“Central bank announcements on interest rate changes and stock prices of Indonesian banking industry”

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ARTICLE INFO	Tatang Ary Gumanti, Ayu Retsi Lestari and Novi Puspitasari (2015). Central bank announcements on interest rate changes and stock prices of Indonesian banking industry. *Investment Management and Financial Innovations*, *12*(3-1), 200-205
RELEASED ON	Thursday, 29 October 2015
JOURNAL	"Investment Management and Financial Innovations"
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
0	0	0

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Central bank announcements on interest rate changes and stock prices of Indonesian banking industry

Abstract

This study examines the effect of the announcement of the central bank of Indonesia rates (BI-rate) increase in 2013 on stock prices of banking sector at Indonesian Stock Exchange. During the year 2013, Bank Indonesia has increased six times BI-rate. The study uses the event study framework on a total of 28 public banks. Results show that there are significant abnormal returns in the period prior to the announcement, on the announcement date, and after the announcement of the BI-rate increases. It also documents significant difference of abnormal returns between before and after the event date. Overall, the announcements of interest rates increases significantly affect the banks' stock prices.

Keywords: Bank Indonesia rates, abnormal returns, interest rates, event study.
JEL Classification: E58, G31.

Introduction

In Indonesia, the central bank of Indonesia, Bank Indonesia or BI, determines the level of interest rate, known as Sertifikat Bank Indonesia or Bank Indonesia Certificate or BI-rate. Bank Indonesia has full discretion in deciding the rate. The decrease or increase of BI-rate is used as benchmark by banking industry to determine the interest rates for lending and funding.

The changing of interest rate theoretically will be anticipated by investors in the stock market. If the deposit rate increases, investors would reduce their investment portfolio and shift them into saving or deposit account as it gives better and certain interest rate with low or even no risk Bank Indonesia guarantees the account up to certain level. This would make stock prices tend to go down. Conversely, the stocks prices tend to go up when there is a decrease in interest rate.

Bank Indonesia has changed BI-rate for many times. In a single year of 2013, BI made six changes. The main purpose of the changes is to maintain the exchange rate of Rupiah against US dollar. For example, on June 13, 2013, Bank Indonesia Board of Governor decided to increase BI-rate on 25 basis points (bps) to 6.00 percent from previously of 5.75 percent. BI undertook the policy to lift up BI-rate in an attempt to take premtive action as anticipation of the rising of inflation rate. Apart from that purpose, Bank Indonesia is trying to keep macro economic and financial system stability by maintaining domestic money and exchange rate market liquidity given uncertainty in the global financial market.

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Bank Indoensia's policy to increase BI-rate has made stock market and bond market under pressure. For example, stock market indice fell 605 points (11.6 percent) from its highest level of 5,214.98 on May 13, 2013. Table 1 shows the stock market reaction on the announcements of BI-rate increase in 2013 both for financial sector and composite indices. The market reacts differently, although mostly the indices move in positive direction. For financial sector, four events have positive effect and two events have negative effect. Evidence shown in Table 1 indicates that Indonesian stock market anticipate the announcements of BI-rate increases.

Table 1. Stock market reaction on the day of announcement of BI-rate increase

No	Announcement date	BI–rate	Indices	
			Financial sector	Composite
1	May 14, 2013	5.75% (Up 25bps)	Increased 0.92%	Increased 1.01%
2	June 13, 2013	6.00% (Up 25bps)	Decreased 1.31%	Decreased 11.60%
3	July 11, 2013	6.50% (Up 50bps)	Increased 4.40%	Increased 2.80%
4	Aug. 29, 2013	7.00% (Up 50bps)	Increased 0.28%	Increased 1.92%
5	Sept. 11, 2013	7.25% (Up 25bps)	Increased 0.51%	Increased 1.00%
6	Nov. 12, 2013	7.50% (Up 25bps)	Decreased 2.82%	Increased 1.03%

Empirical evidence shows that the stock market reacts to the presence of macro events, both economic and non-economic factors. For example, studies in Indonesian capital market, i.e., Suryawijaya and Setiawan (1998), Manullang (2004), dan Zaqi (2006) show that economic events, either macro economic or micro economic, affect the stock prices and trading volume activities. While in the foreign capital markets, some empirical evidence shows support that macrofactors affect stock prices (for example, Bernanke and Kuttner, 2005; D'Agostino et al., 2005; Valadkhani and Harvie, 2007).

