in the country to be privatized.

In December 2008, Axis REIT, which was originally established as a conventional REIT in 2005, restructured its business model according to the Islamic REIT guidelines and was re-categorized as an Islamic REIT, making it the world's first Islamic industrial REIT. As of 31 December 2017, Axis REIT's asset size was valued at RM2.55bn with a market capitalization of RM1.85bn. In 2018, the asset size and market capitalization of Axis REIT both increased to RM2.84bn and RM1.93bn, respectively ([Axis REIT, 2018](#)).

Johor Corporation launched its second REIT, Al-Salam REIT, on 29 September 2015. This REIT is mid-sized and has a diversified portfolio including commercial-retail, office and industrial assets. As of 31 December 2017, the REIT's asset size stood at RM988.8m with a market capitalization of RM580m. In 2018, its total asset value increased to

RM1.16bn. The increase of RM167.6m was mainly derived from the acquisition of Mydin Hypermart in Gong Badak, Terengganu. However, the market capitalization dropped slightly to RM469.8m (Al-Salam REIT, 2018). To date, with the listing of Al-Salam REIT, Malaysia now has four Islamic REITs listed on Bursa Malaysia. This will provide Muslim investors with more investment opportunities on properties in prime locations and increased ability to participate in the wealth-generating real estate industry.

On a similar note, a study by Newell and Osmadi (2009) showed that Islamic REITs are less correlated with the stock market as compared to their conventional counterparts. They also found that Islamic REITs provide a better risk-adjusted option for a portfolio than all other asset classes. Similarly, Rozman *et al.* (2015) find that Islamic REITs have low correlation with shares and bonds. They suggest that Islamic REITs could potentially offer diversification enhancement to the portfolios of investors in these two assets classes. Mokhtar and Masih (2014) and Razali and Sing (2015) further find that conversion of a conventional REIT into a Shari'ah-compliant REIT brings a significant reduction in systematic risk as well as provide a good hedging strategy against fluctuations in exchange rates. In a more recent study, Ruslan (2019) showed that Islamic REITs offer an attractive investment tool through their stable income and quality underlying assets. Nevertheless, to the authors' knowledge, no specific study has been conducted that links Islamic REITs and macroeconomic variables.

Real estate investment trusts and macroeconomic variables

Macroeconomic variables affect the real estate markets and play a crucial role in the risk management strategies of every investment. A number of studies have supported the notion of a relationship between REITs and macroeconomic variables. McCue and Kling (1994), for example, found that the macroeconomic variables explain almost 60 per cent of the variation in the US REITs series and nominal interest rates explain the majority of them. In a similar vein, Glascock *et al.* (2000) argued that there is a high correlation between REITs and stock market returns, especially small cap stocks, which is probably due to the fact that the REITs themselves actually fall into the small cap stock category. Clayton and MacKinnon (2003) discovered that REITs consistently moved in tandem with large capital stocks in the 1970s and 1980s. Nevertheless, this pattern changed in the 1990s as REITs started to show a stronger relationship with small cap stocks. Recent studies by Chung *et al.* (2016), Chiang *et al.* (2017) and Beracha *et al.* (2019) supported the earlier results by showing that REITs have a strong relationship with stock and bond returns performance.

In a similar vein, the paper by Chen and Tzang (1988) was among the first empirical articles to suggest REITs' sensitivity to interest rate. They found that REITs in the USA are sensitive to both short-term and long-term interest rates, as did Allen *et al.* (2000). Swanson *et al.* (2002), using more recent data to test the relationship between REITs and interest rates, also found that REITs are sensitive to interest rate movements. Specifically, Swanson *et al.* (2002) found that interest rate became a significant factor in pricing REITs in the USA. More recent studies by Ito (2016), Giliberto and Shulman (2017) and Wong and Reddy (2018) further showed that interest rate has an impact on the REIT markets. Ito (2016) examined the Japanese REIT market and found that Japanese REITs are negatively correlated to the interest rate. This correlation is stronger for the long-term interest rate. Giliberto and Shulman (2017), on the other hand, found that the degree of REITs' sensitivity to interest rates varies over time. They showed that the response of REITs returns to movements in interest rates is only significant for short-run periods. Wong and Reddy (2018) explored the sensitivity of Australian REITs performance against changes in interest rates. They found that high leverage and medium size REITs have greater sensitivity to movements in interest rates.

