

*Full Length Research Paper*

# **Volatility analysis of FTSE Bursa Malaysia: Study of the problems of Islamic stock market speculation in the period 2007 to 2010**

**Nurhanani Romli\*, Ahmad Azam Sulaiman Mohamad and Mohd Faiz Mohamed Yusof**

Department of Syariah and Economics, Academy of Islamic Studies, University of Malaya, Malaysia.

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**The economic recession that hit the world in 2007 to 2009 had a direct impact on the Islamic capital market in Malaysia. The data from the year 2007 to 2010 have shown that the Islamic stock market index has a higher volatility than conventional indexes, and this is what makes the return rate of Shariah index becomes unstable. The main aim of this study was to examine the volatility in the Islamic stock market. The instability of the market volatility returns may attract investors who prefer a risk stock market, because this market has the potential to provide a high return rate. On the other hand, the situation is to encourage Muslim investors that it is their duty to ignore speculation and invest, because rapid withdrawal from the markets will not be beneficial to many and may affect the goals to enhance Muslims' economy.**

**Key word:** Islamic capital market, Muslim investors, economic recession, Malaysia.

## **INTRODUCTION**

Islamic capital market has experienced significant growth in the number of product launches, fund size, and number of participants since the introduction of the listed securities by the Syariah Advisory Council (SAC) of the Securities Commission. In 2003, three unit trust funds was introduced and the industry now has more than 50 Islamic unit trust funds, representing 25% of the total funds in the country. Islamic equity index, known as Shariah Index Kuala Lumpur Stock Exchange (KLSE) was introduced in April 1999 to facilitate the investors to track and benchmark the performance of Syariah-approved securities. In 2010, Securities Commission Malaysia has been classified a total of 846 Shariah-compliant or 88% of Shariah-compliant stocks on Bursa Malaysia and is encouraging or showed an increase in the growth of Islamic capital market in Malaysia Utusan (2009).

On 22 January 2007, Bursa Malaysia launched the

FTSE Bursa Malaysia EMAS Shariah index and the index has become a catalyst to enlarge Shariah-compliant equity market. This index has been regulated by the Syariah Advisory Council of Securities Commission and all shares must be traded through the the Shariah screening process. On 21<sup>st</sup> May 2007 Bursa Malaysia has launched the FTSE Bursa Malaysia Hijrah Shariah index for international Islamic investors (Sadeghi, 2008). All shares must be through a rigorous screening process before grouped under this index. The development indices of the more promising Shariah in Malaysia has given a good impact and image of the Islamic capital market leading to the capital market in Malaysia.

### **Strength in use of FTSE Bursa Malaysia**

1. Kuala Lumpur Composite Index (KLCI) is now known as the FTSE BSKL and this may give a recognition to the stock market in Malaysia at a global level.
2. Barometers used in the stock market is more accurate to measure the true state of the stock market in Malaysia.
3. FTSE Bursa Malaysia index calculation methodology

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\*Corresponding author. E-mail: [nur\\_fini86@yahoo.com](mailto:nur_fini86@yahoo.com). Tel. No: 603 7967 6006. Fax. No: 603 7967 6147.

emphasizes a clearer and more genuine process of refining.

4. Through the accumulation of shares in 30, making the stock easy to managed and its performance is also better growth potential.

5. Increasing the measurement frequency of every 60 seconds to every 15 s and this makes the actual market situation may be seen more.

6. Continuity of the KLCI index is a method appropriate to the historical development of the Malaysian stock market index.

In conclusion, cooperation between Bursa Malaysia and FTSE anticipate to give a good impact on the stock market in Malaysia.

## LITERATURE REVIEW

Syarifah et al. (2005), in their article also discussed the importance of the Islamic capital market as well as the processes carried out before a stock be a Syariah-compliant stocks. Syariah Advisory Council plays an important role to assure that all counters will be listed as an Islamic counter through established procedures to avoid problems of Muslim investors.

Although, the stock market index was seen as a platform to reach profitability, but Shariah law should not be ignored. Syibly (2007), have been discussed in detail about the law involved in the stock market. to speculate the market they are involved, then that market is considered to be illegal according to Islamic law because it contains some element of *gharar*, but if intended for investment purposes, it will be required for that purpose. In this article, the author emphasizes the stock market from the viewpoint of Shariah. Studies conducted in other ASEAN countries like Singapore also indicated that the stock market index is influenced by economic indicator. Maysami et al.(2004), found that the Singapore stock market and property indices show cointegration relationship with changes in short-term interest rates and long term as well as with industrial production, prices, currency exchange rates and money distribution. The model used is the arbitrage pricing theory (APT).

