The Impact of Bank Restructuring Announcement on the Banking Stock Prices:
The Cases of Indonesia's Banking Reforms on March 13, 1999, and The Issuance
of Government Bonds on May 28, 1999 (M. Fendi Susiyanto): 37—61

THE IMPACT OF BANK RESTRUCTURING ANNOUNCEMENT ON THE BANKING STOCK PRICES
The Cases of Indonesia's Banking Reforms on March 13, 1999, and The Issuance of Government Bonds on May 28, 1999

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This study is an event study that aims to investigate how successful the banking reforms measures that has already been done by the Indonesian government in order to strengthen its banking system. There were two events to be investigated in this study, first (1) The banking reforms announcement on March 13, 1999 which consists of the closure of 38 private banks, the taken-over of 7 private banks, 9 private banks will be recapitalized, and let 73 private banks to continue their operation without joining the recapitalization program; second (2) on May 28, 1999 Minister of Finance issued government bonds amounted to Rp 103,831 trillion to complete the private banks' recapitalization, and also issued the other government bonds to repay the obligations of frozen commercial banks' and rural banks' regarding its liquidity support, to Bank Indonesia amounted to Rp 53,779 trillion.

These two events above, are expected to be good news or favorable information for investors on the Jakarta Stock Exchange (JSX), and should be responded positively by investors which indicates significantly increases on banking stocks after the event dates.

Thirteen samples of banking stocks which were listed on the Jakarta Stock Exchange (JSX) at the beginning of 1997 were used to investigate the reaction of banking stocks around the dates of these two events. By using the paired-samples mean difference test, we did not find significant dif-

ferences between abnormal returns before and after the event dates. Furthermore, the cumulative abnormal return of banking stocks around the banking reforms announcement on March 13, 1999 and the issuance of government bonds announcement on May 28, 1999 were decreasing gradually until it reached the negative area. Trading Volume Activity (TVA) test, on the banking stock volume around the banking reforms announcement on March 13, 1999 has found that TVA of banking stocks after the event date was significantly greater than TVA of banking stocks before the event date. The result was not found on the issuance of government bonds event.

In general, from these results, it can be concluded that the banking reforms measures done by the government was not successfully implemented from the market's point of view.

The abnormal return tests have been conducted, yet it is still found a significant abnormal return around both the banking reforms announcement on March 13, 1999 and the issuance of government bonds announcement on May 28, 1999. These findings did not support the semi-strong efficiency of the Jakarta Stock Exchange (JSX).

Keywords: banking reforms; government bonds; Jakarta Stock Exchange (JSX); nonperforming loan (NPL); recapitalization program

Introduction

The currency crisis of Thailand's Baht that happened in the beginning of 1997, slowly but surely has impact on other Asian Countries' currency, through the contagion effect. The crisis has deteriorated the real sector and later on injured the economic growth and even brought the Asian economic towards negative growth (contraction). The prolong crisis, has finally destroyed the banking sectors in Thailand, South Korea, Malaysia, and Indonesia. The emerging of Asian banking problems, indicated by substantial increase of Non-Performing Loans, was caused by the inability of real sectors to comply with its obligations to banks when maturity. On the other hand, banking sectors experienced negative spread as an impact of tight money policy conducted by the government to drive up the currency appreciation.

Other problems faced by the banking sectors was a foreign liquidity problem. The average maturity of foreign debt by banking sectors was very short, and the depreciation of Asian countries has worsened the situation because foreign debt had become huge amounts.

Those dominant factors above, has been eroding the capital of banking sectors, and has brought the banking sector to an insolvent condition.

The serious problem faced by the banking system in the Asian region has forced the banking authorities to strengthen the banking system through banking restructuring programs, including financial restructuring and operations restructuring.

In the implementation of banking restructuring programs, each Asian countries used different approaches, depending on the characteristics and the depth of the problem faced by its banking sector. In Indonesia's case, to strengthen its banking sector, several measures has been taken, as in Figure 1.

Figure 1. **Non-performing Loans in Asia: 1998 (Percent of total loans)**
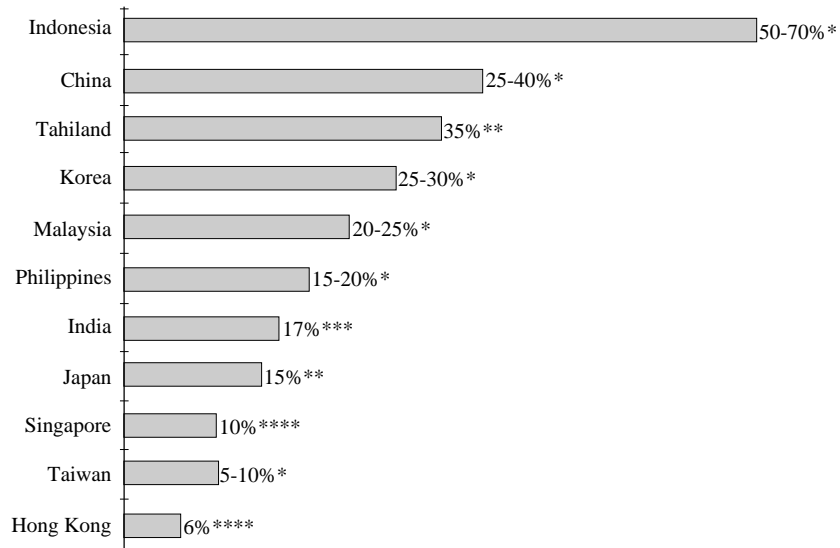
Notes:

  *) Range of estimate from various sources, actual amounts not publicly available.

  **) Actual at June 1998

  ***) Actual at December 1997

  ****) Actual at December 1998

Sources: Banking in Asia: The End of Entitlement, John Wiley & Son, 1999.

All national banks were classified into three categories based on the level of their CAR, which are categories A, B, and C.

a. A national bank is included into category *A*, if Capital Adequacy Ratio (CAR) equals to or is greater than 4 percent.

b. A national bank is included into category *B*, if CAR lies between minus 25 percent and is less than 4 percent, and

c. A national bank is included into category *C*, if CAR is less than minus 25 percent.

These Bank's classification has been done through *due diligence* was performed by an international auditor agreed by the International Monetary Fund (IMF), the World Bank, and the Asian Development Bank (ADB).

