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Strong Correlations of Sharia Market to Conventional Market:
Evidence from Indonesia Stock Exchange

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Abstract

Significant differences between Islamic Economic System and Conventional Economic System should generate differences between sharia market and conventional market. Conventional market clearly is influenced by interest rate and speculation that is normal in Conventional Economic System. But, interest rate and speculation are prohibited in Islamic Economic System. Sharia market should be free of interest rate and speculation. In fact, by bivariate and multivariate analysis, financial market indicates that there are strong correlations between sharia market and conventional market. This fact is based on research on Indonesia Stock Exchange data from December 2006 to November 2016 (ten years). Sharia market is represented by Jakarta Islamic Index (JII) and Indonesia Sharia Stock Index (ISSI). Both of them have strong and positive correlation with Jakarta Stock Exchange (JSX) Composite Index or with Jakarta Stock Exchange Liquid (LQ45) Index. Jakarta Composite Index and LQ45 are classified as conventional market. These conditions indicate that sharia market goes together with conventional market in the same character. Is sharia market inconsistent with its sharia principles? Why sharia market is not running on the track?

Keywords:

sharia market, conventional market, bivariate and multivariate analysis, coefficient of correlation, coefficient of determination

1. Introduction

The resurgence of Islamic Economic System occured inside Conventional Economic System domination.Conventional economics, which dominates modern economic thinking, is now a well-developed and sophisticated discipline having gone through a long and rigorous process of development lasting more than a century. Economics with an Islamic perspective, which is now referred to as Islamic Economics, has, however, only enjoyed its resurgence over the last three to four decades and this after a deep slumber lasting several centuries(Chapra, 2000, pp. 1-2).

Conventional economic system – that is based on Conventional Economics – produces financial intermediary institutions. These institutions consist of depository institutions (such as commercial or savings banks) and nondepository institutions (such as capital market, insurance companies, pension funds)(Samuelson & Nordhaus, 2002, p. 764). Almost these institutions are duplicated by Islamic Economic System.

Islamic Economic System has significant differences with Conventional Economic System. Khursid Ahmad in his description about Conventional Economics said that the current paradigm of economics has two dominant characteristics. Firstly, economics developed as an integrated discipline, around the nucleus of self-interest, private enterprise, market mechanism and profit motive, making a heroic effort to resolve all economic problems within this self-contained matrix. Secondly, this paradigm virtually delinked economics from all transcendental moorings and the concern of ethics, religion and moral values. The new approach was out and out secular, this-wordly, positivistic and pragmatic. Normative consideration were either systematically excluded or so marginalized that their relevance became problematic, at least as far as mainstream economics concern(Chapra, 2000, pp. xi-xii).

In line with Khursid Ahmad, Chapra devides Conventional Economics in two different sets of goals: positive and normative.The fulfillment of one goal will sacrifice other goal. Positive goal relates to the realization of 'efficiency' and 'equity' in the allocation and distribution of scarce resources. Normative goal is expressed in terms of the universally-desired socio-economic goals of need-fulfilment, full employment, optimum rate of economic growth, equitable distribution of income and wealth, economic stability, and ecological balance, all of which, in addition to social harmony and the absence of anomie are, in varying degrees, considered indispensable for actualizing human well-being(Chapra, 2000, pp. 17-18).This Conventional Economics characteristic by Samuelson and Nordhaus is written as positive economics versus normative economics (Samuelson & Nordhaus, 2002, pp. 7-8).