In other studies, Gyourko and Linneman (1988), Liu *et al.* (1997), Glascock *et al.* (2002) and Pierdzioch *et al.* (2019) reported that REITs are inversely related to inflation. This relationship can be explained by the Fisher Effect theory, which argues that an expected increase in inflation rate would require a higher expected nominal return from an investment. Nevertheless, Glascock *et al.* (2002) and Pierdzioch *et al.* (2019) argued that this relationship is due to the causality effect of changes in monetary policies rather than a perverse inflation hedge.

Some studies have also found that REIT size plays an important role in REIT behaviour. For example, Mueller (1998) showed that a small-cap REIT is relatively more profitable than a large-cap REIT. Similarly, Chatrath *et al.* (2012) argued that REIT size has an influence on that REIT's trading activity and public information.

Given the discussion above, the present study contributes to the meagre published literature on comparisons between conventional and Islamic REITs by examining the linkage between macroeconomic variables and REITs' return and dividend performance in Malaysia. This study assesses the linkages between REITs, stock market index, short-term interest rates, long-term interest rates and the consumer price index (inflation proxy) using a Pearson's test and multiple regression approach. This study hypothesizes that different types of REITs will show different relationships with the macroeconomic variables. Similar to Mueller (1998) and Chatrath *et al.* (2012), this study also hypothesizes that REIT size plays a role in determining relationship between REITs and macroeconomic variables.

Data and methodology

This study uses the quarterly data of 13 REITs (11 conventional and 2 Islamic) in Malaysia, sourced from the Thomson Reuters Datastream. For size categorization, any REIT that has a market capitalization of more than RM2bn is categorized within the "Large REITs" bracket, while the "Small REITs" category is made up of REITs which have market capitalization below RM500m. From the 13 sampled REITs in this study, two are categorized as large and four as small. Seven other REITs are excluded from this size categorization as their market capitalization fall between RM500m and RM2bn including the two Islamic REITs. Due to the unavailability of data for earlier periods, the starting date for the data was from Q1 2011 to Q4 2017. In this study, the following regression equation is used to achieve the research's primary objectives:

$$Y_t = KLCI_t + Short\ Term\ Interest\ Rate_t + Long\ Term\ Interest\ Rate_t + CPI_t + e_t$$

where Y is the dependent variable consisting of both the Price Index Return and the Dividend yield. The formulas for both are given below:

$$Price\ Index\ Return = \frac{Stock\ Price_{End\ of\ Quarter} - Stock\ Price_{Start\ of\ Quarter}}{Stock\ Price_{Start\ of\ Quarter}}$$

$$Quarterly\ Dividend\ Yield = \frac{Quarterly\ Dividend\ Payout}{Stock\ Price}$$

The independent variable on the right-hand side consists of the Kuala Lumpur Composite Index (KLCI), which is the broadest index in the Malaysian equity capital markets and comprises the 30 largest public firms in Malaysia. It represented the measurement of the broad market index. The short-term interest rate measurement was represented by the

three-month Treasury Bill, and the long-term interest rates were represented by 10-year government bonds. Finally, in this paper, inflation is measured by way of the quarterly Consumer Price Index (CPI) in Malaysia.

This study first uses the Pearson Correlation Coefficient to observe any correlation that might exist among the independent variables. It then uses the ordinary least squares (OLS) regression to examine the relationship that might exist between the dependent variables and the various macroeconomic variables mentioned above.

Results and discussion

Table I provides the summary statistics for the dependent variables in Panels A and B, and the summary statistics for the independent variables in Panel C.

In Panel A, it is observed that Islamic REITs have the lowest mean Price Index Return and standard deviation. This may suggest that Islamic REITs are less volatile as compared to other REITs categories. When the skewness and kurtosis are observed in Panel A, it is found that, except for conventional REITs, all types of REITs have a negative skewness, which may suggest that these types of REITs exhibit Price Index Return towards more negative values. It is also noted that all four types of REITs have a negative kurtosis, which may suggest a wide range of data for all types of REITs.

Next, in Panel B, it is observed that the mean dividend yield is in stark contrast with panel A. In Panel B, it is found that small and conventional REITs have the highest mean dividend yield, while Islamic and large REITs have a consecutively smaller dividend yield. However, it is noted that in terms of standard deviation, Islamic and large REITs still have a relatively high standard deviation, which reflects their underlying volatility. In terms of skewness and kurtosis, it is found that all types of REITs exhibit negative skewness, while Islamic and small REITs exhibit negative kurtosis.

