

Institutional Ownership and Stock Performance Around Index Rebalancing: Evidence From LQ45 Index

Puspita Pratiwi¹, Permata Wulandari²

^{1,2}Faculty of Economics and Business University of Indonesia, Indonesia

Corresponding author. Email: puspitapратиwi@gmail.com

ABSTRACT

This study aims to study the effect of the index rebalancing event on changes in share ownership which can further improve the performance of stocks that enter and exit the index. In this study used a sample of 164 events in which there were 82 incidents of shares entering and 82 incidents of shares leaving the LQ45 index constituents in the period 2010 - 2019 with a total of 4,920 observations. Data processing techniques using panel data regression method. The results showed the effect of the index rebalancing to institutional ownership has positive relationship. Changes in the number of shareholdings by institutional investors are not significant to stock performance. The summary of the results of this study supports the rebalancing of LQ45 index into one of the information used by investors in the Indonesian capital market. Where the shares added in the constituents, rebalancing event to be a positive information for investors, while the release of shares from constituents was not found strong evidence to be negative information for investors.

Keywords: *Institutional investors, Index rebalancing, Stock performance*

1. INTRODUCTION

The capital market as a place to buy and sell financial instruments in the form of debt securities (bonds), investments (shares) or in other forms where the issuer of securities can be done by the government or private (Clifford, 2008). This can provide an opportunity for investors to get capital gains from buying and selling securities. The market efficiency hypothesis assumes that the capital market is a friction free and efficient information market (Sharpe, 1964). Based on the market efficiency hypothesis as well, there is no competition between investors in maximizing profits that consistently results in profits above the average market profit where it is assumed that current stock prices reflect all publicly available information. Basu (1977), Merton (1987), Fama (1970, 1998) and Engelberg et al. (2018) found the

market efficiency hypothesis remains abstract, and some markets run below the optimal level of efficiency, where any information can affect the demand and supply of shares, causing changes in the equilibrium point of stock prices.

One indicator of public information that can be accessed by investors is the stock price index. Bodie, Kane and Markus (2009) stated that the stock price index can be used as the main benchmark that describes the price movement of securities in a country's capital market. Where the stock price index is the result of a combination of several shares that have the same criteria and methodology. The LQ-45 Index (LQ45) is a leading stock index that is widely known and used as a reference by both domestic and foreign investors. According to his understanding, LQ45 is an index consisting of 45 stocks that have high liquidity and large market

capitalization and are supported by good corporate fundamentals and were first launched in February 1997. The use of LQ45 as an investment reference has an impact on the performance of its shares as seen from the development of the index's market capitalization (Fig. 1).

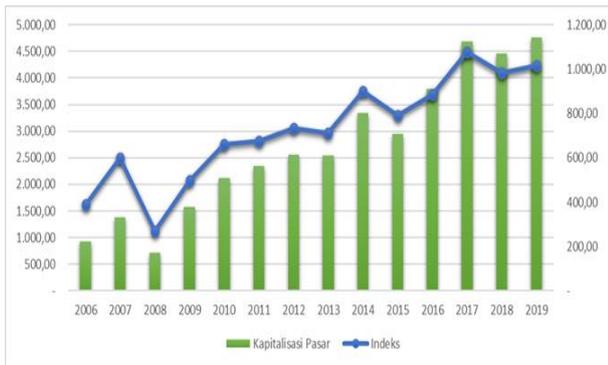


Figure 1. LQ45 Market Capitalization and Index Development in 2006 - 2019

The stock transaction strategy undertaken by institutional investors can be grouped into two namely active strategy and passive strategy (ETF, Index Based Investment Products). In Indonesia the use of the IDX index as an investment product has increased significantly, from Rp. 1.49 trillion in managed funds at the end of 2014 to Rp. 14.51 trillion at the end of 2019, an increase of about 10 times in the last 5 years (Fig. 2). This makes the index rebalancing event a public information that can be used as important information in determining investment strategies, especially for institutional investors.

Stock index rebalancing has long received the attention of researchers due to theoretical implications for market behavior and efficiency. Harris and Gurel (1986) found an increase in transaction volume after the announcement date of the S&P 500 constituent changes. Similarly, Shleifer (1986) also found an increase in excess return as a result of an increase in trading volume around the announcement date. Broadly empirical studies show the rebalancing index has effect some factors in various market.