This study aims to analyze the effect of the announcement of BI-rate increase occuring in 2013 on banking stocks. The results using a sample of 28 banks indicate that investors earn abnormal returns in the period before, on the date of, and after the announcements. Abnormal returns are found to be different in the period before and after the announcements of BI-rate increase.

1. Literature review and hypotheses development

Empirical research on event study refers to the notion that an unexpected event, whether macro or micro events, shall change the perception of investors in the capital market by making immediate adjustments. The event study is developed to analyze market reaction to an event that becomes public. The purpose of event study is to measure the relationship between the event and the return of the securities (Peterson, 1989; MacKinlay, 1997; McWilliams and Siegel, 1997).

Some studies have analyzed whether a macro event is anticipated by market participants. For example, Bernanke and Kuttner (2005) analyze the effects of changes in the federal bank interest rates on stock prices in the United States. They used the value weighted indices of the data in The Center for Research in Security Prices (CRSP) from June 1989 to December 2002. The results show that when the Central Bank cuts interest rates by 25 basis points, the stock prices increase by an average of 1 percent. This suggests that the increase (decrease) in interest rates will be followed by a decrease (increase) in stock prices. Stiglitz and Weiss (1981) contend that when the US Federal Reserve increases interest rate, bank stocks would lose value.

D'Agostino et al. (2005) examine the effect of interest rate of the US's Federal Reserve against the S&P 500 from 1985 to 2004. The results show that when the economy is at inflation, the market value declines by 5%. Tightening monetary policy by 50 basis point has triggered a decline in the S&P 500 by 4.7%. The study also reports that the increase in interest rates by 50 basis points unexpectedly cause a decrease in S&P 500 by 2.3%. Results of D'Agostino et al. (2005) are not supported in Australian setting. Vaz et al. (2008) document that Australian bank stock returns react positively on the announcement of official interest rate increases by the Reserve Bank of Australia, as indicated by no significance in cummulative abnormal returns (CARs) after the events. However, for pre-event windows and on-event date, Vaz et al. report negative CARs.

Valadkhani and Harvie (2007) investigate the effect of macro economic variables and the world stock market indeces on the stock market of Thailand. They examine interest rate, exchange rate of Bath, as well as the stock market indices from several countries using monthly data from 1988 to 2004. The results show that macro economic variables do not have significant influence on the movement of the stock exchange of Thailand except for the oil price changes. Southeast Asian stock market movements have significant influence on the stock exchange of Thailand for both before and after the crisis, while the international markets do not have significant influence. For period before the crisis, Malaysian and Indonesian markets are regarded as the most dominant influence on the stock exchange of Thailand, while after the crisis the role is replaced by the Phillipine and Korean stock markets.

Meanwhile, in Pakistan capital market, Jawaid and Ul-Haq (2012) find negative relationship in the long and short-term between the exchange rate and stock returns, Geetha et al. (2011) find that there is a relationship between inflation and stock prices in the long term in Malaysia and the United States, but in the short term, the inflation is not related to the stock price movements, except in the Chinese capital market. Both studies suggest the importance of considering the length of period to assess the effect of interest or inflation on stock prices.

Several event studies in Indonesia show mixed results on the movement of abnormal returns. For example, Manurung and Cahyanti (2007) find no significant difference between before and after four political events in Indonesia, namely the announcement of the general legislative election, the announcement of presidential election results, the announcement of the new cabinet, and the announcement of cabinet turnover. Meanwhile, Arisyahidin (2012) finds abnormal returns in the five days before and after the announcement of the oil price increase for which in the post-event period, the abnormal returns are negative. Suryawijaya and Setiawan (1998) report significant negative abnormal returns on their study after the political turnmoil on July 27, 1997.

BI-rate changes are believed to have an impact on the perception of investors which will affect their invesment decisions. The increase of BI-rate, which is usually followed by an increase in the bank deposit rates, will cause investors to sift their funds to deposits held at banks. If the deposit interest rate offered by banks is higher than the rate of return expected by investors with minimum risk, investors will divert their funds to deposit accounts. To withdraw the funds, investors have to sell the shares and the stock price will go down and consequently there will be a decline in the stock prices (Ardian, 2010).