Meanwhile, Islamic Economic System is based on Islamic Economics that must obey the principles of sharia.Muljawan writes particular character of sharia principles in these brief explanation letters. The sharia principles characterizing the economic system that are considered unique as compared to the mainstream one are as follows. First, sharia emphasizes ethical investment, such as all transactions are used to facilitate activities which are considered *halal* and high supporting moral values. Second, sharia prohibits of taking usury (*riba* or interest) and fulfils in paying zakat. Third, sharia prohibits of conducting speculative activities and transactions. Beside those features, sharia principles also promote other values which are in line with the universal perception towards having a safe and sound financial system. The implementation of *Siddīq* (honesty), *fatānah* (professionalism and competence), *amānah*(responsibility) and *tabligh* (openness and education) are in accordance with the international practices towards the implementation of good corporate governance and minimum level of transparency. In short, sharia economics and finance also promote professionalism, competence and good corporate governance universally besides ethical contents which is typical to the sharia finance(Muljawan, 2005).

The description of Conventional Economics above thatdelinked economics from all transcendental moorings and the concern of ethics, religion and moral values, makes all products of Conventional Economics System are influenced and familiar to interest rate, speculation, and other activities that are prohibited in Islamic Economic System.These conditions make significant differences between Islamic Economic System and Conventional Economic System that generate differences between sharia market and conventional market.

The differences between sharia market and conventional market should take place in the Indonesia Stock Exchange (IDX) as well.Indonesia as the biggest Muslim country in the world is holds an enormous market for the development of sharia finance industry. Sharia Investment in capital market, which is part of the Sharia finance industry, has an important role in increasing the market share of Sharia finance industry in Indonesia.

The Milestones of the development of sharia capital market in Indonesia was started on July 3rd, 2000 by the issuance of Jakarta Islamic Index (JII) at IDX. Then, IDX launched Indonesia Sharia Stock Index (ISSI) on May 12, 2011. Not only sharia stocks, sharia market at IDXalso consists of various types of securities besides Sharia Stocks such as Sukuk and Sharia Mutual Fund(Indonesia Stock Exchange (IDX), 2010).

Conventional market at IDX consists of stocks and various types of securities. Conventional stocks listed such as on Jakarta Stock Exchange (JSX) Composite Indexand Jakarta Stock Exchange Liquid (LQ45) Index.JSX Composite Index was started on April 1st 1983 and LQ45 was started on February 1997.

The differences between sharia market and conventional market will be examinedusing bivariate and multivariate analysis. In this research, JII and ISSI represent sharia market, JSX Composite and LQ45 represent conventional market.

By the examination of the differences, the behavior of sharia market will be answered. If sharia market is not running on the track, there will logical reasons to answer these questions, there will effective solutions.

2. Literature Review

Research related to comparison between sharia market and conventional market, volatility of sharia market, and interdependence among international sharia market, has been conducted by researchers among others:Hakim, Rashidian,Hussein,Achsani, Effendi, Abidin, Aziz, Kurniawan, Chapakia, Sanrego, Saiti, Reddy, Fu, El Khamlichi, Medhioub, and Sclip. Some of the results of their research are mutual support, but others are opposite.

The research by Hakim and Rashidian examines the performance comparison between Islamic Stock listed on the Dow Jones Islamic Market Index (DJIMI) and conventional stock listed on the Dow Jones Wilshire (DJW) 5000 index. This research used Cointegration Analysis and Multivariate Autoregressive Model. The results are that investors in the DJIMI have been relatively more immune from the turmoil in the equity markets; DJIMI and DJW5000 are not cointegrated each other; and they are independent from each other(Hakim & Rashidian, 2004).

Meanwhile, Hussein examines the impact of the ethical screening on the performance ofThe Financial Times and The London Stock Exchange (FTSE) Global Islamic Index and Dow JonesIslamic Market Index (DJIMI). He examines whether returnsearned by investorswho purchases shares in the FTSE GlobalIslamic and DJIMindices are significantlydifferent from their indices counterparts, bothin the shortrunand long-run. His hypothesis is that ethical screening may cause additional screening andmonitoring costs, availability ofa smaller investment universe, and restrictedpotential for diversification. In particular, ethical screening tends to eliminate large firms from the investment

universe and as a result remaining firms tend to be smaller and have more volatile returns. In fact, hisfindings indicate that the application of screens does not have an adverse impact on the Islamic indices performance. In general, his findings reject the assumption that Sharia investing offer inferior investment performance compared to unscreened portfolios(Hussein, 2005).