The response to the determination of share prices around the index rebalancing event is still an interesting material to study. Overall, index re-balancing information becomes positive information so that the price of shares included in the index tends to be positive on stocks that enter the index, while negative information on shares issued from the index. The research is interesting to be studied further in the Indonesian Capital Market.

This study examines the institutional investors behavior in the secondary market around index rebalancing impact the stock performance. Pruitt and Wei (1989), Chen et al. (2004) and Kappou et al. (2010) found an evidence of institutional investor behaviour impact on stock performance in developed markets. Our study contributes to the existing literature in several ways. The best of our knowledge, this is the first study in the Indonesia Capital Market that examines the effect of institutional ownership trading in the secondary market on stock performance around the rebalancing index. If institutional investors buy a stock and there is a change in the supply curve, then the aggregate demand will have a direct effect on stock returns. Empirical evidence that found by Scholes (1972), Shleifer (1986), Bagwell (1991, 1992), Loderer et al. (1991) and Lynch and Mendenhall (1997) shows that changes in institutional ownership have a positive effect on stock performance because investors views of securities as a substitute for imperfect information and long-term risks.

According to Pruitt and Wei (1989) from research that documented the performance of shares around the rebalancing index event related to institutional ownership. The rebalancing index event becomes an important factor in the change in the number of shares owned by institutional investors. The author finds that changes in institutional ownership in the addition of the S & P500 Index have an impact on abnormal stock returns when events occur.

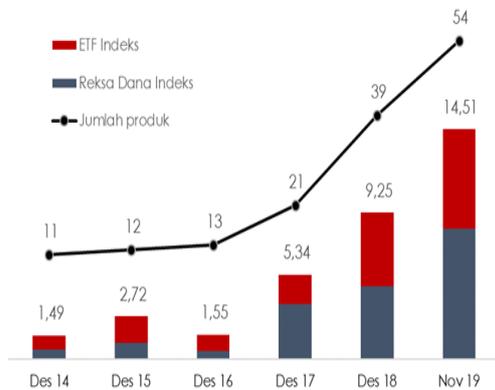


Figure 2. total managed funds and the number of investment products using the IDX index as the underlying in 2014 - 2019

Biktimirov and Li (2014) also examined the impact of changes in institutional ownership on the Russell 2000 index rebalancing. The index rebalancing events showed temporary changes in prices, trading volumes and institutional ownership that occurred on shares added or removed from the Russell 2000 index. The hypotheses are empirically tested:

H1 : Increase in institutional ownership in secondary market has a positive impact on the abnormal return for stock added to the index.

H2 : Decline in institutional ownership in secondary market has a negative impact the abnormal return for stock deleted from the index.

2. METHODS

The population in this study used companies listed on the Indonesia Stock Exchange and entered into the LQ45 index during the 2010-2019 study period. In selecting samples, researchers used purposive sampling, which is sampling based on certain predetermined criteria. We group the shares entered into and excluded from the LQ45 index during the study period so that there are 166 index rebalancing events that enter and exit the LQ45 index during 2010 to 2019. We have remove 2 events that are delisted. The final sample are 164 index rebalancing events. The final set of rebalancing event numbers by year is shown Fig. 3.

