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Portfolio diversification benefits of Islamic investors with their major trading partners: Evidence from Malaysia based on MGARCH-DCC and wavelet approaches

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ABSTRACT

Previous studies have investigated the interdependence of Malaysian stock market with its major trading partners without taking into account the time-varying correlations and different investment horizons of the investors. The main objective of this paper is to make the initial attempt to study the extent to which the Malaysian Shari'ah (Islamic) investors can benefit from portfolio diversification with the Shari'ah indices of their major trading partners (China, Singapore, Japan, United States and Thailand). The relevant time-varying and timescale-dependent techniques such as, Multivariate GARCH-dynamic conditional correlation, the continuous wavelet transform and the maximal overlap discrete wavelet transform are applied. Findings tend to indicate that the Malaysian Shari'ah investors who make their investments with the major trading partners like China and Singapore may not reap great diversification benefits for almost all investment horizons but may reap moderate benefits arising from Thailand and Japan up to the investment horizons of 32–64 days and longer. The evidence further suggests that the portfolio diversification benefits are greater if the Malaysian Shari'ah investors invest in the US Shari'ah stock index excepting the long investment horizons. The stock holding periods exceeding 32 to 64 days contain minimal benefits of portfolio diversification. As a policy implication, the Malaysian Shari'ah investors should carry out the reassessment of their stock exposures and investment horizons more frequently in order to gain from portfolio diversification with their trading partners.

1. Introduction: motivation of the study

Stock indices highly thrive on information and the information revolution has transformed these markets world over. Investors are now able to keep track on a real time basis and can react to the flow of information around the world. The insulation of national economies towards global events no longer pertains or in other words, the repercussions of international events can actually influence the movement of shares and other investments (Menon et al., 2009).

Under this purview, the fast information transmission across stock markets of the world is facilitated by economic globalisation making investors prone to investing outside their countries as geographic diversification generates superior risk adjusted returns while capturing the higher rates of returns by these overseas markets (Khan, 2011).

From here, there is an aspect that concerns investors around the world and that is the integration happening among various stock markets by holding a diversified portfolio or securities with the goal to reduce one's exposure to risk (Khan, 2011).The increasing interdependency among the stock markets suggests that stock markets move together with high correlations and subsequently make it impossible for the investors to reap benefits of the cross borders diversification which can then be only maximised if the stock markets exhibit low correlations of price behaviour (Karim et al., 2009), confirming the international portfolio diversification theories. It is then essential for portfolio managers and investors to examine the dependencies among international stock markets. Another component that is of concern to investors and portfolio managers is the different investment horizons across the investment period whereby market returns are not only time varying but also dependent on time scales related to different investment horizons (Gencay et al., 2001).

A lot of events have taken place over the past two decades that have affected the global financial sector, which also had a substantial effect on portfolio investment activity. One of the major events happening in the financial world was the 1997 Asian Financial Crisis which was triggered by the distorted policies plus the market overreaction and herding that led to the plunge of exchange rates, asset prices and economic activity in the countries of the Asian region (Roubini et al., 1998). The most recent crisis which was the global financial crisis in 2008 actually indicated that the global financial system was far more interconnected than was previously recognised and the excessive risk taking that threatened the collapse of the financial system coming from the subprime mortgage crisis along with the existence of Ponzi borrowers (Mishkin, 2011).

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Looking at a predominant Muslim nation, specifically the South East Asian nation of Malaysia, Malaysia has strong trade connections with other countries, firstly China, followed by Singapore Japan, the United States of America and then Thailand (Department of Statistics, Malaysia, 2013) which then translates to Malaysia's top 5 trading partners. In December of 2013, there was a slight decrease in the Malaysian trade surplus from MYR 9.7 billion to MYR 9.47 billion in November. Yet, compared with the same month last year, the surplus widened from MYR 8.46 billion, as exports rose to 14.4%. Exports were also seen to amount to MYR 65.7 billion in the last month of 2013 which indicated a 5.6% rise over November and a 14.4% surge over a year earlier. (Trading Economics, 2014). It is also important to examine the level of correlation of the Malaysian stock market particularly the Shari'ah stock market with the stock markets of its trading partners which would have an implication for the shariah investors in terms of international portfolio diversification since Malaysia itself is a predominantly Muslim country.

With respect to Malaysia again, Malaysia has launched its first public Islamic index known as the KLCI Shariah index in April 17, 1999 (Hussin et al., 2012) to facilitate participation in equity investments that are compatible with the Islamic principles and a benchmark is provided for investors who seek to make investments based on shari'ah principles and helps them make better informed decisions.

Shariah Advisory Council under the Securities Commission of Malaysia was also established to enhance the development of Islamic capital markets. It was reported by the Securities Commission in 2008 that there were over 85% of total listed Islamic equity companies in Malaysia. Sooner or later after that, there was a cooperation arrangement between Bursa Malaysia and the FTSE which led to the introduction of a new series of tradable equity called the FTSE Bursa Malaysia Shari'ah Index (which will be the focus of our study later on).