Achsani, Effendi, and Abidin compared Islamic Indices from DJIMI of US, DJIMI of Canada, DJIMI of UK, DJIMI of Japan, DJIMI Asia Pacific, JII Indonesia, andKuala Lumpur Syariah Index (KLSI) Malaysia. They used the method of correlation analysis, Granger causality model, and vector autoregressive. The results are that there is strong correlation among Islamic Indices; the relations are stronger for closer sharia market; but the relations are asymmetric each other(Achsani, Effendi, & Abidin, 2007).

The research by Aziz and Kurniawan undertakes an empirical examination of The Kuala Lumpur Sharia Index (KLSI) and Jakarta Islamic Index (JII). They analize both indexes by presenting descriptive statistic, testing the stochastic properties of the series by using unit root test, and conducting the GARCH in order to measure the volatility. Their research results are that these stocks are never really free from market dynamic. The volatility of indexes are depended on the players. As long as the players in the market are in quantity and do not have the Islamic paradigm, the sharia index is just an index, which can only give them profit or lost(Aziz & Kurniawan, 2007).

Chapakia and Sanrego investigate empirically the risk and return of the Islamic stock market by using several econometric methodologies such as the unit root test, the cointegration test, and the Vector Error Correlating Model (VECM). They examine the dynamic correlation and long-term relatitionships among the composite index (Kuala Lumpur Stock Exchange Composite Index (KLSE CI)), the sharia index (KLSE Sharia Index), and the monthly three month Treasury bill (Tbill) rates. The results of Chapakia and Sanrego research are different from Hakim and Rashidian. Chapakia and Sanrego find that there are high dynamic correlation between sharia index and composite index. These results contradict the findings of Hakim and Rashidian that thereare not cointegrated each other; and they are independent from each other(Chapakia & Sanrego, 2007).

Saiti, Bacha, and Masihanalyze the dailyreturns of five shariacompliant stock indices(such as, FTSE ShariaChina Index, FTSEShariaIndia Index, FTSE Sharia USA index,FTSE Malaysia EMAS ShariaIndex andDow Jones ShariaIndex) using developed Dynamic Multivariate GARCH approach. Their research results the estimation of dynamic conditional correlations among the five *Shariah*-compliant stock indices through the application of a recently-developed dynamic multivariate GARCH approach with a view to helping both the domestic and international *Shariah* investors to diversify their portfolios by hedging against unforeseen risks.Correlations among the five indices are not constant but are dynamic and time-varying. Hence the investors should monitor these correlations and manage their investment portfolios accordingly(Saiti, Bacha, & Masih, 2013).

The research by Reddy and Fu examines whether there are differences in performance between the Sharia compliant stocks and the conventional stocks listed on the Australian Stock Exchange (ASX). Their findings show that there is a statistically significant difference in performance of the Islamic and conventional stocks listed on the ASX in terms of risk, otherwise the performance of the Islamic stocks tends to be similar to the conventional stocks. In addition, they report a statistically significant relationship between the returns of Shariah compliant and conventional stocks(Reddy & Fu, 2014).

Sclip, Dreassi, Miani, and Paltrinieri investigatethe volatility behavior and the co-movements between sukuk and international conventional stock indexes. Symmetric multi variate GARCH models with dynamic conditional correlations (DCC) were estimated underStudent-t distribution. Their main hypothesis is thatsukuk are hybridbonds, with similar characteristics to bothequitiesand

conventional bonds, due to thespecific Islamic Finance framework.They provide evidence ofhigh correlations between sukuk and US andEU stock markets, without findingthe well-known flight to quality behavior affecting Islamic bonds. They also show thatvolatility linkages betweensukuk and regionalmarket indexes are higher during financial crisis(Sclip, Dreassi, Miani, & Paltrinieri, 2016).

