



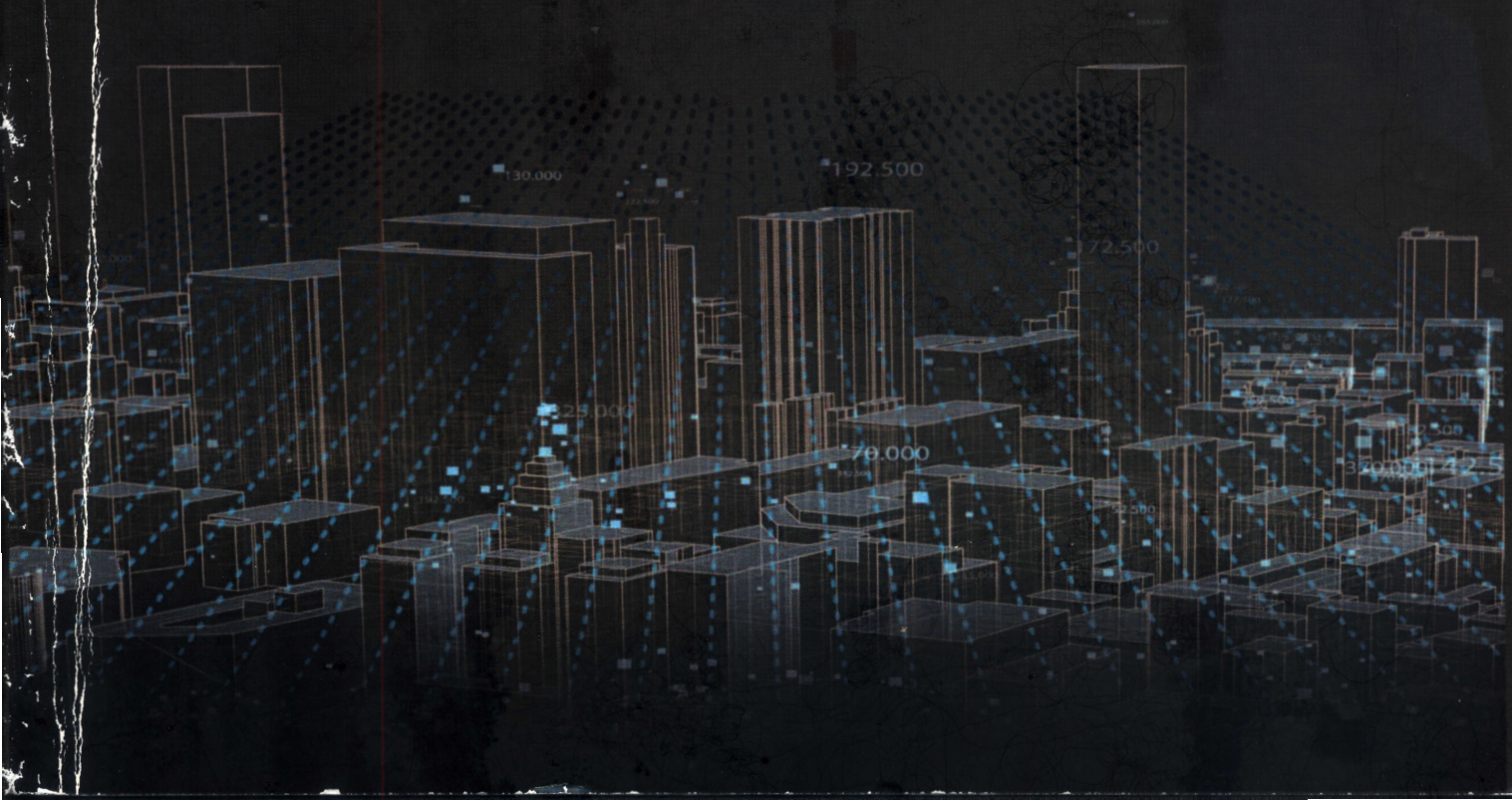
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PROCEEDING
PROPERTY TALK 2021
INDUSTRIAL REVOLUTION 4.0 IN MALAYSIAN PROPERTY



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Program of Estate Management
Department of Built Environment Studies and Technology
Faculty of Architecture, Planning and Surveying
Universiti Teknologi MARA, Perak Branch, Seri Iskandar.
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CONCEPTUAL MODEL OF VOLATILITY INDEX FOR ISLAMIC REAL ESTATE INVESTMENT TRUSTS (I-REITS)