A screening process has to take place based on qualitative and quantitative parameters during the selection of shari'ah compliant companies. Under such qualitative criteria, a standard criterion is applied by the SAC in emphasising the activities of the companies listed on Bursa Malaysia in which activities that do not contradict the shariah principles will be categorised as shari'ah compliant securities while on the other hand, if the activities of companies are based on core activities such as; financial services based on riba (interest); gambling, manufacture or sale of non-halal products, conventional insurance, entertainment activities that are not permissible according to shari'ah, manufacture or sale of tobacco based products, stockbroking or share trading in shari'ah non-compliant securities and other activities that are deemed non-permissible according to shari'ah.

Quantitative parameters are then implemented to determine the tolerable level of the mixed contributions from permissible and non-permissible activities toward the turnover and profit before tax of the company. If the benchmark is exceeded by the contributions from non-permissible activities, then the securities of the company will be classified as *Shari'ah* non-compliant (Hussin et al., 2012).

Given the Islamic finance industry which is currently estimated to be worth about UD$1trilllion and having grown at an annual rate of about 14% during the last 15 years (Sarif, 2011), it is worthwhile to study the correlations of returns among shariah indices together with observing it at different time intervals to provide an idea of riskiness and potential portfolio diversification benefits for Islamic investors. From here, this study intends to attempt to study the aspects of diversification of the Malaysian shariah index returns with the markets of its trading partners by considering correlations of the FTSE Bursa Malaysia EMAS Shari'ah index returns with the MSCI Islamic China index returns. MSCI Islamic Thailand index returns, MSCI Islamic Singapore index returns, FTSE Shari'ah USA index returns and FTSE Shari'ah Japan index returns. The sample period of this study contains daily data covering more than six years starting from 26th November 2007.

The structure of this paper includes nine sections which are organised as follows. This current section explains the introduction together with the issues motivating the study, Section 2 discusses the main objective of this paper followed by Section 3 that gives an overview of the theoretical framework related to the issues in this paper and then Section 4 that reviews the related previous empirical literature. Section 5 elaborates on the methodology applied while Section 6 discusses the empirical findings and interprets the results. Sections 7 and 8 give a summary of the paper and discuss the policy implications that can be derived from the results, respectively. Lastly, Section 9 talks about the limitations of the study and suggestions for further research.

2. Main objective of study

The main objective of this paper is to study the extent to which the Malaysian shariah investors particularly in FTSE Shari'ah Bursa EMAS index market benefit from portfolio diversification with the shari'ah indices of their major trading partners (China, Singapore, Japan, United States and Thailand) by examining the volatility of and correlations between their market returns. This study has also a major aim to study the correlations with respect to different investment horizons or stock-holding periods of the investors.

Overall, this paper intends to contribute by filling the gap by extending from the previous literature regarding diversification benefits between conventional Malaysia stock market with its major trading partners which used time series techniques of cointegration that does not reflect the recent econometric methodology. Extension is done by including shari'ah stock index returns of Malaysia and its major trading partners and applying the recent research methodologies such as the Multivariate-GARCH DCC to see which major trading partner should Malaysian shari'ah investors invest in and together with continuous wavelet transform and maximal overlapping discrete wavelet transform that aim to fulfil the objective to unravel the international portfolio diversification benefits given different investment horizons or stock holding periods (e.g. 2–4 days, 408 days, 8–16 days, and 16–32 days. Through this study of volatilities of and correlations between the index returns of Malaysian shari'ah stock index and the shari'ah indices of its major trading partners plus observing correlations at different investment horizons, it would be useful for the policy makers in Malaysia in that if the shari'ah stock index of Malaysia is found to be strongly correlated with its major trading partners, then there is a danger that one market may spill over to other markets and thus, calls for stronger cooperation among the authorities of these countries (Ali et al., 2011). As an additional input, we also tested the M-GARCH DCC framework to see whether the dynamic parameters for volatility were mean reverting or not.

In short, the study intends to fulfil the needs of Malaysian shari'ah investors who want to diversify their portfolios with respect to the major trading partners of Malaysia considering both the time-varying and time-scale dependency of stock returns hitherto ignored.

3. Theoretical framework

The main underlying theory of this study is the Markowitz's Modern Portfolio Theory which suggests that a hypothesis that expected a return on a portfolio for a given amount of portfolio risk is likely to be maximized or alternately the risk on a given level of expected return is expected to be minimized by choosing the quantities of various securities cautiously taking mainly into consideration the way in which the price of each security changes in comparison with that of every other security in the portfolio, rather than selecting securities individually.

According to this theory, each security has its own particular risk and that a portfolio of diverse securities with less or negative correlation to each other shall be of lower risk than the weighted average of the risks of the individual securities.

The main outcome of the Portfolio Theory is that the risk weight of a portfolio shall be less than the average risk weights of the securities it contains resulting optimum diversification. The theory uses standard