Based on literature and research above, this research is begun with hypothesis that sharia market has strong correlation with conventional market. The research data are from Indonesia Stock Exchange activities that consist of JII and ISSI that represent sharia market; and JSX Composite and LQ45 that represent conventional market.

3. Methods

The research data is analyzed with bivariate and multivariate analysis. The analysis is based on equations that developed by Ronald E. Walpole, Raymond H Myers, Sharon L Myers, and Keying Ye(Walpole, Myers, Myers, & Ye, 2013).

In using bivariate analysis, variable of conventional market is as independent variable (*x*), and variable of sharia market is as dependent variable ($\hat{y}$ $\hat{y}$). Then the estimated or fitted regression line isgiven by

$$\hat{y} = b_0 + b_1 x \, \hat{y} = b_0 + b_1 x$$

(1).

The fitted line is an estimateof the true regression line.

The data of conventional market (*x*) and sharia market ($\hat{y}$ $\hat{y}$) are plotted in a scatter diagram. Froman inspection of this scatterdiagram, it can be seen that the points closelyfollow astraight line, indicating that the assumption of linearity between the two variablesappears to be reasonable.

Given the sample {(x_i, y_i); *i* = 1, 2, ..., *n*}, the least squares estimatesb_0 and b_1 with formulas,

$$b_1 = \frac{n\sum_{i=1}^{n} x_i y_i - \left(\sum_{i=1}^{n} x_i\right)\left(\sum_{i=1}^{n} y_i\right)}{n\sum_{i=1}^{n} x_i^2 - \left(\sum_{i=1}^{n} x_i\right)^2}$$

(2),

$$b_0 = \bar{y} - b_1 \bar{x}$$

(3),

then $\hat{y} = b_0 + b_1 x \, \hat{y} = b_0 + b_1 x$ is defined.

Correlation between *x* and *y* is calculated by the Pearson product-moment correlation coefficient, *r*.

$$r = \frac{S_{xy}}{\sqrt{S_x \, S_y}}$$

(4),

where

$$S_{xx} = \sum_{i=1}^{n} x_i^2 - \frac{\left(\sum_{i=1}^{n} x_i\right)^2}{n}$$

(5),

$$S_{yy} = \sum_{i=1}^{n} y_i^2 - \frac{\left(\sum_{i=1}^{n} y_i\right)^2}{n}$$

(6),

$$S_{xy} = \sum_{i=1}^{n} x_i y_i - \frac{\left(\sum_{i=1}^{n} x_i\right)\left(\sum_{i=1}^{n} y_i\right)}{n}$$

(7).

The values of *r* are $-1 \leq r \leq +1 - 1 \leq r \leq +1$. If the valueof *r* is close to +1, it means that between *x* and *y* have strong and positif corelation. If *r* is close to -1, it means that between *x* and *y* have strong and negative correlation.

Then r^2, which is usually referred to as the sample coefficient of determination. The r^2expresses the proportion of the total variation inthe values of the variable *y*thatcan be accounted for or explained by a linearrelationship with the values of the randomvariable *x*. Thus, a correlation of 0.6means that 0.36, or 36%, of the total variation of the values of *y*in our sample isaccounted for by a linear relationship with values of *x*.

Meanwhile, in using multivariate analysis, the two conventional market variables, i.e. JSX Composite and LQ45 are as two independent variables x_1 and x_2 respectively, and sharia market variable is as dependent variable *y*.Then the estimated or fitted regression line isgiven by

$$\hat{y} = b_0 + b_1 x_1 + b_2 x_2$$

(8).