The aforementioned arguments suggest that capital markets react to macro economic events, in particular when the events are perceived to bring

about the market to decline, so the stock market performance will worsen. Following Stiglitz and Weiss (1981), Lee (1992), D'Agostino et al. (2005) and Valadkhani and Harvie (2007), we predict that Indonesian capital market participants will react on the announcement of the BI-rate increases. Under the efficient market hypothesis, the stock market shall anticipate and react instantly to new information. When the information is material, market participants will adjust their portfolios.

The announcement of BI-rate increase is believed to be material as it will directly affect the interest rates offered by Indonesian banks. BI-rate has been used as a benchmark to set up the interest rate of the banks. We argue that the changing in BI-rate will be directly anticipated by the banks. Although the immediate effect of the BI-rate increase on the bank performance is obvious, the capital market participants will use that information to change their stock portfolios. We argue that capital market participants will always take action to anticipate for new information and make adjustment of their portfolio. Consequently, the stock market will react to the announcement of BI-rate not only on the date of announcement, but also after the announcement. However, how long the market will react depends on the quality of the information. Thus, based on these reasons, two hypotheses are proposed:

H_1 = There is abnormal return of banking stocks in the period before and after the announcements of BI-rate increase.

H_2 = There is abnormal return difference between before and after the announcements of BI-rate increase.

2. Research methods

The population of this study includes the banking firms listed at Indonesian Stock Exchange (IDX) in 2013 of which there were 36 banks. The sample firm must satisfy the following criteria:

a) Firm must be listed in the IDX as of January 2013. This criterion is proposed because if the firm went public during the year 2013, the market response to the firm is not genuine considering that newpublic firms will be anticipated differently by market participants.
b) The stock of the firm must have sufficient trading liquidity with a minimum of 200 days in a year.
c) The firm is not performing corporate actions, such as merger, acquisition or issuing additional shares over the period of analysis. This is needed to avoid the possibility of other effects on the company's stock price that can not be controlled, i.e., whether the stock price movement is due to the effects of the events under study or whether due to the effect of corporate action.
d) Abnormal return is measured as the difference between actual return and expected return, expressed as the following equation:

$$AR_{it} = R_{it} - E(R_{it}),$$

where AR_{it} is abnormal return of stock i on period t, R_{it} is actual return of stock i on period t, and $E(R_{it})$ is the expected return of stock i on period t.

Actual return (R_{it}) is calculated using the following formula:

$$R_{it} = \text{Ln}\ (P_t/P_{t\text{-}1}),$$

where P_t is price of stock i on period t, and $P_{t\text{-}1}$ is price of stock i on period t-1.

The expected return is estimated using the single index model that can be expressed as follows:

$$E(R_{it}) = \alpha_i + \beta_i E(Rm_t),$$

where α_i is the alpha factor, β_i is the sensitivity of returns of stock i over the market movements (also known as beta of stock i), Rm_t is the market return on period t and is calculated as follows:

$$Rm_t = \text{Ln}\ (MI_t/MI_{t\text{-}1}),$$

where MI is market composite indice.

3. Results and discussion

Table 2 presents the sampling selection process. As shown in Table 2, from 36 banks listed in 2013, four banks went public during the year and consequently were excluded from the sample frame. During the observation period, four banks were identified as being not liquid, i.e., the stocks were not traded of at least 200 trading days in a year. In addition, there was no firm making corporate actions over the year. A total of 28 firms met the selection criteria.

Table 2. Sample selection process

Description	Total
Firm listed on IDX as of 2013	36
Firm went public in 2013	(4)
Firm went public before 2013	32
Firm with illiquid stock trading (less than 200 days) in a year	(4)
Firm with liquid stock	28
Final sample	28

The first hypothesis is tested by analyzing the abnormal return on all observation days, i.e., before the announcement, on the announcement date, and after the announcement. Table 3 presents the summary of tests of abnormal returns.