Mansor and Nazihah (2009) examined the relationship between stock prices and economic variables selected in Malaysia, Korea, Thailand, Hong Kong, Japan and Australia. The selected economic variables are foreign exchange rates, inflation and consumer price indices of industrial production. Data were used from 1993 to 2002. Based on the findings, they concluded that Japan, Korea, Hong Kong and Australia have a long-term equilibrium with variable-selected economic variables. Other countries like Hong Kong was significant related to the equilibrium stock prices and exchange rates. In this study, it was also proved that the policy of a country also influences the equilibrium line.

Basic economic theory states the higher the risk of a stock market index, the higher the returns on stock indices. Albaity and Ahm (2008) discussed the risk and return performance of the Kuala Lumpur Shariah Index (KLSI) and the KLCI. The study was conducted around the year 1995 to 2005 and focuses on the overall KLCI and KLSI without diversification index in detail or make comparisons. These studies have shown that KLSI has good potential to be used as an option for investors to make investment in shares.

Price volatility in the stock market has always been a major issue before the investors decided to buy a unit of shares offered. Muzafar (1998) in his article review whether price volatility exist in the stock market and if it is seasonal, and stock price series in the study based on the Kuala Lumpur Stock Exchange (KLSE) for the period 1978:1 to 1992:3. The results of these studies found that the seasonal cointegration tests suggest that stock price indices by sector in the KLSE is not cointegrated seasonal and this explains that the price volatility in the stock market may not be associated with any season.

In the past, the conventional market index is the option that exists in the market. After the Islamic stock market index is introduced, the item has a big impact on the development of current stock market index. For example, Sadeghi (2008) indicate that, the market is composed of two periods, the effect of long-term and short-term impact. According to the study, in the short term, investors can experience a slight annoyance to the Shariah indices to see its potential. Nevertheless, in the longer term, the index of Shariah will be able to attract more Muslim investors who want the Islamic Syariah investments.

After the introduction of Islamic Stock Market Indexes, Yahya (2003) have discussed the relationship between macroeconomic variable and changes in market prices of conventional and Islamic. In the article, the author has discussed in detail in connection with the macroeconomic variable and how it effect the volatility of stock market prices and compare the share of Islamic and conventional. In conclusion, the study found that macroeconomic variables effect the price volatility of the stock market in Malaysia.

Malaysian stock market volatility may be tested in variety of ways to suit a review. Zaidi (2000), have tested the behavior of volatility of stock returns using a sample of 87 companies of the KLSE composite index components in the period of January 1992 to June 1999. He found in his study that the level of continuous volatility is high in the stock market in Malaysia and asymmetrical relationship exists in some particular company. The study also found that the variation of the decision depends on the timing, kind of and size of the firm. Overall market volatility is high in Malaysia and the state depends on the kind of firm.

The development of Islamic capital market more rewarding to give a positive impact as a platform for

Islamic investors to invest. Ahmad (2005) has studied the relationship between Shariah index, index of gold and the national treasury bills. In this study, cointegration analysis is used to assess the diversity of investments between the stock market was applied in assessing whether the rate of return in the Islamic index, index of gold and treasury bills, give effect to the share of investment choices. Johansen cointegration tests and vector error correction model was used to analyze the relationship between the three items. In Overall, the study finds that in the short term, the gold index and the Islamic index has a significant relationship, while in the long run, the three variables have a significant relationship. The study also finds that the screening process conducted by the Shariah Advisory Council does not give negative affect for growth in the stock market index.

## METHODOLOGY

### Risk and return

Calum et al. (1988) indicated two kind risks in the stock market. The first kind is non systematic risk and the second is systematic risk. Non systematic risk may be defined as the risk that is out of control and may not be reduced through changes in the portfolio as market conditions affect the economy of movement and the economic crisis. Systematic risk is the risk that may be solved by increasing the size of the change in the portfolio and good management and efficiency.

