

# MARKET RESPONSE TO THE COMPOSITION CHANGE OF ISLAMIC INDEX: EVIDENCE FROM INDONESIA

Erie Febrian, Universitas Padjadjaran, Indonesia  
Aldrin Herwany, Universitas Padjadjaran, Indonesia  
Adi Primadhi, Universitas Padjadjaran, Indonesia

## ABSTRACT

*Many studies have investigated how markets react to the change of conventional market index composition. Nevertheless, how investors in emerging markets react to changes to an Islamic Index composition still needs to be answered. This study empirically investigates market responses to composition changes of an Islamic Index using Jakarta Islamic Index (JII) daily data. The study also investigates five conventional Indices on the Indonesian Stock Exchange, i.e. LQ45, Kompas 100, Bisnis 27, Sri Kehati, and Pefindo25, and compares the results with those of JII. The goal is to see whether difference between the two indices explain the market reaction. To measure market reaction, we calculate the abnormal return, relative abnormal volume, relative abnormal frequency, and relative abnormal bid-ask spread around the announcement of index composition change. Our finding shows the market reacts positively to stocks newly included in an Islamic index, which is in line with the reaction to stock added in conventional indices. Similarly, the market responds to the stocks excluded from JII and from conventional indices in the same way.*

**JEL:** G 14, G 28

**KEYWORDS:** Market Reaction, Market Index, Abnormal Return, Abnormal Volume

## INTRODUCTION

Several previous studies examining the Standard & Poor's 500 Index, like Shleifer (1986), Harris and Gurel (1986), and Dhillon and Johnson (1991) have shown the market reacts to an addition (deletion) of a particular stock to (from) the Standard & Poor's 500 Index. Nevertheless, these studies suggest different factors to explaining the reaction. Shleifer (1986) as well as Harris and Gurel (1986), who respectively support the imperfect substitutes hypothesis and the price pressure hypothesis, propose the increase (decline) in price and volume of stocks added to (deleted from) Standard & Poor's 500 Index is triggered by change in demand for the associated stocks. The change is primarily because index fund managers adjust their portfolio to the new index composition.

Meanwhile, Dhillon and Johnson (1991) support information hypothesis. This hypothesis states that positive abnormal returns emerge after the announcement of inclusion of a stock in Standard & Poor's 500 Index because of additional information following the announcement. This argument is developed based on the findings of Shleifer (1986), and Harris and Gurel (1986), who suggest that market reaction occurs since investors conduct further analysis on the newly added stocks or expect liquidity increases for the stocks. A study carried out by Erwin and Miller (1998) supports the finding of Dhillon and Johnson (1991). Erwin and Miller (1998) find positive abnormal returns, as well as an increase in trading volume and liquidity of stocks that are added to Standard & Poor's 500 Index around the announcement date due to less asymmetric information.

Many other studies on market reaction to the announcement of Index composition change have been completed. These include Liu (2000) on Nikkei 500, Kaul et al (2000) on Toronto Stock Exchange 300,

Hanaeda and Sarita (2001) on Nikkei 225, Petajisto (2003) on Russell 2000, Chakrabarti et al (2002) on MSCI, etc. To our knowledge, however, there have been no studies that empirically investigating the market reaction to the change of an Islamic Index composition. A study on the abovementioned issue is crucial as the index is unique particularly in terms of selection criteria. An Islamic index only includes stocks of companies carrying out activities in ways that do not diverge with the principles of the religion of Islam. Stocks included in an Islamic Index should be freed from any activity directly related to usury, speculation, and vagueness (Rahman et al, 2010). Thus, how markets react to the changes in the composition of an Islamic Index still needs to be explained. To be more specific, this study is aimed at investigating market reaction to the composition change of the Jakarta Islamic Index. We also investigate the issue using data for conventional indices on the Indonesia Stock Exchange (IDX) so that we can compare the magnitude of the reaction in both segments.

The rest of the paper is organized as follows. The next section provides a brief discussion of the relevant literature. This section also describes the revision process in the Jakarta Islamic Index and conventional indices (LQ45, Kompas 100, Bisnis 27, Sri Kehati, and Pefindo25) in IDX. Section 3 describes the data used and methodology adopted in this study. Section 4 discusses the results, while Section 5 concludes the paper with suggestions for future study.