Table II demonstrates the correlation matrix amongst the independent variables. It was found from the table that there is no correlation between the independent variables, with the exception of the 10-year government bond and CPI having a value of 0.45, significant at the

Construct	Minimum	Maximum	Mean	SD	Skewness	Kurtosis
<i>Panel A: Price Index Return*</i>						
Conventional REITs	-0.48	0.67	0.03	0.33	0.00	-1.27
Islamic REITs	-0.12	0.13	0.02	0.06	-0.31	-0.30
Large REITs	-0.17	0.17	0.02	0.09	-0.12	-0.14
Small REITs	-0.26	0.16	-0.01	0.11	-0.54	-1.00
<i>Panel B: Dividend yield*</i>						
Conventional REITs	5.86	7.68	6.75	0.40	-0.05	0.30
Islamic REITs	4.09	6.97	5.65	0.72	-0.09	-0.11
Large REITs	0.74	6.41	5.10	1.44	-2.25	4.28
Small REITs	5.35	8.25	6.91	0.76	-0.40	-0.25
<i>Panel C: Macroeconomic variables</i>						
KLCI (Market Stock Index)	-0.15	0.11	0.01	0.05	-0.87	2.89
3-month Treasury Bill	2.39	3.35	2.98	0.20	-1.31	2.62
10-years Government Bond	3.48	4.21	3.86	0.23	-0.45	-0.97
Consumer Price Index	102.20	120.60	110.46	5.58	0.26	-1.12

Note: *This table reflects 11 conventional REITs and 2 Islamic REITs listed on Bursa Malaysia from 2011 and 2017

Table I.
Descriptive statistics
of price index returns
and dividend yields
for the REITs and
macroeconomic
variables selected for
analysis

0.05 level. Even so, this value is acceptable, as it is below 0.70. It is therefore concluded that no multicollinearity problems are to be found among the independent variables. Thus, all independent variables are not related to each other and belong to a different proxy.

Next, the OLS regression methodology is used to obtain possible relationships between the dependent and independent variables. The OLS regression results are presented in Table III, which demonstrates that there exist significant differences between Islamic and conventional REITs. This is also true for large and small REITs. In fact, it can be said that grouping REITs into these four heterogeneous groups enables the observation that each group has significantly different characteristics in terms of the relationship between their dividend yield and the Price Index Return and macroeconomic variables as compared with the other groups. This finding alone gives tremendous support for the research hypothesis of this paper.

It is observed in Panel A that Islamic REITs do not show any significant relationship with any of the macroeconomic variables. On the other hand, conventional REITs demonstrate a significant positive relationship with the KLCI market index and 10-year Government bond. Conventional REITs in Panel A also demonstrate significant *F*-statistics, which indicates the non-rejectable nature of the model for conventional REITs. This is not the case for Islamic REITs, which demonstrate insignificant *F*-statistics. In line with the *F*-statistics of the conventional and Islamic REITs in Panel A, it is also possible to observe that the adjusted *R*-squares for conventional REITs are much higher compared to those for Islamic REITs. All these results suggest that Islamic REITs and conventional REITs have significantly different variables that affect their Price Index Return. This should reflect the fundamental difference that exists between Islamic and conventional REITs.

Next, it is also observed that the same results occur for large and small REITs. Small REITs depend heavily on the market index, while large REITs exhibit no relationship with the macroeconomic variables except for long-term government bonds. This is confirmed with the low *R*-squares for large REITs in Panel A, in contrast with the significantly high *R*-squares of 0.57 for small REITs.

In Panel B, it is observed that Islamic and conventional REITs continue to exhibit significantly different relationships with macroeconomic variables, but in a different manner compared to Panel A. In Panel B, Islamic REITs' dividend yield depends mostly on the CPI, while conventional REITs' dividend yield depends more on the market index. The differences in relationships between the two types of REITs can be explained by the fact that the business model and the underlying real estate assets hold sway in the relationship of these REITs with macroeconomic models. For example, it is noted that Islamic REITs own hospitals and offices compared to conventional REITs, which own shopping malls and factories[1]. These differences in real estate portfolios could be the underlying cause in the heterogeneous relationships with macroeconomic variables between the two types of REITs.