Return on investment portfolio at a given time period is equal to the change in portfolio value combined with whatever the returns of the portfolio has as dividends or interest rates. Returns on the portfolio over a period of time is:

$$R_t = \ln\left(\frac{P_t}{P_{t-1}}\right)$$

Were  $R_t$ , stock market returns in the  $t$ ;  $P_t$ , price at the  $t$  time;  $P_{t-1}$ , price at the  $t - 1$  time.

### Capital market line (CML)

Don (2007) states that, the equation of the capital market means the investors will benefit from the use of indifference in the principal and the premium paid for a portfolio. This theory is appropriate for an efficient market and investors active in the market based on market movements or the portfolio itself.

$$E(R_p) = R_f + \sigma_p \left[ \frac{E(R_m) - R_f}{\sigma_m} \right]$$

Were  $R_p$ , return on portfolio;  $R_f$ , return on risk-free asset;  $R_m$ , return on market portfolio;  $\sigma_p$ , standard deviation of portfolio returns;  $\sigma_m$ , standard deviation of portfolio returns on the market.

The model is to analyze the relationship between portfolio risk and profitability estimated by the investor. By using this model, investors may, predict the rate of profit and risk to be faced when trading in the portfolio.

### Heteroskedasticity test (ARCH test)

This test is conducted to test whether there is a problem of heteroskedasticity or not in the data. Through this test, a data can be identified whether there is a problem heteroskedasticity or not. Heteroskedasticity problem occurs when the variance of each error is changing from one time to another time. Through this test, the residual resulting from the vector error correction model (VECM) can be identified whether there is a problems of heteroskedasticity or heteroskedasticity. To estimate the market model, all regression analysis data made before, can be used to analyze the state of capital markets at that time. Bollerslev (1987), Nelson (1991), Glisten et al. (1993), Bera and Higgins (1993) and Bollerslev et al. (1994) In their study show that ARCH models have a significant high rate of sample. Estimation model to see returns in the market, used in this study is as follow:

$$R_{it} = \alpha_i + \beta_i Rm_t + \epsilon_{it}$$

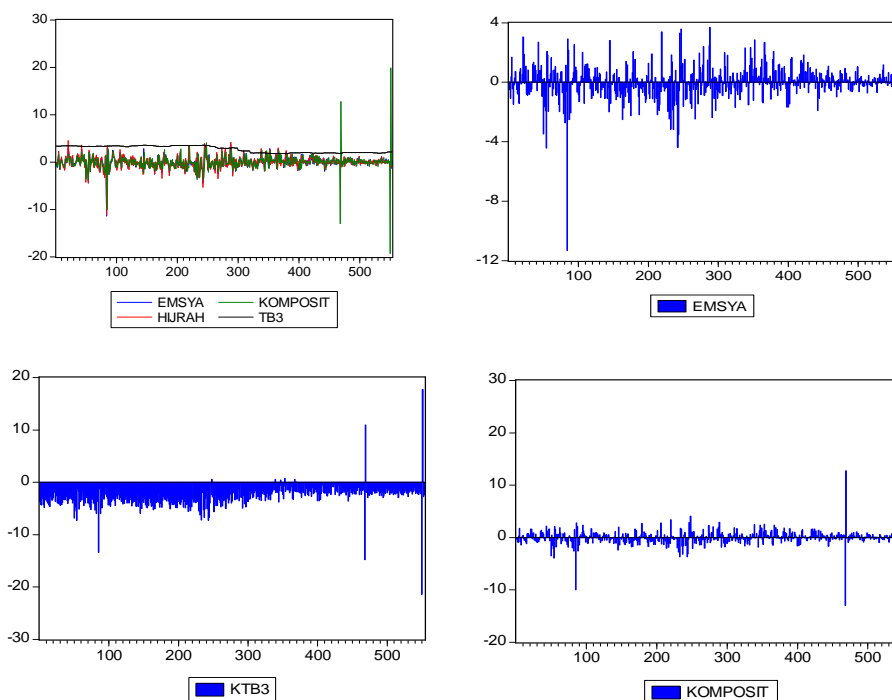
Were  $R_{it}$ , return on the index indicates the meaning of Shariah in the period  $t$ ;  $\beta_i Rm_t$ , value (a composite index of the National treasury bills);  $\alpha_i$ ,  $\beta_i$ , alpha values or the estimated parameters;  $\epsilon_{it}$ , error.