## LITERATURE REVIEW

According to the Efficient Market Hypothesis (EMH), stock prices reflect all information available to the public. This situation allows investors to trade a large number of stocks with a price close to the market price, as long as they do not have access to private information. Consequently, it can be assumed that a security is almost a perfect substitution for another stock, and excessive demand for a stock is so elastic that it will not affect the associated stock price (Harris and Gurel, 1986).

Meanwhile, Scholes (1972), Kraus and Stoll (1972) as well as Hess and Frost (1982) propose two hypotheses that are inconsistent with EMH, i.e., Price Pressure Hypothesis (PPH) and Imperfect Substitute Hypothesis (ISH). They predict that large stock-selling (stock-buying) will lead to a decline (increase) in stock price despite the absence of new information related to the stock. PPH assumes that investors fulfill the increased demand since the large purchase (selling) compensate transaction cost and portfolio risk they should bear as a consequence of approving the immediate and unexpected buying (selling). Nevertheless, like EMH, PPH assumes that in the long run the demand will be so elastic on price that reflects all available information.

On the other hand, ISH, also known as the Distribution Effect Hypothesis, assumes that stocks are not perfect substitution to each other. Thus, in the long run, demand is not perfectly elastic. The theory suggests that the equilibrium price will change if the demand curve moves to eliminate demand excess. The unexpected price will reverse to a level that reflects new equilibrium.

Unlike the two hypothesis that are consistent with EMH, information hypothesis (IH) supports EMH. IH assumes that stock prices change as markets adopt to new information. This theory suggests that an offer for buying a large number of stocks may become a positive signal or good news to the associated stock. This information stimulates the public to trade the stock, which in turn affects the price.

Liquidity Hypothesis (LH), suggests that when an event contains particular information related to a stock, it reduces asymmetric information on the stock. The market will respond to this reduced asymmetric information by lessening the bid-ask spread, implying that liquidity of the stock increases. Meanwhile, the attention hypothesis (AH) proposes that trading costs of a stock receiving more attention from media, analysts, and investors are relatively low since the disclosed information makes it easier and cheaper for investors to obtain the necessary public information.

The above theories may not fully apply to Islamic stocks since such stocks are different from conventional stocks in several ways. Stocks selected for an Islamic Index represent companies not involved in any activity related to usury, speculation or ambiguity (Rahman et al, 2010). In general, Islamic market indices apply four filtering criteria for potential companies, i.e., core business, level of interest income, level of debt, and level of liquidity. These additional selection criteria limit the number of prospective stocks and may determine the frequency of stock replacement in an Islamic index. In most cases, companies keeping their surplus funds in interest-bearing accounts or financing their capital through interest-bearing debt will not be included in an Islamic index. A stock may be discarded from an Islamic index if it is found to violate one of the above Islamic criteria, despite its good performance.

In Indonesia, the Stock Market Supervisory Body and the National Islamic Law Supervisory Board (*Dewan Syariah Nasional*) have jointly set criteria for stocks included in the list of 60 sharia-compliant stocks (IDX, 2010). Those stocks are ranked based market capitalization in the past 12 months. Among the sixty stocks, IDX authority selects thirty stocks to be included in the Jakarta Islamic Index (JII) based on liquidity level in the past 12 months. The selected stocks are continuously monitored based on available public data, while the JII composition is reviewed every January and July.

Meanwhile, some conventional indices in IDX show different revision process. LQ45 is evaluated every three months and is rebalanced every February and August based on transaction value and volume, number of trading days, trading frequency, market capitalization, as well as financial and growth prospects. In the stock selection for Kompas100, all criteria used in LQ45's selection process in addition to analysis on the stock trading pattern are considered. Composition of Kompas100 is also evaluated every February and August.

For Bisnis-27 index, stocks are screened based on some important financial ratios (e.g., NPM, ROA, ROE, DER), transaction value and volume, market capitalization, accountability and corporate governance quality. The stocks are reviewed and replaced every May and November. Meanwhile, Pefindo25 is a market benchmark for stock performance of small and medium enterprises (SMEs). Potential stocks are selected based on Total Asset (maximum of IDR 1 trillion), ROE, and audit status of financial report. The selected stocks are then ranked based on liquidity and free float ratio. The index is reviewed and rebalanced every February and August.

In the Sri-Kehati Index screening process, stocks are first filtered based on Total Asset (minimum of IDR 1 trillion), PER, and free float ratio. The listed prospective stocks are ranked based on level of environmental-friendliness, community program, corporate governance, human right practices, business behavior, and labor practices and decent work. The composition are assessed and changed every May and November.