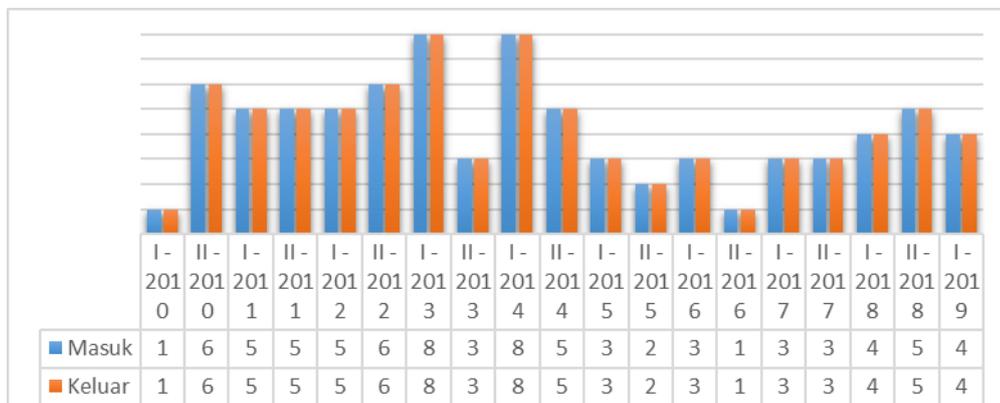


Figure 3. Changes to LQ45 Constituents for the period 2010 - 2019

Each sample will be divided into 2 panels to see the effect of the index rebalancing event, with a research period of 30 days, 15 days before the announcement of the index rebalancing results up to 15 days after the announcement of the index rebalancing results. In more concise the time period to be examined (event window) is depicted as shown in Figure 4.

EVENT WINDOW	
H-15 : H-1 Announcement Before	H : H+14 Announcement After

Figure 4. Image of the Testing Window Event

We use a daily frequency are obtained from the IDX and KSEI database for stock data on

price, market capitalization, index level, stock ownership structure and outstanding shares a. The firm's earnings obtained from IDX database is of quarterly frequency. The age of the firm is computed on a yearly basis.

In this study the dependent variable describes the level of return (investor) that can be used in assessing stock performance. Abnormal returns are often used to assess the performance of securities.

Follow by the Brown and Warner (1985) methodology to calculated the return is computed:

$$R_{i,t} = \frac{P_{i,t} - P_{i,t-1}}{P_{i,t-1}} \quad (1)$$

Where, $R_{i,t}$ is stock return for stock "i" and day "t" and $P_{i,t}$ is stock closing price.

We use market Returns (MrkRet) of LQ45 index daily as market returns calculated as :

$$R_{m,t} = \frac{P_t - P_{t-1}}{P_{t-1}} \quad (2)$$

Abnormal returns (AR) used for computation where subscript "i" represents a stock and 't' quarter of in a year. We consider LQ45 index return as market benchmark.

$$AR_{i,t} = R_{i,t} - R_{m,t} \quad (3)$$

Illiquidity-We compute liquidity of each stock with Amihud illiquidity ratio. The following formula for computing daily volatility as follows:

$$ILLIQUIDITY_{i,t} = \frac{1}{D_{i,m}} \sum_{d=1}^{D_{i,m}} \frac{|R_{i,d,m}|}{VOLD_{i,m,d}} \quad (4)$$

where D_{im} is the number of days for which data is available for stock i in month m, R_{imd} is the return on stock i on day d of month t, and $VOLD_{imd}$ is the respective daily volume in rupiah.

Dummy for Valuations (Dum value) use to control for the influence of stock valuation can be used by P/E ratio. Stock is classified as cheap

stock if the P/E stock < P/ELQ45 and dummy variable (Dum value) equals 1 otherwise 0.

$$P/E = \frac{Price}{Earning\ per\ Share} \quad (5)$$

Institutional Ownership - The corporate disclosures cover ownership patterns showing overall institutional ownerships in the secondary market. The ownership percentage calculated as :

$$Ownership_{i,t} = \frac{Total\ Equity\ Institutional\ Investors\ ownership}{Total\ number\ of\ outstanding\ Equity\ shares} \quad (6)$$

Chan et al. (2013), and Gompers and Metrick (2001) used model specification in examining the effect of Institutional investor behaviour around Index rebalancing events on abnormal return. The model is represented as follows:

$$AR_{i,t} = \alpha + \beta_1 \Delta IO_{i,t} + \beta_2 \Delta Illiquidity_{i,t} + \beta_3 \log(Age)_{i,t} + \beta_4 \log(Size)_{i,t} + \beta_5 Dum_value_{i,t} + \epsilon_{i,t} \quad (7)$$

where, AR as dependent variable is abnormal return. We estimate the above regression by using independent variables, there are IO is institutional ownership in the secondary market and Illiquidity is liquidity ratio follow by amihud illiquidity ratio. The control variable natural log of firm age (Log(Age)), natural log of firm size (Log(Size)), and dummy variable.

3. RESULTS AND DISCUSSION

This study uses an event study approach where the research period of ten (10) years is using the LQ45 index rebalancing event from 2010 to 2019. Some data used in this study is a combination of daily, quarterly and annual data. For stock price data, stock transaction value, market capitalization, index closing price, number of outstanding shares and total institutional ownership are daily data. Whereas the company earnings data uses quarterly data. In the age data the company uses annual data.