Mohd Fariz Helmi Husain¹ and Muhammad Najib Razali²

^{1,2}Faculty of Built Environment and Surveying
UNIVERSITI TEKNOLOGI MALAYSIA

Abstract

This study will present the conceptual model of volatility index of the Islamic REITs (I-REITs which covers I-REITs in Malaysia. This is aimed to provide clear evident and perception for I-REITs as major investment option in property security market. The volatility index will be considering the major indicators of performance in portfolios' assets performance namely Sharpe Index, potential of diversification, portfolio optimisation, causality, volatility and spillovers. Research on Global I-REITs have not been significant yet. This is especially on the issue of volatility index due to the high integration of major portfolios assets market in recent years. This study attempts to fill the space in the picture of I-REITs markets by using a volatility technique. Islamic REITs has attracted other countries to start diversifying their businesses as well as optimizing their countries' investment opportunities

Keywords: Conceptual, Model, Volatility, I-REITs, Malaysia

1.0 INTRODUCTION

There is growing concern on the need to establish volatility index in Malaysian property portfolio market. This is due to the several financial and health crises in recent years such as Global Financial Crisis (GFC), oil price crisis, Eurozone crisis and several pandemics such as SARS, H1N1 and Covid-19. This indicates the concern over this issue has been growing significantly. Nevertheless, the efforts to establish systematic and dynamic volatility index for local property market are quite limited. This is especially in Islamic REITs where the factors of Shariah compliance need to be highlighted in establishing the volatility index for I-REITs. Volatility risk has played a major role in several financial disasters in previous crises events. However, in several countries, some investors are also able to make profit from the fluctuations in volatility. For instance in 2004, Chicago Options Exchange (CBOE) established volatility futures where it provides volatility options. Therefore, volatility index will able to serve underlying assets to volatility derivatives where it plays the same role in normal index market for options and futures. While research on traditional stock markets have exploded in recent decades, less attention has been paid to its Islamic counterpart, especially in terms of volatility transmission. Hakim and Rashidian (2005), for example, investigate the risk and return of the Dow Jones Islamic Market Index (DIJMI) and its traditional equivalent, the Wilshire 5000 Index (W5000). Muhammad (2002) examines the output of the KLSE Composite index, the KLSE Syariah index, and the RHBI index in Malaysia between 1992 and 2000.

In view of the aforementioned studies, there are mixed findings as to which variables have a major impact on Malaysian I-REITs' volatility. The majority of the studies discussed above relate to our interpretation of volatility's econometric characteristics. However, only a few have an economic rationale for stock return fluctuations and the underlying causes of the observed volatility. This research tries to close this gap by examining the efficacy of volatility impact variables in controlling both traditional and Islamic capital markets in Malaysia. Investors will be able to make decisions while using dynamic trading strategies if the volatility of the underlying stocks in the Malaysian I-REITs market could be correctly measured.

2.0 LITERATURE REVIEW

The performance of public market investment is unpredictable which is highly correlated with the external and internal factors. Real estate market is highly related to the financial market, thus financial market volatility will imply to the risk level in property securitised market. Market volatility is very important to policy makers. This is due that volatility level will give significant impacts to the condition of the market. Volatility is part of the macro prudential assessment of market performance. Volatility associated with unpredictability, uncertainty and has a significant impact on performance as well as variance risk, (Razali 2015). Investors will see volatility as a major indicator for market symptom disruption and condition of capital market. Wide range of studies have been conducted regarding dynamic of volatility in terms of market linkages, market integration and spillovers. For instance, Lee and Ward (2001), Devaney et al (2007), Liow (2007, Schindler et al (2010) and Liow (2012).

Dynamic of volatility occurs when changes in price volatility in one market or asset class produces a legal impact on volatility in other markets or asset classes over and above local effects (Milunovich and Thorp, 2006). The Asian real estate stock market volatility level has been examined by Liow and Sim (2006). Their findings demonstrate that Asian real estate stock experiences high volatility as compared to their counterpart in U.K. And US over the period 1990-2003. In recent study carried out by Liow (2012) on co- movements and correlations among Asian securitised real estate markets showed that high volatility for most of Asian market.

Volatility is the only input in an option pricing system that cannot be directly observed by the trader. The basic characteristics of an option contract are the call/put feature, time-to-maturity, and strike price, while the risk-free interest rate and dividend payment are relatively simple to agree upon. As a result, the predicted uncertainty over the option's existence is the uncertain input when calculating the option's price. One can solve for the volatility that equates the observed market price of the option contract with the price provided by the chosen option pricing formula in a market economy with actively traded option contracts that convey the market's view of the applicable prices for those contracts. The implied volatility is the product of this. The relevance of implied volatility as a reasonable forecast of future realised volatility and the knowledge quality of implied volatility vs. historical volatility are two relevant (related) research topics in the academic literature, owing to the growing significance of modelling and forecasting asset volatility in modern finance.