## RESULTS DESCRIPTIVE

The diagram Figure 1 represents the volatility of the stock market index from November 2007 to January 2010. This period was used as starting (November 2007) because at that time the index of Shariah is not use and is replaced by the FTSE Bursa Malaysia Hijrah Index. Based on Table 1, it appears that the time series data exhibit volatility clustering showing the variance is not constant, or in other terms the the variance varies over time. Based on the diagram above, the volatility of the stock may be said to be volatile near or in other words volatility Emas Shariah index, the composite index, the Hirjah Index and treasury bills may be said to be almost the same level. As shown in Table 1, the economic recession that swept the world in 2008 also have an impact on the stock market in Malaysia because of the overall figure appears to affect volatility of the stock market.

Based on Table 2, the highest average return is the FTSE-BM Hijrah index to an average of -0.0283, while the lowest average return is the FTSE-BM composite index is -0.418. For the analysis of skewness, it was found that all three indices have negative values and skewness in this data, which infer that all three indices are towards the left. Kurtosis analysis also found that the three indices has a distribution peak that is higher than the normal distribution, for the three indices have a value in excess of 3. Value distribution of the highest peak is a FTSE-BM composite index of the 66.8694 and the lowest peak value was the FTSE-BM Hijrah index of 8.0809. In conclusion, the data were not in normal distribution.

As shown in Figure 1, the standard deviation of the index is in a state similar to each other. This means that the data does not vary much or in other words the



**Figure 1.** Descriptive analysis volatility of stock market index November 2007 to January 2010. EMSYA, FTSE Bursa Malaysia Emas Shariah index; COMPOSITE, FTSE Bursa Malaysia composite index; HIJRAH, FTSE Bursa Malaysia Hijrah index; TB3, return on the market (the composite index - National treasury bills).

**Table 1.** Comparative analysis of screening methods.

Matter	DJIM	FTSE	SACSC
Debt	33% from capital market	33% of the total assets	Not included in the assessment
Fees receivable	33% from capital market	45% of the total assets	Not included in the assessment
Cash	33% from capital market	33% of the total assets	Not included in the assessment
Interest rates accepted	5% of total revenue	5% of total revenue	5% of total revenue
Public opinion	Not included in the assessment	Not included in the assessment	Considered

Source: Bursa Malaysia 2009.

**Table 2.** Data analysis.

Variables	Average	Standard deviation	Skewness	Kurtosis	Jarque-Bera
FTSE-BM Emas Syariah index	- 0.0283	1.1584	- 1.7096	19.8745	6830.448*
FTSE-BM Hijrah index	- 0.0077	1.008	- 0.2617	8.0809	601.1530*
FTSE-BM Composite index	- 0.0418	0.9827	-5.5834	66.8694	96867.11*
The rate of market risk	-2.7481	1.9858	0.2851	43.2799	37391.89*

\*significant at 1%.

difference between each other is small. The smallest standard deviation is 0.9827 for the FTSE-BM composite

Index, while the highest variation in the data is 1.1584 for the FTSE-BM Shariah index.

Next, the Jarque-Bera analysis was conducted to test whether the data are normally distributed or not. Based on Figure 1, all data were scattered with random data because the value is significant at 1% significance level. If analyzed from the perspective of the overall market through the capital asset pricing model (CAPM) is used, the risk of possible values for the data is -2.7481 and the standard deviation is 1.9858, which show the diversity of the variance in the data. The skewness value indicates that the stock market in Malaysia have increasing returns and all the data were not normally distributed.

To test the existence of the volatility index on the Bursa Malaysia stock market, estimation test GARCH (1,1) was used in which the test results are shown in the diagram above.

Through these tests, if the value of  $\alpha + \beta$  is approaching 1 or more than 1, the frequency of the stock is volatile. Based on Table 3, the value of  $\alpha + \beta$  for the FTSE-BM Emas Syariah index has the highest volatility level of 1.0216, while the composite index recorded the lowest volatility between the three indices of -0.0654, and this means that Islamic indexes have volatility levels higher than the composite index. Value of composite index shows a very low volatility, and this shows that the composite index are not active at the time of the global financial crisis problems during 2007 to 2010.

Aulia and Farid (2006) in their study also said that the returns on Shariah index is higher than the conventional index returns in the event of the crisis. However, Albaity and Ahmad (2008) explains that in the long run, the index for Shariah and Shariah indices have no significant relationship each other because they use different indicators in measuring them.