The amount of data used in the observation is 4,920 which is daily data of shares with variable

stock prices, LQ45 index, stock market capitalization, company age, number of outstanding shares, number of shares owned by institutional investors and number of investors. The number of observations includes data from

164 events added and deleted of shares of the LQ45 index constituents where the data starts from fifteen (15) days before the announcement to fifteen (15) days after the announcement of changes in the LQ45 index constituents.

Table 2 Data Descriptive for all the variables.

Variable (1)	Obs. (2)	Mean (3)	Median (4)	Min. (5)	Max. (6)	STD (7)
Stock Price	4.920	2.813	1.135	50	111.175	8.302
LQ45 Index level	4.920	799,34	761,94	479,17	1.132,19	144,49
Stock Market Cap (Bn Rp.)	4.920	17.715	10.546	932	517.266	38.674
Age of firm in Event year	4.920	33	31	2	103	18
Number of outstanding shares (Mn)	4.920	14.794	9.732	840	93.722	15.280
Institutional investor ownership (Mn)	4.920	8.560	4.481	192	63.280	9.932

Table 2 reports descriptive statistics data for all the variables considered in this study, with daily financial data set. The average market capitalization of the sample is 17,715 billion rupiahs with the average age of 33 years. The number of shares owned by institutional investors is 8,560 million shares or 58% of the total outstanding shares of the entire sample by an average 14.794 million shares. Table 2 also illustrates the characteristics of the stock sample in this study. The size of the company measured using market capitalization is the data at the end of the trading day obtained by multiplying the closing price of shares by the total outstanding shares. The results of these descriptive statistics show the value of a larger company size in the stock category entered the index constituents compared to the stock category out index constituents. Where the average size of shares of

companies included in the LQ45 index constituents was 24,784 billion rupiahs while the category of shares out of the LQ45 index constituents had an average company size of 10,643 billion rupiahs. Category stocks included in the LQ45 index are judged to be more indicative of an increase in stock performance as indicated by the average cumulative return value on category stocks included in the index from 15 days to 1 day before the announcement of index re-balancing is greater than index exit stocks. Table 3 shows the average value of cumulative returns in the stock category included in the index by 0.40% compared to the stock category index out with a value of 0.19%. The results of the analysis of the market capitalization are in line with research conducted by Chan et. al. (2013).

Table 3 Descriptive Statistics of the Sample Stock Characteristics.

	Market Capitalization (x 10 ⁹)	Stock Return Before Announcement (%)
Panel A : Stock added to index		
Mean	24.784	0,40
Median	13.834	0,41
Std. Deviasi	52.986	0,43
Panel B : Stock deleted from index		
Mean	10.643	0,19
Median	8.304	0,32
Std. Deviasi	9.190	0,36

To examine hypotheses (H1 and H2) by analyzing the dataset for two sub-sample periods: 15 days before the announcement of the index rebalancing results up to 15 days after the announcement of the index rebalancing results. Fig. 5 illustrates the number of share ownership by institutional investors in the category of added and deleted shares in the LQ45 index. Stock categories included in the LQ45 index showed an increase in institutional ownership after the announcement of the index rebalancing. The increase starts on the day of the announcement (H). Whereas the stock category out of the LQ45 index showed a significant decrease on the day of the index rebalancing

announcement but it did increase and tended to be stable after the announcement.

The results of this study indicate support for the investor awareness hypothesis where changes in share constituents in the LQ45 index shown in this study can move the number of institutional ownership on the day around the announcement of the index rebalancing results. The increase in institutional ownership of shares in the constituent category tends to increase after the announcement in a relatively long period of time. Whereas the decrease in share ownership by institutional investors in shares of the constituent category shows a decline in a short time and again increased and has a tendency for stable institutional ownership.