1. Furthermore, as a concrete action, in line with the banking restructuring efforts, and after considering many aspects (i.e. fit and proper test, prospect in the future), on March 31, 1999 Bank Indonesia on behalf of the Government announced a banking reform which consisted of 38 private banks closure, the taking-over of 7 private banks, 9 private banks will be recapitalized, and let 73 private banks to continue their operations without joining the recapitalization program. The nine private banks that were decided to be recapitalized, first must provide 20 percent of recapitalization funds needed or more, and then the government will provide up to 80 percent of the recapitalization fund needed.

Table 1. **The Characteristics of Government Bonds for Recapitalization of Banks and Guarantees Program**

Bonds	Coupon Rate	Coupon Payment	Maturity	Objective
Variable rate bond	3-months SBI rate	Every 3 months	Up to 15 years	To cover banks' negative equity to reach CAR 0%
Fixed rate bond	12% and 14%	Every 6 months	Up to 15 years	To increase CAR of banks from 0% to 4%
Index linked bond	Index + 3%	Every 6 months	Up to 20 years	To cover government obligations to Bank Indonesia, caused by guarantee program

2. To complete the recapitalization program of 8 private banks (Bank Niaga was excluded from the list of recapitalized banks, following the government's decision to take-over Bank Niaga on April 23, 1999) on May 28, 1999, the Minister of Finance issued government bonds amounting up to Rp 103.831 trillion, and also issued other government bonds to pay obligations of frozen commercial banks and rural banks regarding liquidity support to Bank Indonesia amounting up to Rp 53.779 trillion.

The issuance of the government bonds consists of three types as follows: fixed-rate bond, variable-rate, and index-linked bonds. The characteristics of these three types of bonds can be seen on Table 1.

Research Problem

The above two strategic measures that have been implemented by the government, is expected to strengthen the banking sector, return the surviving banks to its profitability, and sustainable growth, and at last to support and accelerate the process of Indonesian recovery. Regarding these strategic measures, there is a question to be concerned. How successful is the implementation of banking reforms in Indonesia, so far?

Objective of the Study

Based on the question above, we are interested to study how successful the implementation of banking reforms held by the government both on March 13, 1999 and May 28, 1999 through investigation of banking stocks performance on the Jakarta Stock Exchange (JSX) around these two events, respectively. By conducting this study, we expect to find a strong positive effect after the announcement of these two events. Furthermore, by using event study we will also test semistrong market efficiency.

Developing Research Hypothesis

1. In accordance with the research objective, we investigate the impact of banking reforms measures which has been done by the government on March 13, 1999 and May 28, on the banking stock prices.
   - Significantly, average abnormal returns of banking stocks after the announcement of banking reforms on March 13, 1999 is greater than before the announcement.
   - Significantly, average abnormal returns of banking stocks after the announcement of Issuance of Government Bonds on May 28, 1999 is greater than before the announcement.
   - Significantly, average Trading Volume Activity of banking stocks after the announcement of banking reforms on March 13, 1999 is greater than before the announcement.
   - Significantly, average Trading Volume Activity of banking stocks after the announcement of Issuance of Government Bonds on May 28, 1999 is greater than before the announcement.
2. We investigate the absorption speed of banking stocks response to the incoming of banking reforms announcement which consists of banks closure, banks that will be recapitalized, and taken over banks. Furthermore, we also test the semi-strong efficiency of the Jakarta Stock Exchange
   - Significantly, there is no abnormal return of banking stocks around the announcement of banking reforms on March 13, 1999.
   - Significantly, there is no abnormal return of banking stocks around the announcement of government bond issuance on May 28, 1999

Indonesian Banking Crisis Experience

In the beginning of the crisis Indonesia had 237 banks, consisting of 7 state-owned banks, 160 private national banks, 27 regional government banks, and 43 foreign banks and joint banks. And then, in March 1999 the number of Indonesian banks, has fallen by 67 banks to only 170 banks. Sixteen private national banks have been closed in November 1997, 7 private national banks have been suspended in April 1998, 6 private national banks that have already been taken over by IBRA in April 1998 were declared insolvent, and 38 private national banks closed on March 13, 1999.

The Indonesian banking sector has been suffering from substantial non-performing loans overhang and negative spread. As the implications of this condition, the total equity of banking sector had plunged dramatically by 690.75 percent from Rp 41.398 trillion in June 1997 to Rp –244.554 trillion in March 1999.

In order to return and strengthen the banking system, the Indonesian Government was forced to conduct the banking restructuring program. The Indonesian authorities approach to restructure banks and dispose of NPL is similar to Thailand's. At the end of June 1997, Bank Indonesia estimated bad loans to account for 13.4 percent of the total loans of the seven state banks, but the ratio rose to about 45 percent in February 1999. Total banking sector NPLs had risen from 10 percent in 1997 to 25 percent in March 1998 and 82.9 percent in May 1999, and the number is expected to be between 75 percent and 85 percent at the end of 1999.

In January 1998, the government set up the Indonesian Bank Restructuring Agency (IBRA) to seek solutions for financially troubled banks and to manage the assets of restructured banks. In April 1998 the Asset Management Unit (AMU) as a subsidiary of IBRA took over its asset management function. The AMU is responsible for managing and selling off bank asset in order to repay the government's massive liquidity injection to the banks. By the end of June 1999, the total asset value at IBRA amounted to about Rp 576.4 trillion (US$ 1 = Rp 6,726) consisting of Rp 230 trillion made up of NPLs from the closed or taken-over banks. IBRA transferred Rp 180 trillion to AMU.

In August 1998, the government announced measures to support bank restructuring to rebuild the banking system through: recapitalization program, improving banking regulations and laws, and enforcing prudential regulations.

Event Identification

There are two events used in this study, *first*, banking reforms announcement on March 13, 1999, and *second* issuance of government bonds on May 28, 1999.

1. Banking Reforms Announcement on March 13, 1999

On March 13, 1999, Bank Indonesia on behalf of the Indonesian government announced a banking reform which consists of 38 private banks closure, the taking-over of 7 private banks, 9 private banks will be recapitalized, and let 73 private banks to continue their operation without joining the recapitalization program. The banking reforms above carried-out by the government to strengthen the Indonesian banking system, is expected to create a solid and competitive banking system in the future. From the market's point of view, this event could be a positive signal or favorable event for the market and in turn could increase the banking stock prices.