The difference in stock selection and index revision process across Islamic and conventional market indices may result in varied public expectation and reaction. Thus, we may see that the tests on JII, LQ45, Kompas100, Bisnis-27, Pefindo25, and Sri-Kehati will prove various market responses.

## **DATA AND METHODOLOGY OF THE STUDY**

This study examines daily data of stocks included in and excluded from JII, LQ45, Kompas100, Bisnis-27, Pefindo25, and Sri-Kehati from February 2007 through August 2011, obtained from the Indonesian Stock Exchange database. Similar to Harris & Gurel (1986), to avoid the intervention of unexpected factors, we do not include data for stocks announcing dividends, financial reports, stock splits, and rights issue anytime between 5 days prior to ( $t = -5$ ) and 5 days after ( $t = +5$ ) the announcement of index composition revision.

This study observes market reactions indicated by abnormal returns, abnormal volume relatives, abnormal frequency relatives, and abnormal bid-ask spread relatives of the observed indices. We examine the above indicators before and after announcement of the change in the associated index composition using daily event study. We estimate the expected return using data for a 60-day period before the event window and utilize a multifactor market model as the normal performance return model, following Conover (1997). The multifactor market model is as follows:

$$R_i = b_{oi} + b_{1i}R_m + b_{2i}R_{USD} + \varepsilon_i \quad (1)$$

where

- $R_i$  = return of stock  $i$ ,
- $R_m$  = return of *market proxy* or market index,
- $R_{USD}$  = return of change in the exchange rate of USD against IDR
- $b_{oi}$  = part of return of stock  $i$  that is not affected by market movement or exchange rate of USD against IDR
- $b_{1i}$  = measure of expected change in  $R_i$  if  $R_m$  changes
- $b_{2i}$  = measure of expected change in  $R_i$  if exchange rate of USD against IDR changes
- $\varepsilon_i$  = normally distributed random error term or stochastic error of specific events of stock  $i$ , where  $E(\varepsilon_i) = 0$

The examination of  $b_o$ ,  $b_1$  and  $b_2$  is conducted using estimation period starting from  $t = -65$  to  $t = -6$ , where  $t$  is trading date at the IDX and  $t = 0$  is the date of index revision announcement. The equation (1) is then adjusted to be:

$$R_{it} = b_{oi} + b_{1i}R_{mt} + b_{2i}R_{USDt} + \varepsilon_{it} \quad (2)$$

where:

- $R_{it}$  = return of stock  $i$  at time  $t$
- $R_{mt}$  = return of market proxy or market index at time  $t$
- $R_{USDt}$  = return of change in the exchange rate of USD against IDR at time  $t$

Measurement of expected return is carried out using the observation period starting from  $t = -5$  to  $t = +5$ , where  $t = 0$  is the date of index revision announcement. Abnormal return on stock  $i$  at day  $t$  is calculated as follows (MacKinlay, 1997):

$$AR_{it} = R_{it} - E(R_{it}) \quad (3)$$

where:

- $R_{it}$  = observed (actual) return on stock  $i$  at date  $t$
- $E(R_{it})$  = expected return on stock  $i$  at date  $t$

The average abnormal return during the observed period from  $t = -5$  to  $t = +5$ , with  $N$  sample, can be calculated using the following formula:

$$AAR_t = \frac{1}{N} \sum_{i=1}^N AR_{it} \quad (4)$$

where:

- $AAR_t$  = average abnormal return of all samples at date  $t$
- $AR_{it}$  = abnormal return on stock  $i$  at date  $t$
- $N$  = sampel size

Unlike Erwin and Miller (1998) that utilize abnormal volume absolutes, this study uses abnormal volume relatives, following Harris and Gurel (1986). Abnormal volume relative is the balance between volume relatives during the window period and the expected volume relatives. The formula is as follows (Beneish and Gardner, 1995):

$$AVR_{it} = VR_{it} - VRE_i \quad (5)$$

where:

$AVR_{it}$  = abnormal volume relative of stock  $i$  at date  $t$   
 $VR_{it}$  = trading volume relative of stock  $i$  at date  $t$   
 $VRE_i$  = expected volume relative, i.e., average trading volume relative of stock  $i$  at date  $t$  during the estimation period