Given the sample {(x_1, x_2, *y*); *i*= 1, 2,.., n}, the least squares estimates b_0, b_1, b_2 by solving normal estimation equations

$$b_0 + b_1 \sum_{i=1}^{n} x_{1i} + b_2 \sum_{i=1}^{n} x_{2i} = \sum_{i=1}^{n} y_i$$

(9),

$$b_0 \sum_{i=1}^{n} x_{1i} + b_1 \sum_{i=1}^{n} x_{1i}^2 + b_2 \sum_{i=1}^{n} x_{1i} x_{2i} = \sum_{i=1}^{n} x_{1i} y_i$$

(10),

$$b_0 \sum_{i=1}^{n} x_{2i} + b_1 \sum_{i=1}^{n} x_{1i} x_{2i} + b_2 \sum_{i=1}^{n} x_{2i}^2 = \sum_{i=1}^{n} x_{2i} y_i$$

(11).

The sample coefficient of determination (r^2) is given by

r^2 =

$$\frac{\left[b_0 \sum_{i=1}^{n} y_i + b_1 \sum_{i=0}^{n} x_{1i} y_i + b_2 \sum_{i=0}^{n} x_{2i} y_i - \left(\sum_{i=1}^{n} y_i \right)^2 \Big/ n \right]}{\sum_{i=1}^{n} y_i^{\,2} - \frac{\left(\sum_{i=1}^{n} y_i \right)^2}{n}}$$

(12),

and the sample coefficient of correlation

$$r = \sqrt{r^2}\; r = \sqrt{r^2}$$

(13).

The data of the research consists of ten years (December 2006 – November 2016) stock fluctuation of JSX Composite, LQ45, and JII; and five years eleven mounths (January 2011 – November 2016) stock fluctuation of ISSI. The stock values are noted every closing time at the end of the mounth.

There are six scenarios for this research:

1. x = JSX Composit, y = JII, bivariate analysis.
2. x = LQ45, y = JII, bivariate analysis.
3. x_1 = JSX Composit, x_2 = LQ45, y = JII, multivariate analysis.
4. x = JSX Composit, y = ISSI, bivariate analysis.
5. x = LQ45, y = ISSI, bivariate analysis.
6. x_1 = JSX Composit, x_2 = LQ45, y = ISSI, multivariate analysis.

4. Results and Discussion

Based on data from Indonesia Stock Exchange, the graphics of stock index fluctuation indicate that there are identic stock fluctuation between sharia stock and conventional stock (see Figure 1 – 6). These indications are shown by the six research scenarios results below.

The results of the first scenario, where JSX Composite as x-variable and JII as y-variable, show that the estimated regression line equation (Figure 7) is given by

$$y = 0{,}1115x + 116{,}93\; y = 0{,}1115x + 116{,}93$$

(14).

The corellation between JSX Composit and JII is 0,98378 (strong and positive correlation). The JSX Composite influences JII with 96,78% coefficient of determination.

The second scenario, with LQ45 as x-variable and JII as y-variable, gives the results that the

estimated regression line equation (Figure 8) is given by

$$y = 0{,}7616x + 26{,}12\ y = 0{,}7616x + 26{,}12$$

(15).

The corellation between LQ45 and JII is 0,9953 (strong and positive correlation). The LQ45 influences JII with 99,06% coefficient of determination.

Fig 1. JSX Composite Index (Dec 06 – Nov 16)

Fig 2. LQ45 Index (Dec 06 – Nov 16)

Fig 3. JII Index (Dec 06 – Nov 16)

Fig 4. ISSI Index (Jan 11 – Nov 16)

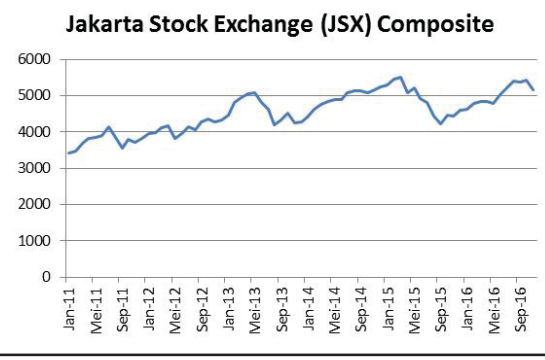

Fig 5. JSX Composite Index (Jan 11 – Nov 16)