2. Issuance of Government Bonds Announcement on May 28, 1999

On May 28, 1999, the Minister of Finance issued government bonds amounting up to Rp 103.831 trillion to complete private banks' recapitalization, and also issued other government bonds to pay obligations of frozen commercial banks' and rural banks' regarding liquidity support to Bank Indonesia amounting up to Rp 53.779 trillion. The issuance of the government bonds consists of three types as follows: fixed-rate bond, variable-rate bonds and index-linked bonds.

From the issuance of government bonds, it is expected to overcome the insolvency of private banks, especially the recapitalized banks. After injection of funds in the form of government bonds, the banks will have cash inflow from coupon bond payments, the banks will comply with the minimum Capital Adequacy Ratio of 4 percent, and the banks will running their business in a normal condition.

This event could be good news or a favorable event for the market, so it is expected to increase the banking stock prices.

The main criteria in selecting the events to be investigated were the biggest banking reform taken by Indonesia, in order to strengthen and improve the banking system. This event has also been published in numerous media (daily, weekly, monthly magazines, television, radio and etc.). For the limitation of the study, we

assumed that the other events along the event periods did not significantly impact the market movement.

In order to have a comprehensive view of the market reaction to the two events, we also test trading volume activity of banking stocks around these two events.

The time horizon used in this study is daily data of banking stocks from January 1997 to June 1999, which consists of estimation period and the event period. The estimation period from January 1997 to January 1999 is used to estimate the expected returns of each banking stock, using Market Model or Single Index Model (SIM). The event period is 31 days, consisting of 15 days before the event date and 15 days after the event date (from *t-15* to *t+15*). The event of banking reforms announced on Saturday, March 13, 1999 (not a trading day) so for research purposes, we assumed March 15, 1999 as the event date.

Literature Study

The research related to the capital market behavior by using event study, was closely related to the test of the capital market efficiency, and has been conducted by numerous researchers in U.S. markets. The research findings in general have shown that the market reacted to the particular events. The research was first introduced by Famma et al. (1969) when they observed how quickly and correctly the market reacted to the announcement of stock splits by using the single-equation market model approach.

Pettit (1972), aims to get some additional evidence regarding the validity of capital market efficiency. He also investigated how quickly and correctly the market reacted to the announcement of dividend payments. The result of his study showed the existence of market's anticipation that was possibly caused by investors who had already had access to information before the announcement.

Joy, Litzenberger, and McEnally (1977) examined firms that experienced unanticipated changes in quarterly earnings using three categories based on how actual earnings deviated from expectations: any deviation from expectations, a deviations of plus minus 20 percent, and a deviation of at least 40 percent. These results suggest that favorable information contained in quarterly earnings reports is not instantaneously reflected into stock prices and that a significant relationship exists between the size of the unexpected earnings performance and the post-announcement stock price change.

Patell and Wofson (1984), observed the impact of earning announcement and dividend announcement to the behavior of stock market prices. Their findings supported that there was a positive market returns against the earning and dividend announcements. The impact of earning announcement was seen as stronger than dividend announcement.

Asri (1996), investigated U.S. Multinationals' Stock Price Reaction to Host Country's Governmental Change of Prime Minister Takeshita's resignation. His results concluded that after the announcement date, a significant negative abnormal returns was still obtained starting from the second day to the tenth day after the event date.

Numerous researchers have also performed the study in Indonesia's Capital Market related to the reactions of stock prices on particular events. Suad Husnan investigated the efficiency level of the Jakarta Stock Exchange (JSX) by using observation periods between 1983-1986, the results concluded that JSX has not been efficient in the semi-strong form.

Christina Rusiti (1990), using investigation periods of 1986-1989, investigated the efficiency level of the Jakarta Stocks Exchange (JSX), and her results concluded that JSX has already been efficient in the semi-strong form.

Sartono and Yarmanto (1996), by using Damodaran model for the periods of January 1992-Desember 1994, documented that JSX has not been efficient in the weak-form efficiency, and tend to over-react.

Namusisi (1996), using investigation periods of 1993-1995, to test the efficiency of JSX by using event stock listing. Her findings supported the semi-strong efficiency of JSX.

Susiyanto (1997) investigated the efficiency level of JSX by using three categories of dividend announcement: dividend decrease announcement, dividend-unchanged announcement, and dividend increase announcement. His results supported the semi-strong efficiency of JSX by using investigation periods of 1994-1996.

Asri S. W. and Setiawan (1998) investigated the stock price reaction to a domestic political event "The attack of the Indonesian Democratic Party's office on July 27, 1996". Their results show that market was sensitive to the relevant information including political information.

Efficient Capital Market Hypothesis

Efficient capital market hypothesis stated that the capital market is said to be efficient if all available and relevant information is reflected in its stock prices, so there is no room for investors to earn abnormal returns, consistently.

There are three types of Capital Market Efficient Hypothesis that was performed by Famma (1970), namely (1) *weak-form efficient market hypothesis*, (2) *semistrong-form efficient market hypothesis*, and (3) *strong-form efficient market hypothesis.*

Weak-form efficient market hypothesis happens if historical stock prices has already been reflected into its current stock prices quickly and accurately. As a consequence, if a capital market has already been efficient in the weak-form efficiency, investors cannot earn abnormal returns, consistency by analyzing historical stock price data.

Capital market is said to be efficient in the semi-strong form efficiency if all available and relevant information has already been reflected into its current stock prices. If capital market semi-strong efficiency is correct, investors cannot earn abnormal returns consistency by analyzing all relevant published information.

Strong form efficiency of the capital market will happen if all published and unpublished information (*private information*) has already been reflected accurately and quickly into its current stock prices. If capital market strong form efficiency is correct, investors cannot earn abnormal return consistently by analyzing both published and unpublished information.

Population, Sample Selection and Methodology

Population is defined as a set of objects, which have the same characteristic. Population in this study is all of the banking stocks that were listed on the Jakarta Stock Exchange (JSX) at the beginning of 1997.

Sample is defined as a part or all of the population, which are taken from the population by using certain methods, as a representative part of the population.