Most Shariah investment guidelines are clear on selection criteria (Derigs & Marzban, 2009; Arslan-Ayaydin et al.), but they are silent on weighting system selection. Derigs and Marzban (2009), for example, propose a new paradigm in which Shariah enforcement in a portfolio system should not be judged exclusively at the individual stock level, but also at the portfolio level. We contribute to this paradigm by presenting both theoretical and empirical arguments emphasising the importance of weighting system selection.

2.1 Volatility Index Model

The key message of this paper to Shariah-compliant investors is to think about equity weighting carefully. The religious scriptures in the Quran and Hadiths offer the Shariah-compliant investor a plenty of leeway to tailor the portfolio composition to meet the primary objectives while also achieving secondary goals. By looking at alternatives to market capitalization weighting, a Shariah-compliant equity investor

may get a better risk-adjusted return while avoiding the unfavourable effects of stock mispricing on the weights specified by market capitalisation.

The Shariah-compliance of a single stock is partly measured by the use of financial screens designed to weed out investments in stocks with a disproportionately high proportion of liquid assets, stocks with an excessively high income from interests, and companies whose operations are funded with a high degree of leverage. This state can be assessed not only at the firm level, but also at the portfolio level. If we have N companies, and the standardised measure of interest income at time t is denoted by $x_{i,t}$ (with $i=1, \dots, N$), then individual compliance can be checked by comparing $x_{i,t}$ to a threshold, while portfolio compliance can also be tested using the weighted average compliance which model has been established by Boudt et al., (2019) such as follows:

$$x_{t(w)} = \sum_{i=1}^N w_{i,t} x_{i,t}$$

With $w_{i,t}$ = portfolio weight
 t = time
 i = asset

In mean-variance optimization, Derigs and Marzban (2009) propose methods for integrating constraints on $x_t(w)$. Few Islamic funds, on the other hand, are mean-variance optimised. Instead, it takes an aggressive approach to weighting, stick to the conventional approach of market capitalisation-based weighting, or use smart beta portfolio weights like fundamental value, equivalent, or low risk. Only rule-based Shariah compliant REITs will be included in this paper. This comes at the cost of versatility, but it has the benefits of being systematic and free of behavioural biases.

The VIX index is determined by CBOE using a model-free estimator of implied volatility which as follows:

$$\sigma^2 = \frac{2}{T} \sum_i \left(i \frac{\Delta K_i}{K_i^2} e^{rt} Q(K_i) - \frac{1}{T} \left(\frac{F}{K_0} - 1 \right)^2 \right)$$

- T = Time to expiration
- F = Forward index level derived from the index option prices
- K_i = strike price of the i th out-of-the-money option.
- K_0 = first strike below the forward index level
- r = risk free rate
- $Q(K_i)$ = mid quote of the option strike K_i

3.0 CONCLUSIONS

In general, the I-REITs investment group is very transparent about the reasons for the stock exclusion criterion, but not so much about the method of volatility index. In this paper, the research focuses on Shariah-compliance that should be regarded not only at the asset level, but also at the portfolio level. It means that, even though a so-called Shariah compliant equity universe has been created using sector and financial screens, the Shariah-compliance objective can still lead to volatility index preferences. This paper investigates at the conceptual level that theoretical and empirical evidence that, volatility index is still able in terms of achieving Shariah investing's primary objectives as well as the secondary goal of maximising financial risk-adjusted efficiency. The literature has long documented the major effects of financial crises fluctuations on a number of markets. Although these relationships demonstrate the importance of researching financial shocks across all asset classes, I-REITs dynamics have never been thoroughly investigated. I-REITs occupy a unique

position in the industry in many ways, including their portfolios and management style. As a result, testing these asset classes separately is beneficial. This research establishes a new econometric model that accounts for smooth structural changes to evaluate causal relationships between different type of shocks and I-REIT, in addition to filling a void in the literature. There are many reasons why this research is important. While risk transmission information is useful for policymakers analysing systemic risk components of the real estate market, investors use both causal and risk transmission information when making portfolio decisions. Furthermore, our current methodological approach aids in modelling the "elusive" smooth systemic changes in causality, which has implications for a number of future studies.

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Tarikh : 20 Januari 2023

Prof. Madya Dr. Nur Hisham Ibrahim
Rektor
Universiti Teknologi MARA
Cawangan Perak



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Kelulusan daripada pihak tuan dalam perkara ini amat dihargai.

Sekian, terima kasih.

“BERKHIDMAT UNTUK NEGARA”

Saya yang menjalankan amanah,

SITI BASRIYAH SHAIK BAHARUDIN
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Setuju.

27.1.2023

PROF. MADYA DR. NUR HISHAM IBRAHIM
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