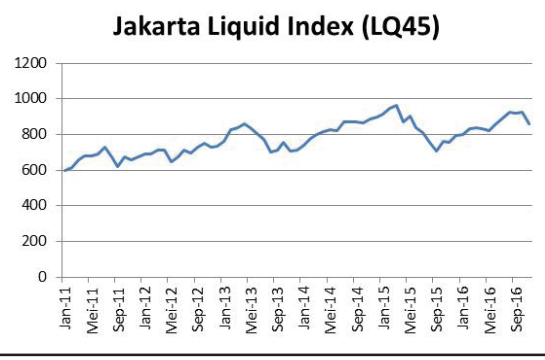

Fig 6. LQ45 Index (Jan 11 – Nov 16)

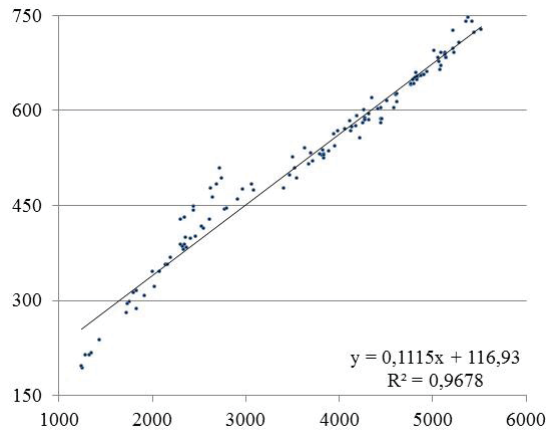

Fig 7. JSX Composit (*x*) vs JII (*y*)

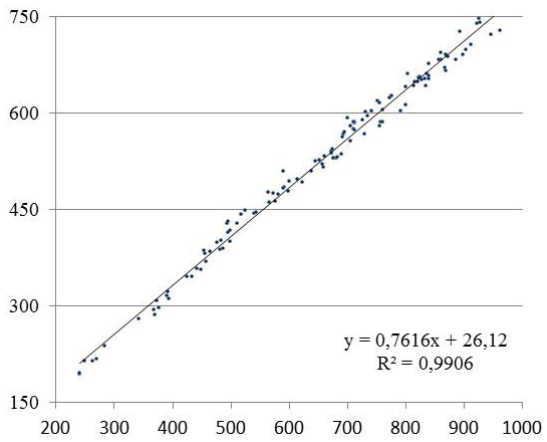

Fig 8. LQ45 (*x*) vs JII (*y*)

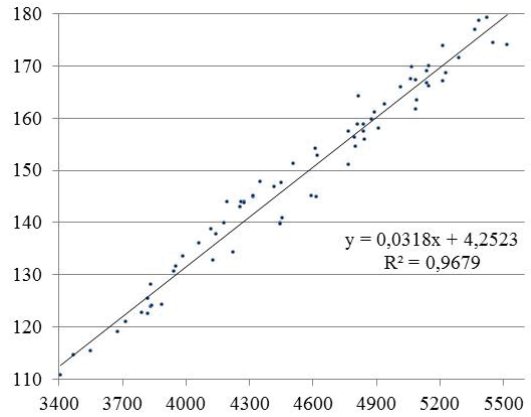

Fig 9. JSX Composit (*x*) vs ISSI (*y*)