Table 2. **The Banking Stocks included in the Sample**

No.	Bank	Stock Code	Number of Listed Shares*
1	Bank Negara Indonesia Tbk.	BBNI	4.340.128.000
2	Bank Danamon	BDMN	217.280.000.000
3	Bank Palapa Tbk	BDTA	920.030.171
4	Bank Niaga Tbk	BNGA	718.539.351
5	Bank International Indonesia	BNII	65.982.719.871
6	Bank Bali Tbk	BNLI	672.005.833
7	Bank Tiara Asia	BNTA	42.840.000.000
8	Bank Inter-Pacific Tbk	INPC	43.750.000
9	Bank Lippo Tbk	LPBN	4.521.527.860
10	Bank NISP Tbk	NISP	549.221.865
11	Bank PDFCI	PDFC	22.687.000.000
12	Bank Pan Indonesia Tbk	PNBN	1.604.812.330
13	Bank Tamara Tbk	TMBN	315.831.680

Note:
*) Number of listed shares as of April 1999

The sample data used in this study comprises of the daily banking stock prices of 15 banking stocks traded on the JSX as a proxy for banking sectors, during the period of January 1997 to June 1999. To be included in the sample, the banking stocks were required to meet the following conditions:

1. The banking stock was listed on the JSX at the beginning of 1997,
2. The banking stock had to be actively traded on the JSX during the period of January 1997 to June 1999. A banking stock was considered an active or liquid stock if trading frequency did not fall bellow 75 times in a 3-month period (Based on Circular Letter PT. BEJ No. SE-03/BEJ II./1/94)
3. Data during the period of January 1997 to June 1999 were complete.

After considering the sample criteria, there were 13 banking stocks to be included in the sample (Table 2)

The daily banking stock returns of each banking stock in the sample were continuously compounded returns, computed as the difference between the natural logarithms of two consecutive daily closing prices, after being adjusted for corporate actions: i.e. dividend payment, stock split, right issue, and so forth:

$$R_{i,t} = \ln(P_{i,t}/P_{i,t-1})$$

$R_{i,t}$ = a return of banking stock *i* at period *t*

$P_{i,t}$ = a banking stock price at period t

$P_{i,t-1}$ = a banking stock price at period *t-1*

Compute daily market returns of each period around the announcement day, as follows:

$$R_{mi,t} = \ln(IHSG_{i,t}/IHSG_{i,t-1})$$

 = daily market return at period *t*

 = Jakarta Composite Index at period *t*

 = Jakarta Composite Index at period *t-1*

For estimating the equilibrium expected rate of return on banking stocks, the Single Index Model (SIM) or the ordinary least square (OLS) market model; were used which estimated period from January 1997 to January 1999 (2 years), as follows:

$$R_{i,t} = a_i + b_i(R_{m,t}) + e_{i,t}$$

Where,

$$b_i = \frac{n\sum_{t=1}^{n}R_{m,t}E(R_{i,t}) - \sum_{t=1}^{n}R_{m,t}\sum_{t=1}^{n}E(R_{i,t})}{n\sum_{t=1}^{n}R^2_{m,t} - \left(\sum_{t=1}^{n}R_{m,t}\right)^2}$$

and

$$a_i = \frac{\sum_{t=1}^{n}E(R_{i,t}) - b_i\sum_{t=1}^{n}R_{m,t}}{n}$$

where *n* is number of observation

$$E(R_{it}) = a_i + b_iE(R_{m,t})$$

For each banking stock in the sample, abnormal return ($U_{i,t}$) calculated as the difference between actual banking stock returns and the equilibrium expected rate of returns are as follows:

$$U_{i,t} = R_{i,t} - E(R_{i,t})$$

Average Abnormal Return (*AAR*) of banking stocks is calculated by using the formula:

$$AAR_t = \frac{\sum_{i=1}^{n}AR_{i,t}}{n}$$

AAR_t = average *abnormal return* for period *t*

$AR_{i,t}$ = *abnormal return* of banking stock *i* at period *t*

n = number of observation.

Calculate *Cumulative Average Abnormal Return* (*CAAR*). *CAAR* is used to measure the impact of cumulative abnormal return on the behavior of observed banking stocks.

$$CAAR_p = \sum_{t=1}^{p}AAR_t$$

$CAAR_p$ = cumulative average abnormal return of observed banking stocks

AAR_t = average abnormal return for period *t*

p = number of observed periods.

Compute the difference between *Cumulative Average Abnormal Return* (*CAAR*) before the announcement day and after the announcement day for each paired sample as follows:

$$d_i = CAAR_{i, After} - CAAR_{i, Before}$$

i = 1,2,3,...,n
n = number of pared samples.

Calculate average difference between *CAAR* before and after the announcement day by using the formula:

$$\bar{d} = \frac{\sum_{i=1}^{n} d_i \sum_{i=1}^{n}(CAAR_{i, After} - CAAR_{i, Before})}{n}$$

Calculate standard deviation of the difference between *CAAR* before and after the announcement day as follow:

$$S = \sqrt{\frac{\sum_{i=1}^{n}(d - \bar{d})^2}{(n - 1)}}$$

Formulate a hypothesis test for two means difference as follow:

H_o = Significantly, *average CAAR* (*ACAAR*) of banking sector before and after the announcement day is the same.

H_1 = Significantly, *average CAAR* (*ACAAR*) of banking sector before and after the announcement day is not the same.

Determine the significant level ⊠=0.05.

Calculate statistic test ⊠ using the formula:

$$t_h = \frac{\bar{d}}{S / \sqrt{n}}$$

where $\bar{d}$ is the average difference between *CAAR* before and after the announcement day, *S* is the standard deviation of difference between *CAAR* samples before and after the announcement day, and *n* is the number of paired samples.

Determine the criteria for one-tail test as follow:

$$Reject\ H0\ if -t_{(a/2;\ n-1)} < -t_{statistic}$$
$$Accept\ H0\ -t_{statistic} < -t_{(a/2;\ n-1)}$$

Abnormal Return Test

The semi-strong form efficiency goes on to hypothesize that current market prices reflect past price movements plus all other publicly available information. Therefore, if semi-strong form efficiency holds in the stock market, investors cannot earn abnormal returns by analyzing published information, i.e. banking reforms announcement on March 13, 1999 or issuance of government bonds on May 28, 1999. The testing of semi-strong-form efficiency used market model or Single Index Model (SIM) to observe the significance of abnormal returns by using the formula:

$$R_{it} = a_i + b_i (R_{mt}) + e_{it}$$

R_{it} = stock return *I* for period *t*.