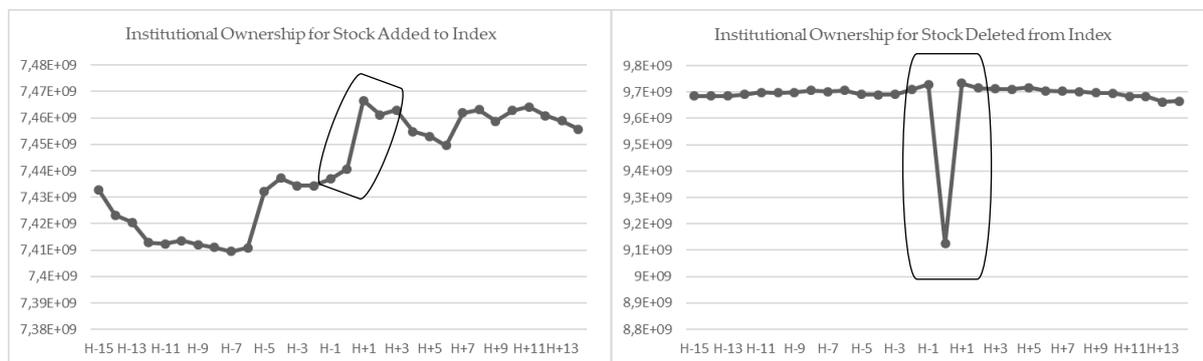


Figure 5. Institutional Ownership of Constituent Changes in the LQ45 Index

In accordance with what was stated earlier, these results are in accordance with previous research by Chan et. al. (2013) who examined the

effect of changes in institutional investor ownership on the S & P500 index from 1985 - 2003. Chan et. al (2013) had an expectation that

institutional ownership would increase in shares of the incoming category, conversely a decline in the shares of the index exit category index. The results showed that stocks in the S & P500 index constituent categories overall proxy for analyzing the effect of index re-balancing showed a significant increase in value before re-balancing, this indicated an increase in institutional investor demand for these shares occurred before the change in index constituents in the period. The increase in demand is likely due to good performance in terms of stock prices or company operations that can increase investor demand for share.

Table 4 shows the results of the regression explaining the relationship between institutional ownership, stock liquidity and stock performance in the study sample, which are stocks that are exiting and leaving the LQ45 index for the period 2010 to 2019. Panel A is a panel that shows the effect of the independent variables on the dependent variable 15 days before the announcement of LQ45 index rebalancing. Panel B illustrates the effect of changes in institutional ownership, stock liquidity, company age, company size, and dummy variables as independent variables on abnormal returns as the dependent variable 15 days after the announcement.

Institutional ownership in stock categories added or deleted the index constituents in the period before the index rebalancing event had an insignificant positive effect on abnormal returns. The coefficient value on the change in institutional ownership (ΔIO) in panel A table 4.11 is worth 0.085008 for categorized index shares and 0.003177 for index exited category shares where probability values are above 0.05 (probability value 0.53 for category shares index entry and 0.75 for stock index exit index). Similarly, the results of changes in institutional ownership shown in panel B. The probability value of the effect of changes in institutional ownership (ΔIO) on abnormal returns is not significant with a probability value of 0.67 in categorical stocks included in the index and 0.42

in categorical shares index exit. But there is a difference in the direction of the relationship which is indicated by a coefficient value of 0.054 in shares entering the index constituents and a negative 0.011 in shares leaving index constituents.

This result is in accordance with Fig5, where the researchers found that institutional investors increased their ownership in the category of shares included in the index and in stocks that were removed from the index there was no evidence to strongly support the decline in ownership. The regression results also show support for the investor awareness hypothesis.

These results are consistent with previous research, conducted by Chan et. al. (2013) who examined the effect of changes in institutional investor ownership in the S & P500 index from 1985 - 2003. In research conducted using the annual time span showed an increase in institutional ownership in the category of shares included in the S&P500 index from before the announcement of the re-balancing index, but in the period after the announcement there were stable indications of institutional ownership of these shares. In the stock category out of the index there was a significant decrease in the period before the announcement, while in the period after the announcement there was an increase in ownership. This indicates that the decline in stock category out of the index occurred only temporarily. Further Chan et. al. made shorter observations with a quarterly time span in the period after the announcement of up to 5 years, found that there was no increase in institutional ownership in the category of shares included in the index up to 1 year and in the category of shares out there was no decrease in ownership over the long term.