Table 3. Results of test on the existence of significant abnormal returns

Day	May 14		June 13		July 11		August 29		September 12		November 12	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Day -5	0.011[a]	0.013[x]	-0.021[a]	-0.022[x]	-0.020[a]	-0.021[x]	-0.019[a]	-0.020[x]	-0.019[a]	-0.020	0.007[a]	0.007[x]
Day -4	**-0.005[a]**	**-0.004[x]**	0.019[a]	0.020[x]	-0.039[a]	-0.041[x]	-0.024[a]	-0.024[x]	-0.024	-0.024[x]	0.012[a]	0.012[x]
Day -3	0.001	0.000	-0.036[a]	-0.038[x]	-0.002[a]	-0.002[x]	-0.027[a]	-0.028[x]	**-0.027[a]**	**-0.028[x]**	0.016[a]	0.017[x]
Day -2	0.003[a]	0.004[x]	-0.005[a]	-0.004[x]	**-0.006[b]**	**-0.004[x]**	0.020[a]	0.021[x]	0.020[a]	0.021[x]	-0.015[a]	-0.016[x]
Day -1	-0.012[a]	-0.013[x]	-0.015[a]	-0.016[x]	**-0.009[a]**	**-0.010[x]**	-0.020[a]	-0.020[x]	-0.020	-0.020	0.006[a]	0.006[x]
On	-0.012[a]	-0.014[x]	0.007[a]	0.007[x]	**-0.011[a]**	**-0.011[x]**	**0.017[a]**	**0.020[x]**	0.017[a]	0.020[x]	-0.013[a]	-0.014[x]
Day +1	0.008[a]	0.008[x]	0.038[a]	0.039[x]	**0.000**	**-0.002[x]**	0.002[a]	0.001[x]	0.002[a]	0.001[x]	-0.002[b]	-0.002[x]
Day +2	-0.003[a]	-0.002[x]	0.025[a]	0.026[x]	0.009[a]	0.009[x]	-0.009[a]	-0.011[x]	-0.009[a]	-0.011[x]	0.009[a]	0.010[x]
Day +3	0.018[a]	0.020[x]	0.019[a]	0.020[x]	**-0.022[a]**	**-0.023[x]**	-0.035[a]	-0.036[x]	-0.035[a]	-0.036[x]	0.005[a]	0.004[x]
Day +4	-0.006[a]	-0.006[x]	0.001	0.002[y]	0.010[a]	0.010[x]	-0.045[a]	-0.048[x]	-0.045[a]	-0.048[x]	0.001[b]	0.001[y]
Day +5	0.016[a]	0.017[x]	-0.042[a]	-0.044[x]	0.008[a]	0.009[x]	-0.002[a]	-0.003[x]	-0.002[a]	-0.003[x]	-0.003[a]	-0.004[x]
Days -5 to -1	-0.0004	0.0001	-0.0117[a]	-0.0119[x]	-0.0150[a]	-0.0151[x]	-0.0140[a]	-0.0152[x]	-0.0084[a]	-0.0091[x]	0.0052[a]	0.0052[x]
Days +1 to +5	0.0066[a]	0.0066[x]	0.0085[a]	0.0087[x]	**0.0012**	**0.0006**	-0.0178[a]	-0.0184[x]	0.0013[a]	0.0010[x]	0.0020[a]	0.0011[x]

Note: [a, b] denote significant at 1% and 5% levels respectively using parametric tests. [x, y] denote significant at 1% and 5% levels respectively using parametric tests. Numbers printed bold indicate the data distribution is not normal.

As shown in Table 3, most of the data are normally distributed, and consequently the parametric statistics are used to test the hypotheses for these data. The study finds that the announcement of BI-rate increases has generated significant abnormal returns on days surrounding the event. The study documents only eight days out of all observations days where there is no significant abnormal returns. It can be seen that the abnormal returns tend to be positive on days after the event dates, but mixed results on days before the event dates. Negative abnormal returns are found in the following events, June 13, July 11, August 29, and September 12, whilst positive abnormal returns are documented in May 14, June 13, July 11, and November 12. Abnormal returns on the event date are mixed. Interestingly, the abnormal returns on the event date are in contrast to the actual returns as reported in Table 1. Observation on the average abnormal returns before the events (days -5 to -1) shows that only the May 14, 2013 event that abnormal return is insignificant, whilst for after the event (days +1 to +5), average abnormal returns are insignificant on event date of July 11, 2013.