R_{mt} = Market return by using IHSG return

a_I and b_I = Intercept and slope of regression.

E_{it} = Residual value or *abnormal return*.

Calculate standard deviation of average abnormal return (AAR) as follow:

$$S = \sqrt{\frac{\sum_{t=1}^{n}(AR_t - AAR_t)^2}{(n-1)}}$$

Formulate hypothesis as follow:

$H_0: AAR_t = 0$: *Average Abnormal Return around the event date is different from zero, significantly*

$H_1: AAR_t \ne 0$: *Average Abnormal Return around the event date is not different from zero, significantly*

Calculate t_h (T-statistic) with the following formula:

$$t_h = \frac{AAR_t - m}{s / \sqrt{n}}$$

m = average abnormal return for population

n = number of banking stocks observed

s = standard deviation of average abnormal returns

Determine the hypothesis criteria:

H_0 is rejected if $-t_h < t_{(a/2;n-1)}$ or $t_h > t_{(a/2;n-1)}$

H_0 is accepted if $-t_{(a/2;n-1)} < t_h < t_{(a/2;n-1)}$

Trading Volume Activity Test

In order to have a comprehensive view, the objective of this research is also to observe trading volume activity of banking stocks around the announcement of banking reforms on March 13, 1999 and issuance of government bonds on May 28, 1999.

The steps to test the trading volume activity are as follows:

For each banking stock in the sample, trading volume activity ($TVA_{i,t}$) is calculated by using the formula:

$$TVA_{i,t} = \frac{\text{Number of traded shares of banking stock } i \text{ for period } t}{\text{Number of shares outstanding of banking stock } i \text{ for period } t}$$

Calculate the *Average Trading Volume Activity* before the event date ($ATVA_{Before}$) and *Average Trading Volume Activity* after the event date ($ATVA_{After}$). The next steps to test the mean difference between average *Trading Volume Activity* before the event date and after the event date following the mean difference of average abnormal return.

Empirical Evidence

This section contains the empirical findings of the event study which are the banking reforms announcement on March 13, 1999 and the issuance of government bonds announcement on May 28, 1999. Table 3, and 5 contains average abnormal returns (AAR), cumulative average abnormal return (CAAR), and standard deviation of AAR of banking stocks around these even date respectively, and also we can investigate the pattern of AAR and CAAR around the event date in Figure 2 and Figure 3.

Furthermore, Table 7, and Table 9 contains average Trading Volume Activity (ATVA) and standard deviation of

ATVA of banking stocks around the banking reforms announcement on March 13, 1999 and the issuance of government bonds announcement on May 28, 1999, respectively. We observe the pattern of ATVA around these two events in Figure 4 and Figure 5. Table 4 and 6 shows us the results of Paired two samples difference test for average abnormal returns before and after the banking reforms announcement on March 13, 1999 and the issuance of government bonds on May 28, 1999, respectively. Table 8 and 10 presents us the results of Paired two samples difference test for average trading volume activity before and after the banking reforms announcement on March 13, 1999 and the issuance of government bonds on May 28, 1999, respectively.

Table 3 shows us that there were several bourse days which experienced a significant abnormal return (at 5 percent level), occuring -14, -12, -10, and -1 days before the event date. The abnormal returns were significant on day –14 at -3.64 percent, on day –12 at 5.86 percent, on day –10 at 11.06 percent and on day-1 at -5.84 percent. These findings indicate that before the event date the market conditions was going upward from negative territory to positive territory and then one day before the event date went back again to negative territory. On day 7, 8, and day 12 after the event date, the abnormal return were significantly negative at -4.10 percent, -7.15 percent, and -13.56 percent, respectively. This condition shows that after the announcement date, banking stock

Table 3. *Average Abnormal Return* (AAR), and *Cumulative Average Abnormal Return* (CAAR) of Banking Sector around the Announcement of Banking Reforms on March 13. 1999

Day	AAR	CAAR	SAAR	T-statistic	Probability
-15	-0.0188	-0.0188	0.0659	1.0302	0.3250
-14	-0.0364 ***	-0.0552	0.0296	4.5664	0.0008
-13	-0.0237	-0.0789	0.1149	0.7460	0.4713
-12	0.0586 ***	-0.0202	0.0613	3.5145	0.0048
-11	-0.0084	-0.0286	0.1305	0.2313	0.8214
-10	0.1106	0.0820	0.1094	3.7221	0.0034
-9	-0.0486	0.0333	0.1374	1.2817	0.2263
-8	0.0041	0.0374	0.1699	0.0870	0.9322
-7	-0.0227	0.0147	0.0693	1.1851	0.2610
-6	-0.0299	-0.0152	0.0820	1.3219	0.2130
-5	-0.0118	-0.0270	0.0360	1.1902	0.2590
-4	-0.0069	-0.0339	0.1670	0.1491	0.8842
-3	-0.0395	-0.0734	0.1097	1.3053	0.2184
-2	0.0394 *	-0.0340	0.0764	1.8745	0.0876
-1	-0.0584 ***	-0.0924	0.0512	4.2163	0.0014
0	-0.0676	-0.1599	0.2929	0.8342	0.4219
1	0.0087	-0.1512	0.0753	0.4165	0.6850
2	0.0185	-0.1327	0.0952	0.7028	0.4968

Continued from Table 3

Day	AAR	CAAR	SAAR	T-statistic	Probability
3	0.0161	-0.1166	0.1222	0.4767	0.6429
4	-0.0037	-0.1203	0.1274	0.1043	0.9188
5	-0.0739	-0.1942	0.1542	1.7404	0.1096
6	-0.0410 **	-0.2351	0.0570	2.6233	0.0237
7	-0.0715 ***	-0.3066	0.0736	3.5745	0.0044
8	-0.0137	-0.3203	0.2388	0.2070	0.8398
9	0.0157	-0.3046	0.0759	0.7475	0.4704
10	0.0458	-0.2589	0.2447	0.6762	0.5129
11	-0.1356 ***	-0.3944	0.1109	4.5303	0.0009
12	0.0093	-0.3851	0.0409	0.8246	0.4271
13	-0.0060	-0.3911	0.1071	0.2034	0.8425
14	0.0785 **	-0.3126	0.1176	2.4337	0.0332
15	0.0736	-0.2390	0.1562	1.7102	0.1152