Research by Pruitt and Wei (1989) shows that in the same index as the quarterly research period from 1973 - 1986 found a positive correlation between share ownership by changes in the constituents of the S&P500 index and institutional ownership. On the results of statistical tests on the average percentage of

institutional ownership showed significant positive results at all research intervals. This finding divides the study time interval into three (1973-1979, 1980-1986 and 1973-1986) and finds that there is a large increase in institutional ownership during the first time interval due to the impact of the S&P500 index. In the category

of shares out of the index only has a sample of 17 shares so that the research time intervals in that category only use the entire research year (1973-1986) and find a decrease in the percentage of institutional ownership with a significant level of 10%.

Table 4 Institutional ownership in the secondary market and stock performance around LQ45 index rebalancing event

Panel A: Institutional Holding: Pre- Index Rebalancing Event				
Parameter	Added to Index		Deleted from Index	
	Coefficient	Prob	Coefficient	Prob
Residual	-0.000622	0.9863	-1.792875***	0.0001
Δ IO	0.085008	0.5309	0.003177	0.7539
Δ Illiquidity	1150.037***	0.0000	41.58869	0.1295
Log(Age)	0.002797*	0.0664	0.092721	0.3440
Log(Size)	0.000274	0.8173	0.050537***	0.0000
Dum_value	0.001393	0.5737	0.003229	0.6319
Adj R ²	0.023151		0.219390	
Jumlah Observasi	1.230		1.230	

Panel B: Institutional Holding: Post- Index Rebalancing Event				
Parameter	Added to Index		Deleted from Index	
	Coefficient	Prob	Coefficient	Prob
Residual	-0.032808	0.1938	0.042926*	0.0831
Δ IO	0.053969	0.6690	-0.010690	0.4187
Δ Illiquidity	660.8060***	0.0004	42.42854*	0.0670
Log(Age)	0.000588	0.5642	0.000479	0.6971
Log(Size)	0.001579*	0.0561	-0.000864	0.3083
Dum_value	0.001448	0.4035	0.000169	0.9102
Adj R ²	0.012356		0.004117	
Jumlah Observasi	1.230		1.230	

Hegde and McDermott (2003) who examined the NYSE shares in the S & P500 index from 1993-1998. This study showed an increase in institutional ownership in shares included in the index. This finding indicates an increase in share ownership by index mutual funds and other institutional investors in index-based products.

The insignificant change in institutional ownership in influencing the value of abnormal returns can be caused by institutional investors

not paying full attention to the shares of the LQ45 index constituent category. As stated in the research by Koesrindartoto et. al. (2020) that institutional investors in the Indonesian Capital Market have a tendency of transactions with low frequency with a choice of shares that have high market capitalization and long-term ownership.

4. CONCLUSIONS

The previous studies on the effect of institutional ownership behavior in the secondary market on stock index performance around index rebalancing majorly focused on developed markets and Indonesia stock market is not empirically explored. We investigate the effect of change in institutional ownership on stock performance from 2010 to 2019 around LQ45 index rebalancing.

We observe changes in the number of institutional ownership in shares in the category have a positive effect on stock performance. In the category of shares leaving the index, changes in institutional ownership negatively affect stock performance. But this influence both on the stock category and the index exit is not significant. That is because the habits of institutional investors in the Indonesian Capital Market have a tendency to conduct transactions with low frequency with a choice of shares that have high market capitalization and long-term ownership. Our results are consistent with previous research (Pruit and Wei, 1989; Hegde and McDermott, 2003; Chan et. al., 2013), where authors argue an increase in institutional ownership in shares included in the index and the decline in stock deleted from the index occurred only temporarily. The insignificant change in institutional ownership in influencing the value of abnormal returns can be caused by institutional investors not paying full attention to the shares of the LQ45 index constituent category may be due to the Indonesia institutional investor behavior (Koesrindartoto et. al., 2020).

To the best of our knowledge, this study is the first study in Indonesia capital market to provide a comprehensive analysis of the short-term performance of stocks added to or deleted. This study analyzes the effect of rebalancing just on the LQ45 index, there are potential differences in results on other stock indexes due to differences in the method of calculating the index used to determine the index constituents. The total value that is used as a proxy for institutional ownership in this study uses only total value due

to time constraints in conducting research. The limitation of literature references as well as the data that can be used also becomes a limitation to conduct more in-depth research to each type of institution. The researcher hopes for further research so that deeper conclusions can be obtained based on the type of institution in the institution ownership variable.

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