Based on the tests on six time events of announcement of BI-rate increase (Table 3), it is known that the events produce consistent abnormal returns. Significant abnormal returns are found in most of the days surrounding the events. Given these findings, the proposed hypothesis (H_1) can not be rejected.

The second hypothesis is tested by comparing the mean (median) abnormal returns between before and after the events. Results of the tests on the differences in abnormal returns on the six events are summarized in Table 4. In the table, we can see the parametric base testing (Panel A) and non-parametric base testing (Panel B).

As can be seen in Table 4, both the parametric and non-parametric tests produce significant difference between the mean (median) abnormal returns in the five days before and five days after the announcements. Mean abnormal returns after the event increase in four out of six events. Qualitatively similar findings are reported for the median test results. These indicate that the market reacts positively to the announcement of BI-rate increases. Referring to the results of the tests, it is clear that the second hypothesis can not be rejected. In other words, the announcement of BI-rate increase is reacted by the capital market participants.

Table 4. Results of tests on difference of abnormal returns

Event date	Panel A: Parametric tests (t-test pair samples for mean)			Panel B: Non-parametric test (Wilcoxon test pair samples for median)		
	Before	After	t-stat	Before	After	z-stat
May 14	-0.0004	0.0066	-17.547[a]	0.0001	0.0066	-4.464[a]
June 13	-0.0117	0.0085	11.693[a]	**-0.0119**	**0.0087**	**-4.623[a]**
July 11	-0.0150	0.0012	30.133[a]	-0.0151	0.0006	-4.620[a]
August 29	-0.0140	-0.0178	-22.00[a]	-0.0152	-0.0184	-4.622[a]
September 12	-0.0084	0.0013	-18.166[a]	-0.0091	0.0010	-4.600[a]
November 12	0.0052	0.0020	-11.570[a]	0.0052	0.0011	-4.532[a]

Notes: [a] Indicates significant at 1% level. Figures in bold are the results of the analysis when the data do not meet the normal distribution asumptions.

The results of this study support Bernanke and Kuttner (2005) who find that the investors in the US capital markets reacted to the announcement of a decrease of the interest rates. D'Agostino et al. (2005) also report that investors react negatively on the announcement of the interest rate tightening in the United States.

Results reported in this study are inconsistent with Valadkhani and Harvie (2007) who examine Thailand stock market reaction on a number of macroeconomic indicators. The currrent study also does not support Jawaid and Ul-Haq (2012) who find no relationship between interest rates and stock prices in the capital market of Pakistan, and Geetha et al. (2011) document that in the short term inflation is not related to the stock returns for the Malaysian capital market and the United States, although in the Chinese capital market the relationship is evident in the short term.

With regard to evidence that the announcements of BI-rate increase are responded by investors in the banking sector, we believe that investors interested in the stocks of the banking sector in Indonesia Stock Exchange consider the events are material in the short term. As can be seen in Table 4, all the six events produce significant abnormal returns. The Indonesian capital market participants may fully anticipate the policy changes on interest rates in the short term.

The study identified two limitations. First, this study does not isolate the possibility of the existence of other events around the period of observation. Although, the observation was made using narrow window, which is only five days, we do not guarantee that there are other events that may have an impact on investors' perceptions related to their investment decisions of stocks in the banking sector. Second, this study does not incorporate the analysis with the trading volume activity of the stocks. Although the study requires that the selected stock has to be traded at least a minimum of 200 days a year, the possibility of thin trading may affect the overall findings.

Conclusion and suggestions

This study examines the effect of the announcements of the BI-rate increase during 2013 on the stock prices of the banking sector listed at the Indonesia Stock Exchange. It finds significant abnormal returns in the period prior to the announcement, on the announcement date and after the announcement. It also finds significant difference between mean abnormal returns in the periods before and after the events. Overall, this study finds that the announcements of the BI-rate increase significantly affect the bank stock prices.

Two suggestions for future studies emerge. First, future study may focus on bank stocks with storng liquidity and wherever possible to isolate the effects of other events (confounding effects) around the event date. Second, future study may include the analysis by adding trading volume activites. If the event is believed to attract serious investors' attention, then the volume of shares traded was supposed to increase.

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