Notes:

AAR is average abnormal return

CAAR is cumulative average abnormal return

SAAR is standard deviation of average abnormal return

*) significant at 10% level;

**) significant at 5% level;

***) significant at 1% level

Table 4. **t-Test (Paired Two Sample for Means): Average Abnormal Return of banking Sector Before and After the Announcement of Banking Reforms on March 13, 1999**

	Before	**After**
Mean	-0.0053	-0.0109
Variance	0.0021	0.0030
Observations	14.0000	14.0000
Pearson Correlation	-0.3676	
Hypothesized Mean Difference	0.0000	
df	13.0000	
t-Stat	0.2538	
P(T-t) one-tail	0.4018	
t-Critical one-tail	1.7709	
P(T-t) two-tail	0.8036	
t-Critical two-tail	2.1604	

prices were undervalued by the market prices, gradually. This condition happened, caused by some of the following reasons: (1) The banking reforms announcement on March 13, 1999 that consists of banks closure, recapitalized banks, and taken-over or nationalized banks has been anticipated before by the market, because the government delayed this information about two weeks or more before the event date, and also had already been published in numerous medias, so, the banking reforms announcement was too late from the market's perception; (2) there was lack of market's confidence regarding the implementation of government's policies. In the implementation process, there were no clear mechanisms and procedures, so the market doubted and wondered about the success of the implementation of banking reforms in the future.

The result of the above t-Test for Paired Two Sample for Means, show that there is no significant difference between average abnormal returns before and after the banking reforms announcement on March 13, 1999, because T-statistic for this test is 0.2538, less than T-critical two-tail of 2.1604.

Figure 2. **Average Abnormal Return (AAR) and Cumulative Average Abnormal Return (CAAR) of Banking Stocks Around the Announcement of Banking Reforms on March 13, 1999.**
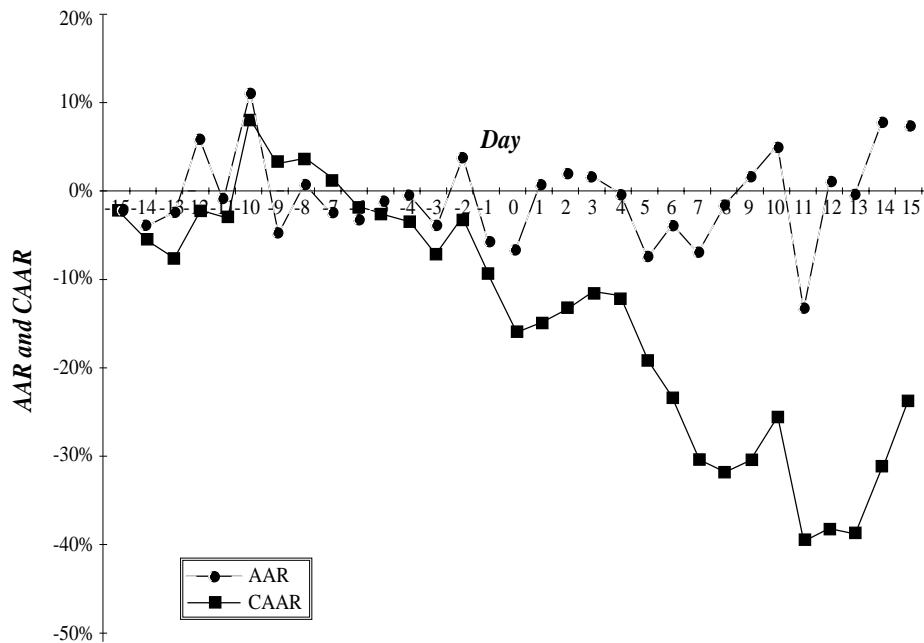
Table 5. *Average Abnormal Return* (AAR), and *Cumulative Average Abnormal Return* (CAAR) of Banking Sector around the Announcement of Issuance Government Bonds on May 28, 1999

Day	AAR	CAAR	SAAR	T-statistic	Probability
-15	-0.0031	-0.0031	0.1139	0.0972	0.9243
-14	0.1359	0.1328	0.1017	4.9692	0.0004
-13	0.0190	0.1518	0.0562	1.2231	0.2468
-12	-0.0059	0.1459	0.1360	0.1559	0.8789
-11	-0.0580 ***	0.0879	0.0681	3.1235	0.0097
-10	0.0673 ***	0.1552	0.0618	4.0188	0.002
-9	0.0177	0.1729	0.1211	0.5283	0.6078
-8	0.0448 **	0.2177	0.0538	3.0499	0.011
-7	0.0244	0.2421	0.0527	1.6826	0.1206
-6	0.0078	0.2499	0.0344	0.8141	0.4329
-5	-0.1057 ***	0.1441	0.1141	3.4038	0.0059
-4	-0.0590 **	0.0852	0.0747	2.8881	0.0148
-3	0.0585 *	0.1437	0.0991	2.1502	0.0546
-2	-0.0380 **	0.1057	0.0521	2.6624	0.0221
-1	0.0309 **	0.1366	0.0432	2.6079	0.0243
0	-0.1231	0.0135	0.6352	0.7006	0.4981
1	0.0089	0.0223	0.1222	0.2623	0.7979
2	-0.1340 ***	-0.1116	0.0831	6.0536	0.0001
3	0.0023	-0.1093	0.0717	0.1162	0.9096
4	0.0917 ***	-0.0176	0.0867	3.9014	0.0025
5	-0.0287	-0.0462	0.0699	1.488	0.1649
6	-0.0372 *	-0.0834	0.0659	2.0499	0.065
7	-0.0027	-0.0861	0.0304	0.3158	0.7581
8	-0.0073	-0.0934	0.1573	0.1687	0.8691
9	0.0377	-0.0557	0.0966	1.4147	0.1848
10	-0.0384 **	-0.0941	0.0548	2.5557	0.0267
11	0.0541 *	-0.0400	0.1005	1.957	0.0762
12	-0.0403 *	-0.0803	0.0677	2.1673	0.053
13	0.0404 *	-0.0399	0.0717	2.0514	0.0648
14	0.0319	-0.0080	0.0911	1.2673	0.2312
15	-0.0602 **	-0.0683	0.0878	2.5042	0.0293

Notes:

AAR is average abnormal return

CAAR is cumulative average abnormal return

SAAR is standard deviation of average abnormal return

*) significant at 10% level;

**) significant at 5% level;

***) significant at 1% level

Table 5 shows us that there were several bourse days which experience a significant abnormal return at 5 percent significant level, occuring -11, -10, -8, -5, -4, -2, and -1 days before the issuance of government bonds announcement on May 28, 1999. The abnormal return were significant on day-11 at –5.80 percent, and then 6.73 percent on day -10, 4.48 percent on day -8, -10.57 percent on day -5, -5.90 percent on day -4, -3.80 percent on day -2, and 3.09 percent on day -1. These results indicated that the market condition was uncertain before the event date. At the second day after the event date, bourse produced negative abnormal returns (significant at 1% level) –13.40 percent, and then turn to the positive abnormal return 9.17 percent (significant at 1% level) at the fourth day after the event date. At the tenth and fourteenth day after the event date bourse back again produced a negative abnormal return (significant at 5% level) –3.84 percent and -6.02 percent, respectively. From these results, it can be interpreted that the second day after the event date the banking stock experienced a bad performance and the stock prices had become undervalued by the market. After reaching the bottom point, banking stock prices moved up to the positive abnormal return 9.20 percent (significant at 5% level). Unfortunately, at the tenth and fifteenth day after the event date, banking stock returns turned back again to the negative territory –3.84 percent and -6.02 percent (significant at 5% level), respectively.

The result of the *t-Test* for *Paired Two Sample for Means* shows that there is no significant difference between average abnormal return before and after the issuance of government bonds on May 28, 1999, because T-statistic for this test is 0.6028 less than T-critical two-tail of 2.1604.

Table 6 . **t-Test (Paired Two Sample for Means): Average Abnormal Return of banking Sector before and After the Announcement of Issuance Government Bonds on May 28. 1999**

	Before	After
Mean	0.0100	-0.0065
Variance	0.0038	0.0032
Observations	14.0000	14.0000
Pearson Correlation	-0.4968	
Hypothesized Mean Difference	0.0000	
df	13.0000	
t Stat	0.6028	
P(T <= t) one-tail	0.2785	
t Critical one-tail	1.7709	
P(T <= t) two-tail	0.5570	
t Critical two-tail	2.1604	

Figure 3. **Average Abnormal Return (AAR) and Cumulative Average Abnormal Return (CAAR) of Banking Stocks Around the Announcement of Issuance Government Bonds on May 28, 1999**
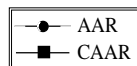

Table 7. *Trading Volume Activity* **(TVA) of Banking Sector around the Announcement of Banking Reforms on March 13. 1999**

Day	*ATVA*	SATVA	Probability	T-statistic
-15	0.1528 *	0.2624	0.0576	2.1198
-14	0.3802 **	0.6061	0.0431	2.2862
-13	0.1153 **	0.1422	0.0128	2.9697
-12	0.1947 *	0.1947	0.0645	2.0541
-11	0.2937 *	0.2937	0.0866	1.8818
-10	1.2428 **	1.5364	0.0464	2.2442
-9	0.5670 **	2.1034	0.0218	2.6696
-8	0.2094 **	2.3128	0.0228	2.6442
-7	0.2870 **	2.5998	0.0193	2.7367
-6	0.4103 **	3.0102	0.0233	2.6334
-5	0.1628 **	3.1730	0.0498	2.2033
-4	0.4214 *	3.5944	0.0540	2.1570
-3	0.2561 *	3.8504	0.0625	2.0728
-2	0.3336 *	4.1840	0.0983	1.8060
-1	0.5378 **	4.7219	0.0242	2.6104

Continued form Table 7

Day	*ATVA*	SATVA	Probability	T-statistic
1	1.5249 **	6.2468	0.0203	2.7085
2	0.8080	7.0547	0.1080	1.7497
3	0.6265 **	7.6812	0.0398	2.3305
4	0.9779	8.6591	0.2724	1.1554
5	0.2203 ***	8.8794	0.0075	3.2679
6	0.2297 **	9.1091	0.0312	2.4690
7	3.0026	12.1117	0.3155	1.0517
8	2.9059	15.0176	0.2800	1.1362
9	0.1966 *	15.2142	0.0705	2.0028
10	0.4356	15.6498	0.2099	1.3318
11	2.7786	18.4284	0.1516	1.5408
12	1.6823	3.8961	0.1455	1.5667
13	0.7848	2.1089	0.2045	1.3488
14	0.3471 *	0.6610	0.0826	1.9092
15	4.6333	16.0555	0.3186	1.0446

Notes:

ATVA is average trading volume activity

STVA is standard deviation of average trading activity

*) significant at 10%;

**) significant at 5%;

***) significant at 1%

Table 8 . **t-Test (Paired Two Sample for Means): Average Trading Volume Activity of banking Sector before and After the Announcement of Banking Reforms on March 13, 1999**

	Before	**After**
Mean	0.3866	1.4021
Variance	0.0785	1.9249
Observations	14.0000	14.0000
Pearson Correlation	-0.0301	
Hypothesized Mean Difference	0.0000	
df	13.0000	
t Stat	-2.6689	
P(T - t) one-tail	0.0097	
t Critical one-tail	1.7709	
P(T - t) two-tail	0.0193	
t Critical two-tail	2.1604	

The result of the *t-Test for Paired Two Sample for Means*, shows that there is a significant difference between average trading volume activity of banking stocks before and after the announcement of banking reforms on March 13, 1999, T-statistic for this test is –2.6689 less than T-critical two-tail of -2.1604. The negative value of T-statistic, means that the average trading volume activity of banking stocks after the event date is significantly greater than average trading volume activity before the event date.