Dharani and Patarajan (2011) in a study in India, shows that the Shariah indices showed poor performance compared to conventional index and this may be due to lack of the number of Muslims in the country and non-Muslim investors more interested in the conventional stock market. This show the role of muslim investors to protect the Islamic stock market. Sanep and Zamzuri (2003) also made a comparative study between Shariah index and the composite index and the results indicate that the Shariah index is more volatile than the composite index. However, when they are in stable economic conditions both indices did not show significant differences compared to when they are in economic crisis which indicates the composite index is not very active.

The above results are in line with a study conducted by Sufyan et al. (2004), which also made comparison between the Shariah and the composite index. The study compares the volatility of the composite index before and after the introduction of Shariah indices. According to the study, obtained after the introduction of Shariah index, composite index volatility has decreased compared to the Shariah indices. This condition may be caused by many Islamic investors who are interested in investing on Shariah index, but they are not yet fully convinced of the

index, and because they are not interested in investing in long-term but would rather prefer to remain within the short-term which has caused a high volatility among many internal and external investors who wishes to quit.

Based on the above analysis, it was found that the Shariah indices are still active despite the global financial crisis at the time. Bakri et al. (2010) in their study explained that the shariah index is not affected by the global financial crisis compared to the conventional index, because the index Shariah is protected from the elements of interest rates, gambling and gharar. Even though, the market conditions faced with the global economic crisis, there is still Islamic ethical investors who are not involved in market speculation and investing in Shariah index for the term in the long term.

The value of  $R^2$  in this analysis is positive for all indices tested. According to Yahya (2003), all these values are ignored because they is not in the absence of mediators regressor in the terms mean and variance estimation. According to the study of Andersen and Bollerslev (1998)  $R^2$  value of daily stock data are normally low but still significant. Blair et al. (2001) also obtained low values for  $R^2$  because  $R^2$  values are typically used to analyze data to make predictions, but for daily stock data, a common value is difficult to predict.

Jarque-Bera test was performed to analyze the data distribution. According to tests carried out, it was founds that these three indices is significant at 5%, and this means that, all three indexes may be influenced by something else such as the current economic situation. In normal circumstances, the economic data is something that is unpredictable and makes this data not normal. Economic data are influenced by macroeconomic conditions of a country Mahdhir et al. (2002).

Based on table 4, the ARCH tests that were conducted, all the indices that were tested did not have a heterokedastisity problem because the null hypothesis failed and was rejected; since the null hypothesis failed and was rejected, all data may be used as an index of policy development purposes.

## Conclusion

In conclusion, the return of the FTSE-BM Hijrah index is more volatile than the composite index and it is considered as an option for investors interested in high-risk market. Nevertheless, the Islamic stock market is not stable against conventional, that is not a reason for Islamic investors to engage in unfounded speculation or investment in a conventional index. Support from Muslim investors is important to further develop Islamic stock market. It is our duty as Muslims to promote the Islamic capital market to ensure that Islamic investors would not be involved with the conventional market containing various elements that are not allowed in Islam as gharar and maisir.

**Table 3.** Estimation results.

Variable	C	ARCH( $\alpha$ )	GARCH( $\beta$ )	$\alpha + \beta$	R <sup>2</sup>
FTSE-BM Emas Syariah index	0.0101	0.1625	0.8590	1.0216	0.0004
FTSE-BM Hijrah index	0.0028	0.0847	0.9223	1.007	0.0006
FTSE-BM Komposit index	2.3804	0.1116	-0.5328	0.0654	0.0022

**Table 4.** Diagnostic test results.

Variable	Emas syariah Index	Hijrah index	Composite index
Jarque- Bera	6830.448*	601.1530*	96867.11*
LM Test (Statistik F)	0.2249	0.3154	1.3467

Significant at 5%.

It is the duty of Muslims investors to prevent themselves from getting involved with speculation that are not connect with studies of the Islamic market. Shariah index should serve as a platform for investors to help companies that traded their stocks to get money. Speculative money, or investing in a short period, will not give the benefit to develop proper stock market. For a stock that has a high rate of volatility, stock selection is based on the extent to which investors dare to bear the risk because of the higher returns of a stock, the greater the risk. Nevertheless, as Muslim investors, we must support Shariah-compliant stocks and there are many ways that may be used to minimize the risk as a use of portfolio diversification Abu et al (2004).

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