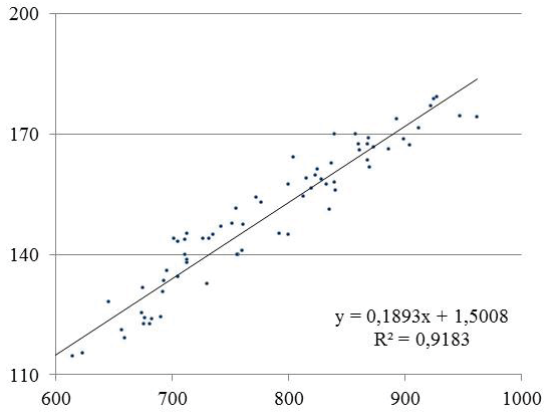

Fig 10. LQ45 (*x*) vs ISSI (*y*)

The results of the third scenario, where JSX Composite as x_1-variable,LQ45 as x_2-variable, and JII as *y*-variable, show that the estimated regression line equation is given by

$$y = 20{,}1514 - 0{,}0083x_1 + 0{,}8171x_2\; y = 20{,}1514 - 0{,}0083x_1 + 0{,}8171x_2$$

(16).

The Independent variable (x_1 and x_2) together influence JII with 99,07% coefficient of determination.

The fourth scenario, where JSX Composite as *x*-variable and ISSI as *y*-variable, gives the results that the estimated regression line equation (Figure 9) is given by

$$y = 0{,}0318x + 4{,}2523\; y = 0{,}0318x + 4{,}2523$$

(17).

The corellation between JSX Composit and ISSI is 0,9838 (strong and positive correlation). The JSX Composite influences ISSI with 96,79% coefficient of determination.

The fith scenario, with LQ45 as *x*-variable and ISSI as *y*-variable, gives the results that the estimated regression line equation (Figure 10) is given by

$$y = 0{,}1893x + 1{,}5008\; y = 0{,}1893x + 1{,}5008$$

(18).

The corellation between LQ45 and ISSI is 0,9583 (strong and positive correlation). The LQ45 influences ISSI with 91,83% coefficient of determination.

The results of the sixth scenario, the last scenario of this research, where JSX Composite as x_1-variable,LQ45 as x_2-variable, and ISSI as y-variable, show that the estimated regression line equation is given by

$$y = 9{,}7929 + 0{,}0529x_1 - 0{,}1299x_2 \; y = 9{,}7929 + 0{,}0529x_1 - 0{,}1299x_2$$

(16).

The Independent variable (x_1 and x_2) together influence ISSI with 97,75% coefficient of determination.

All the research results from six scenarios indicate that sharia market goes together with conventional market in the same character.These results are different from Hakim and Rashidian, and also different from Reddy and Fu. But these results are in line with those found by Aziz and Kurniawan; by Chapakia and Sanrego; and by Sclip, Dreassi, Miani, and Paltrinieri.

The research results show that sharia market is never completely different from the conventional market. In fact, the sharia market dynamic is really similar to the conventional market.The facts that sharia market goes together with conventional market in the same character indicate several possibility causes. First, the volatility of indexes are depended on the investor. As long as the investor in the market are in quantity and do not have the Islamic paradigm, the sharia index is just an index, which can only give them profit or lost. Second, the sharia screening in the market is still loose that sharia market is not different from conventional market yet. Third, sharia market is still together with conventional market in one stock market listing. It is necessary to split sharia market from conventional market at the beginning, so that sharia stocks are not listed at conventional market list too.

5. Conclusion

The results of the research to investigate correlation between sharia market and conventional market at Indonesia Stock Exchange indicate that sharia market goes together with conventional maket in the same character. All of the coefficients of correlation and determination between conventional market and sharia market are above 90%. These results indicate that correlation and relationship between sharia market and conventional market is strong and positive.

There are several causes that might be underlie these conditions. First, the investor do not have sharia paradigm, so that he treats sharia stock as conventional stock. Second, sharia screening is still loose that sharia market is not different from conventional market. Third, sharia stock is still listing as conventional stock too, so that sharia market is must be splitted from conventional market.

The next research must be executed with new condition where sharia market has been really splitted from conventional market. The investor and companies must have sharia paradigm, with sharia screening in correct applied.

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