This study also measures abnormal trading frequency relative using the following formula (MacKinlay, 1997):

$$AFR_{it} = FR_{it} - FRE_i \quad (6)$$

where:

$AFR_{it}$  = abnormal frequency relative of stock  $i$  at window date  $t$   
 $FR_{it}$  = trading frequency relative of stock  $i$  at window date  $t$   
 $FRE_i$  = expected frequency relative, i.e., average trading frequency relative of stock  $i$  during the estimation period

Measurement of bid-ask spread relatives in this study follows Roll (1984). The abnormal bid-ask spread relative is the balance between relative bid-ask spreads of stock during the window period and the expected bid-ask spread relative. The formula is as follows (MacKinlay, 1997):

$$ABS_{it} = SPREAD_{it} - BSE_i \quad (7)$$

where:

$ABS_{it}$  = abnormal bid-ask spread relative of stock  $i$  at date  $t$   
 $SPREAD_{it}$  = bid-ask spread relative of stock  $i$  at date  $t$   
 $BSE_i$  = expected bid-ask spread relative, i.e., average bid-ask spread relative of stock  $i$  during the estimation period

Measurement of abnormal volume relatives, abnormal trading frequency relatives, and bid-ask spread relatives are carried out using the observation period starting from  $t = -5$  to  $t = +5$ , where  $t = 0$  is the date of index revision announcement.

## EMPIRICAL RESULTS AND FINDINGS

Observation on stocks included in Jakarta Islamic Index shows the existence of a market reaction. This is indicated by significantly positive Average Abnormal Returns (AAR) on  $t = -5$ ,  $t = -2$ ,  $t = +2$  and  $t = +5$ , at significance level of 10%, as can be seen on Table 1. In terms of volume and frequency relatives, the table indicates no significant market reaction as none of the associated figures are significant at the 10% level. Meanwhile, Bid-Ask Spread relative figures show the market reacts to stocks included in JII. The Average Abnormal Bid-Ask Spread (AABS) relative declines around the announcement date. AABS

figures are negative and significant at the 5% significant level, from  $t = -5$  to  $t = +1$ . The declining AABS figures indicate an increase in liquidity of stocks included in JII.

Table 1: AAR, AAVR, AAFR, and AABS of Stocks Added to JII

Day (t)	AAR	t-stat	AAVR	t-stat	AAFR	t-stat	AABS	t-stat
t-5	0.011	1.63 *	-0.979	-2.295	-0.275	-2.867	-0.026	-1.675 **
t-4	0.007	0.989	-1.078	-3.050	-0.272	-2.820	-0.030	-1.881 **
t-3	-0.013	-0.804	-0.993	-2.333	-0.304	-2.147	-0.030	-1.815 **
t-2	0.012	1.524 *	-1.172	-2.795	-0.372	-3.533	-0.028	-1.712 **
t-1	-0.006	-0.320	-0.691	-1.437	-0.173	-1.153	-0.027	-1.674 **
t	-0.015	-0.826	-0.931	-2.144	-0.226	-1.532	0.002	0.053
t+1	0.005	1.103	-0.620	-1.811	-0.024	-0.128	-0.030	-1.751 **
t+2	0.016	1.868 **	27.877	1.020	2.379	1.113	-0.033	-0.632
t+3	0.007	1.102	-0.500	-1.024	-0.092	-0.560	0.003	0.068
t+4	-0.004	-0.305	-0.644	-2.169	-0.316	-2.788	0.002	0.055
t+5	0.010	1.611 *	-1.068	-2.543	-0.359	-3.495	0.068	1.287

This table shows the calculation results of average abnormal return (AAR), average abnormal volume relative (AAVR), average abnormal frequency relative (AAFR), and average abnormal bid-ask spread relative (AABS) on return of stocks added to JII. The calculation is conducted using data of returns on 5 consecutive days prior to, on 5 successive days after, and on the date of the announcement of stock inclusion. \*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent levels respectively.

Table 2 shows that investors' wealth tends to decrease cumulatively before the announcement date, and becomes negative on the revision date, since Cumulative Average Abnormal Return (CAAR) declines from 0.018 on  $t = -4$  to 0.012 on  $t = -1$ . After the revision announcement date, investors gradually gain, which is indicated by the increase of CAAR from 0.002 on  $t = +1$  to 0.031 on  $t = +5$ .