Table II.
Correlation matrix of
independent
macroeconomic
variables

Construct	[1]	[2]	[3]	[4]
[1] KLCI (Market Stock Index)	1.00			
[2] 3-month Treasury Bill	-0.13	1.00		
[3] 10-years Government Bond	-0.11	0.12	1.00	
[4] Consumer Price Index	-0.12	-0.16	0.45**	1.00
Note: **5% level of significance				

Construct	Conventional REITs	Islamic REITs	Large REITs	Small REITs	Conventional REITs, Islamic REITs
<i>Panel A: Price Index Return</i>					
Intercept	1.51	0.46	0.55	0.71	
KLCI (Market Stock Index)	4.35***	0.19	0.12	1.45***	
3-month Treasury Bill	0.26	0.01	0.09	0.03	
10-years Government Bond	-0.52**	-0.10	-0.19*	-0.12*	
Consumer Price Index	-0.030	-0.001	0.000	-0.003	
F-Statistic	8.50***	1.36	2.40*	9.83***	
Adjusted R ²	0.53	0.05	0.17	0.57	
<i>Panel B: Dividend Yield</i>					
Intercept	10.63	18.13	-11.81	21.26	
KLCI (Market Stock Index)	-3.20**	-0.74	-3.60	-3.36***	
3-month Treasury Bill	0.22	-0.45	1.71	-0.12	
10-years Government Bond	-0.24	0.65*	-1.84	0.16	
Consumer Price Index	-0.030***	-0.120***	0.17***	-0.13***	
F-Statistic	4.05**	17.17***	3.42**	43.66***	
Adjusted R ²	0.31	0.71	0.26	0.86	

Notes: ***1% level of significance; **5% level of significance; *10% level of significance

Table III.
Model explaining price index return and dividend yield of Malaysian REITs

Finally, it is observed that both large and small REITs have a relationship with the CPI, although the directions of relationship between these two groups are opposing. It is also observed that small REITs exhibit a significant relationship with the market index. These findings imply that the REITs in these groups differ significantly from each other. This strengthens the argument that the business model and real estate portfolio, amongst other things, play the most important roles in deciding the REITs' dividend yield.

The findings of this study are instrumental to savvy investors and investment management companies. They allow them to understand the macroeconomic factors that influence both the Return Price Index and Dividend Yield of REITs in Malaysia. For investors who are concerned with the income-generating part of the investment (dividend, rental, etc.), this research may assist them to mitigate their risk by understanding what factors influence their dividend yield and what to expect from changes in the economic climate. Similarly, for investors who focus on capital growth, this research provides information for them to understand what causes an increase or decrease in their REITs Price Index Returns.

Conclusion

The main contribution of this paper lies in its examination of the linkages between REIT performance and macroeconomic variables of 13 Malaysian REITs for the period 2011-2017, and categorization of them into four different groups: conventional, Islamic, large and small. It hypothesized that different types of REITs, specifically Islamic and conventional, have different relationships with different economic variables.

The results indicate that the macroeconomic variables are able to predict future returns and dividends of Malaysian REITs. This paper further shows that, in terms of Price Index Returns, Islamic REITs demonstrate no relationship with macroeconomic variables, while conventional REITs exhibit a strong relationship with the market index and some relationship with long-run interest rates. This suggests that Islamic REITs are seen to be less sensitive to macroeconomic variables and display better portfolio diversification benefits as compared to conventional REITs. This behaviour tracks across the size of the

REITs. For dividend yield behaviours, it is observed that the relationships are complex and diverse. Both the conventional and Islamic REITs share a relationship with the consumer price index; however, Islamic REITs show some relationship with long-run interest rates, while conventional REITs respond more towards the market index. For the two different sizes of REITs, it is observed that the large REITs depend more on short-run interest rates, while small REITs respond better to the market index. The results thus confirm the hypothesis that different types of REITs have different and heterogeneous relationships between their performance and macroeconomic variables.

Notwithstanding, further investigation is required before this premise can be confirmed as there are other factors that could contribute to the findings, including the differences of the underlying real estate assets that represent each REIT in the sample study. Future research could look into a comparative study between different business models of conventional and Islamic REITs. This would allow us to explore the extent to which Islamic REITs can claim to be less sensitive to macroeconomic variables and display better portfolio diversification benefits as compared to their conventional counterparts. This area of study, especially research related to Islamic REITs, is still a rapidly evolving area, and more information is clearly needed to understand the key dynamics of the REITs industry within the capital market network.

Note

1. Two Islamic REITs namely KLCC REIT and Al-Salam REIT, which are made up of shopping malls, offices and factories, were excluded from this study due to the limited period of observation available.

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