Table 2: CAAR, CAAVR, CAAFR, and CAABS of Stocks Added to JII

Day (t)	CAAR	t-stat	CAAVR	t-stat	CAAFR	t-stat	CAABS	t-stat
t-5	0.011	1.63 *	-0.979	-2.295	-0.275	-2.867	-0.026	-1.675 **
t-4	0.018	1.836 **	-2.057	-3.729	-0.547	-4.038	-0.056	-2.527 ***
t-3	0.006	0.315	-3.051	-4.391	-0.851	-4.357	-0.086	-3.12 ***
t-2	0.018	0.887	-4.222	-5.213	-1.224	-5.517	-0.114	-3.565 ***
t-1	0.012	0.428	-4.913	-5.222	-1.396	-5.222	-0.141	-3.943 ***
t	-0.003	-0.099	-5.844	-5.648	-1.623	-5.320	-0.139	-3.044 ***
t+1	0.002	0.063	-6.464	-5.932	-1.647	-4.577	-0.169	-3.469 ***
t+2	0.018	0.514	21.414	0.782	0.732	0.337	-0.203	-2.832 ***
t+3	0.025	0.708	20.914	0.764	0.640	0.293	-0.200	-2.478 ***
t+4	0.021	0.554	20.270	0.740	0.324	0.148	-0.198	-2.226 **
t+5	0.031	0.810	19.202	0.701	-0.035	-0.016	-0.130	-1.250

This table shows the calculation results of cumulative average abnormal return (CAAR), cumulative average abnormal volume relative (CAAVR), cumulative average abnormal frequency relative (CAAFR), and cumulative average abnormal bid-ask spread relative (CAABS) on return of stocks added to JII. The calculation is conducted using data of returns on 5 consecutive days prior to, on 5 successive days after, and on the date of the announcement of stock inclusion. \*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent levels respectively.

It can also be seen in Table 2 that volume and trading frequency relative to the market signifies no significant market reaction during the period of t-5 to t+5, as none of the figures in t-stat column is significant at the 10 % level. Nevertheless, Cumulative Average Abnormal Bid-Ask Spread (CAABS) relative figures are significant at the 5% level or better, from t = -5 to t = +4. The table shows that CAABS figures decline from -0.026 on t = -5 to -0.20 on t = +3, before slightly climb to -0.198 on t = +4. This implies that stocks added to JII enjoy increased liquidity around the announcement date.

Observation on stocks excluded from JII from 5 days prior to 5 days after the announcement suggests the market tends to react negatively to the exclusion. Table 3 shows that AARs are negative and significant at the 10% level on t = -2 and t = +1. The table also shows that Average Abnormal Volume Relative (AAVR) figures are negative and significant at the 10% level on t = -5, -4, and -3. The decline in trading volume is most significant on t = -4. The trading frequency strengthens the earlier indicators of negative market reaction, as Average Abnormal Frequency relative (AAFR) figures are negative and significant on t = -5, -4, -2, and +1. The most significant decrease in trading frequency occurs on the day after the announcement (t = +1) of stock exclusion.

Another indicator, Average Abnormal Bid-Ask Spread (AABS) relative, does not support the earlier indicators. AABS relative figures tend to be positive, but none of them is significant at significance level of 10% or better.

Table 3: AAR, AAVR, AAFR, and AABS of Stocks Excluded from JII

Day (t)	AAR	t-stat	AAVR	t-stat	AAFR	t-stat	AABS	t-stat
t-5	0.010	1.478	-0.435	-1.43 *	-0.208	-1.519*	0.050	1.127
t-4	-0.007	-0.412	-0.572	-2.743 ***	-0.176	-1.604*	0.054	1.246
t-3	-0.007	-0.550	-0.339	-1.296 *	-0.135	-0.895	0.049	0.998
t-2	-0.041	-1.585 *	-0.353	-1.225	-0.241	-1.881**	0.018	0.454
t-1	0.012	1.806	-0.126	-0.428	-0.117	-0.908	0.048	1.103
t	-0.008	-0.510	0.762	0.951	0.036	0.200	0.053	1.223
t+1	-0.039	-1.527 *	-0.144	-0.238	-0.275	-2.336**	0.017	0.431
t+2	-0.015	-0.974	1.704	0.932	-0.097	-0.587	0.023	0.600
t+3	0.018	2.459	2.411	1.462	0.282	1.262	0.019	0.485
t+4	0.000	0.012	-0.209	-0.753	-0.101	-0.676	-0.013	-0.251
t+5	0.010	1.743	0.472	0.726	0.110	0.384	0.020	0.505

*This table shows the calculation results of average abnormal returns (AAR), average abnormal volume relatives (AAVR), average abnormal frequency relatives (AAFR), and average abnormal bid-ask spread relatives (AABS) on return of stocks excluded from JII. The calculation is conducted using data of returns on 5 consecutive days prior to, on 5 successive days after, and on the date of the announcement of stock exclusion. \*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent levels respectively.*

Table 4 shows the calculation results of cumulative average abnormal return (CAAR), cumulative average abnormal volume relatives (CAAVR), cumulative average abnormal frequency relatives (CAAFR), and cumulative average abnormal bid-ask spread relatives (CAABS) on return of stocks deleted from JII. The calculation is conducted using data of returns on 5 consecutive days prior to, on 5 successive days after, and on the date of the announcement of stock exclusion.

CAAR in the event windows proves the negative impact on the stocks eliminated from JII around the announcement date. Stockholders' wealth tends to decrease cumulatively, indicated by the drop in CAAR from 0.01 on t = -5 to -0.067 on t = +5. After the revision announcement date, investors experience

significant drop in abnormal return, CAARs are negative and significant at significance level of 5% on the first two days after the announcement, and 10% on  $t = +3$  and  $+4$ .

CAAVRs are negative and significant at significance level of 1% in the three consecutive days before the announcement date, implying a sharp decline in the stocks' attractiveness. This negative market reaction indicator is strengthened by CAAFR and CAABS. CAAFRs are negative and significant at the 10% level or better during the eleven-day observation, implying that on average the trading frequency drops sharply. At the same time, CAABS relative figures are all positive and significant at significance level of 5% or better, except for day  $t-5$ . This demonstrates that liquidity of stocks excluded from JII tends to drop around the announcement of JII revision.

Table 4: CAAR, CAAVR, CAAFR, and CAABS of Stocks Excluded from JII

Day (t)	CAAR	t-stat	CAAVR	t-stat	CAAFR	t-stat	CAABS	t-stat
t-5	0.010	1.478	-0.435	-1.430	-0.208	-1.519 *	0.050	1.127
t-4	0.004	0.198	-1.008	-2.741	-0.384	-2.197 **	0.103	1.683 **
t-3	-0.004	-0.165	-1.347	-2.99 ***	-0.519	-2.255 **	0.153	1.943 **
t-2	-0.045	-1.303 *	-1.699	-3.186 ***	-0.761	-2.89 ***	0.171	1.94 **
t-1	-0.033	-0.947	-1.826	-2.996 ***	-0.878	-2.998 ***	0.219	2.232 **
t	-0.042	-1.074	-1.064	-1.052	-0.842	-2.445 ***	0.272	2.539 ***
t+1	-0.080	-1.735 **	-1.208	-1.028	-1.117	-3.069 ***	0.290	2.531 ***
t+2	-0.096	-1.958 **	0.496	0.228	-1.213	-3.041 ***	0.313	2.591 ***
t+3	-0.077	-1.557 *	2.907	1.063	-0.932	-2.028 **	0.332	2.614 ***
t+4	-0.077	-1.482 *	2.698	0.981	-1.033	-2.139 **	0.319	2.328 **
t+5	-0.067	-1.276	3.170	1.122	-0.922	-1.644 *	0.339	2.378 ***

*This table shows the calculation results of cumulative average abnormal return (CAAR), cumulative average abnormal volume relatives (CAAVR), cumulative average abnormal frequency relatives (CAAFR), and cumulative average abnormal bid-ask spread relatives (CAABS) on return of stocks deleted from JII. The calculation is conducted using data of returns on 5 consecutive days prior to, on 5 successive days after, and on the date of the announcement of stock exclusion. \*\*\*, \*\*, and \* indicate significance at the 1, 5, and 10 percent levels respectively.*

In Table 5 we summarize results of the examination on market reaction to JII revision. The table also provides a summary of similar tests done to five conventional indices, i.e., LQ45, Kompas100, Bisnis27, Pefindo25 and Sri-Kehati. This table enables comparison between results of the Islamic index test and conventional index tests.

Table 5 shows the addition of an Islamic-law-compliant stock to JII stimulates positive market reaction to the stock, as indicated by the positive and significant abnormal return and significantly increased liquidity (negative AABS). On the other hand, elimination of Islamic-law-compliant stock from JII provides unfavorable impact to the stock. Table 5 shows that excluded stocks suffer significantly negative returns, and decreased liquidity, indicated by negative AAR, AAVR and AAFR.

Table 5 shows the market reacts favorably to new a member of LQ45, as reflected by positive return, increased trading volume, and smaller bid-ask spreads. The market shows similar responses to newly added stocks in Kompas100 and Pefindo25, i.e., increases in abnormal return and narrower bid-ask spreads. The results show a positive market response to addition of particular stocks in Bisnis27 as only reflected by smaller price-spread. Meanwhile, no significant market response is shown to new members of Sri-Kehati.



Table 5: Summary of AAR, AAVR, AAFR, and AABS of Six Indices in IDX

Index	Event	Significant Sign (From t = - 5 to t = +5)			
		AAR	AAVR	AAFR	AABS
JII	Addition	Positive	-	-	Negative
	Deletion	Negative	Negative	Negative	-
LQ45	Addition	Positive	Positive	-	Negative
	Deletion	-	-	-	Positive
Kompas100	Addition	Positive	-	-	Negative
	Deletion	-	Negative	Negative	-
Bisnis27	Addition	-	-	-	Negative
	Deletion	Negative	Negative	Negative	Positive
Pefindo25	Addition	Positive	-	-	Negative
	Deletion	Negative	Negative	-	-
Sri-Kehati	Addition	-	-	-	-
	Deletion	Negative	Negative	Negative	-

*This table shows the summary of average abnormal return (AAR), average abnormal volume relatives (AAVR), average abnormal frequency relatives (AAFR), and average abnormal bid-ask spread relatives (AABS) on return of stocks included to and excluded from all indices in Indonesia Stock Exchange. The calculation is conducted using data of returns on 5 consecutive days prior to, on 5 successive days after, and on the date of the announcement. Positive (negative) significant sign means that the respective indicator (AAR or AAVR or AAFR or AABS) is significant at the 10 percent level or better.*

Market response to exclusion of stocks in conventional indices also varies. In LQ45, unfavorable response can only be seen on the positive abnormal bid-ask spread (less liquidity). The market reacts negatively to stocks eliminated from Kompas100, which can be seen in negative AAVR and AAFR, i.e., decreased abnormal trading volume and frequency consecutively. The market shows strong non-constructive reaction to stocks newly deleted from the Bisnis27 through all observed indicators. In Pefindo25, such reaction is only reflected through negative abnormal return and trading volume. The market reveals non constructive responses to stocks newly eliminated from Sri-Kehati through all indicators, except for abnormal bid-ask spread.

Table 6 shows that, for the added stocks, constructive market reaction tends to diminish during the 11-day observation in conventional indices, which is reflected by negative CAAR (except for LQ45 and Kompas100), negative CAAVR, and negative CAAFR. However, negative CAABS (in all indices but Sri-Kehati) proves consistent favorable reaction to the added stocks.

For the deleted stocks, the market reaction magnitude varies across the conventional indices. CAAR of stocks deleted from LQ45, Kompas100 and Pefindo25 is positive, indicating that unfavorable reaction through abnormal return weakens. CAAVRs and CAAFRs of Kompas100, Pefindo25 and Sri-Kehati are positive, which reflect that liquidity pressure on stocks deleted from the three indices weakens. Negative CAABS in those indices supports the conclusion.

Overall, market reactions to stocks newly added to Islamic and conventional indices are similar. None of the market reaction indicators in conventional indices opposes those in JII. Observation to Kompas100 and Pefindo25 even shows the same results as those of JII, i.e., significantly positive AAR and negative AABS.

The same conclusion applies to the observation on market response to stocks excluded from JII and conventional indices. It can be seen in Table 6 that no market reaction indicators in conventional indices

opposed those in JII. Observation to Sri-Kehati shows the same results as those of JII, i.e., significantly negative AAR, AAVR and AAFR.

Table 6: Summary of CAAR, CAAVR, CAAFR, and CAABS of Six Indices in IDX

Index		CAAR	CAAVR	CAAFR	CAABS
JII	Added	0,031	19,202	-0,035	-0,13
	tobs	0,81	0,701	-0,016	-1,25
	Deleted	-0,067	3,17	-0,922	0,339
LQ45	tobs	-1,276	1,122	-1.644 *	2.378 ***
	Added	0	-0,536	-0,821	-0,116
	tobs	0,023	-0,864	-1,695	4.822 ***
KOMPAS100	Deleted	0,008	3,219	0,462	0,682
	tobs	0,501	2,049	0,615	4.304 ***
	Added	0,075	-1,695	-0,869	-0,376
Bisnis27	tobs	3.543 ***	-1,022	-0,596	-4.377 ***
	Deleted	0,055	0,055	4,625	-0,224
	tobs	1,24	-0,857	2,054	-1,536
Pefindo25	Added	-0,01	-1,074	-1,007	-0,003
	tobs	-0,76	-1,383	-2,071	-1.45 *
	Deleted	-0,016	-4,899	-4,102	0,013
Sri Kehati	tobs	-1,646	-9,795	-10,326	2,875
	Added	-0,004	-4,592	-4,94	-0,46
	tobs	-0,21	-4,745	-5,819	-2,626
Sri Kehati	Deleted	0,022	0,022	20,062	-0,379
	tobs	0,882	1,811	1,625	-2,358
	Added	-0,005	-4,345	-3,332	1,18
Sri Kehati	tobs	-0,271	-4,748	-5,245	2,635
	Deleted	-0,035	3,885	4,376	-0,258
	tobs	-1,444	2,177	2,276	-3,543

*This table shows the summary of cumulative average abnormal return (CAAR), cumulative average abnormal volume relatives (CAAVR), cumulative average abnormal frequency relatives (CAAFR), and cumulative average abnormal bid-ask spread relatives (CAABS) on return of stocks included to and excluded from all indices in Indonesia Stock Exchange. The calculation is conducted using data of returns on 5 consecutive days prior to, on 5 successive days after, and on the date of the announcement. Positive (negative) significant sign means that the respective indicator (CAAR or CAAVR or CAAFR or CAABS) is significant at the 10 percent level or better.*

## CONCLUSION

This study empirically investigates whether investors in the Indonesian Stock exchange react to the change of Islamic Index composition. The study is conducted using Jakarta Islamic Index (JII) daily data over 5 years. We also investigate five conventional Indices in the Indonesian Stock Exchange, i.e. LQ45, Kompas100, Bisnis27, Pefindo25 and Sri-Kehati, and compare the results with those of JII, in terms of abnormal return, abnormal volume relatives, abnormal frequency relatives and abnormal bid-ask spread relatives.

Our finding shows the market reacts positively to stocks newly included in JII, which is indicated by positive abnormal return and greater liquidity (smaller bid-ask spread). None of the observed indicators in

conventional contradicts those in JII. Similarly, the assessment on market response to excluded stocks in JII and conventional indices proves that there are no market reaction indicators in conventional indices that contradict those in JII.

The above findings imply that despite being different in screening and rebalancing process from conventional indices, JII does not stimulate different market reaction. Holders of Islamic-law-compliant stocks seem to consider performance standards that are not much different from those used by holders of conventional stocks. Thus, the Imperfect Substitute Hypothesis and Price Pressure Hypothesis, as well as the Information Hypothesis, may also apply to Islamic stock market.

Further study can also be conducted using different lengths of observation period to check whether investors of Islamic-law-compliant stocks tend to extend their holding, as suggested by Islamic law, regardless the JII revision. In addition, the study can also be extended in other market applying more restrictive Islamic stock market law to see whether more restrictive law causes limited market reaction.

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## BIOGRAPHY

Erie Febrian is an assistant Professor at the Faculty of Economics & Business, Universitas Padjadjaran, Bandung, Indonesia. Email: erie\_febrian.fe@unpad.ac.id; erie\_febrian@yahoo.com; Office fax # +62 22 2509055.

Aldrin Herwany is the head deputy, Center for Management and Business Studies at the Faculty of Economics & Business, Universitas Padjadjaran, Bandung, Indonesia. Email: aldrin.herwany.fe@unpad.ac.id; and herwany@yahoo.com; Office fax# +62 22 4239954.

Adi Primadhi is a postgraduate student at the Faculty of Economics & Business, Universitas Padjadjaran, and staf at the Bank Jabar Banten (BJB), Indonesia. Email: adi.primadhi@gmail.com.