Figure 4. **Average Trading Volume Activity (ATVA) of Banking Stocks Around the Announcement of Banking Reforms on March 13, 1999**
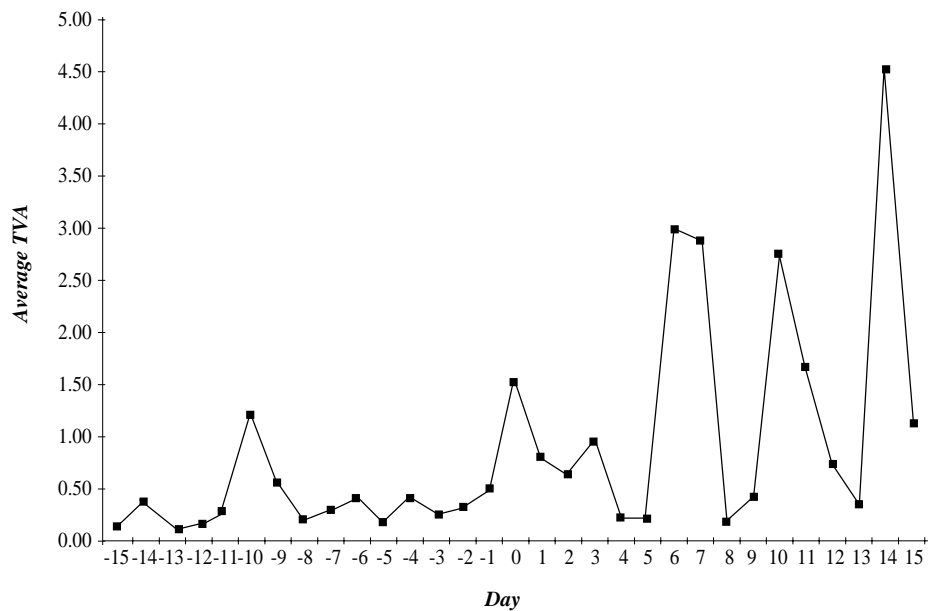
Table 9. *Trading Volume Activity* (TVA) of Banking Sector around the Announcement of Issuance Government Bonds on May 28, 1999

Day	*ATVA*	*SATVA*	Probability	T-statistic
-15	6.2545 **	9.4271	0.0340	2.4201
-14	2.9781 *	5.0185	0.0536	2.1608
-13	1.8080	3.7810	0.1103	1.7367
-12	4.8984	11.1523	0.1393	1.5939
-11	4.6739	12.9273	0.2168	1.3102
-10	4.7351	12.9085	0.2106	1.3294
-9	3.1554 *	5.5053	0.0611	2.0860
-8	1.7770 *	3.1275	0.0630	2.0676
-7	2.1091	5.2168	0.1706	1.4661
-6	2.9311 *	5.6177	0.0844	1.8967
-5	4.0640 **	6.2890	0.0381	2.3561
-4	2.4093 **	3.5896	0.0323	2.4487
-3	2.8832 **	3.5712	0.0131	2.9565
-2	1.9971 **	2.4145	0.0114	3.0306
-1	1.7668 **	2.3665	0.0196	2.7292
0	2.7488	5.6008	0.1022	1.7829
1	3.2607 **	5.3164	0.0472	2.2344
2	3.3265 **	5.4166	0.0469	2.2373
3	3.2731 *	6.3689	0.0886	1.8679
4	4.1679 *	7.4685	0.0672	2.0304
5	5.3750 **	8.5882	0.0435	2.2808
6	5.6586 **	9.1223	0.0451	2.2602
7	2.9425 *	5.1401	0.0613	2.0835
8	3.4538 **	5.6211	0.0468	2.2385
9	2.0650 **	3.3731	0.0475	2.2301
10	11.0831	32.2449	0.2389	1.2452
11	3.1600	7.0518	0.1321	1.6264
12	1.3566 **	2.0513	0.0345	2.4122
13	3.7519	10.8345	0.2356	1.2546
14	4.4829	10.0091	0.1323	1.6256
15	2.1780	4.5682	0.1113	1.7315

Notes:

ATVA is average trading volume activity

STVA is standard deviation of average trading activity

*) significant at 10% level;

**) significant at 5% level;

***) significant at 1% level

Table 10. **t-Test (Paired Two Sample for Means): Average Trading Volume Activity of Banking Sector Before and After the Announcement of Issuance Government Bonds on May 28, 1999**

	Before	**After**
Mean	3.0133	4.0196
Variance	1.3212	5.5604
Observations	14.0000	14.0000
Pearson Correlation	0.3001	
Hypothesized Mean Difference	0.0000	
df	13.0000	
t Stat	-1.6426	
P(T - t) one-tail	0.0622	
t Critical one-tail	1.7709	
P(T - t) two-tail	0.1244	
t Critical two-tail	2.1604	

Figure 5. **Average Trading Volume Activity (ATVA) of Banking Stocks Around the Announcement of Issuance Government Bonds on May 28, 1999**
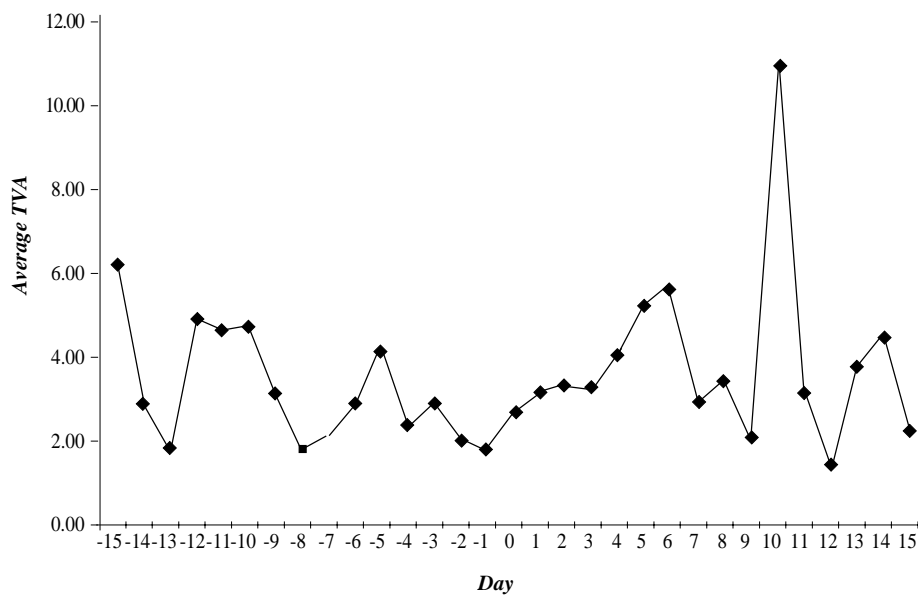
The result of the *t-Test for Paired Two Sample for Means*, shows that there is no significant difference between average trading volume activity of banking stocks before and after the issuance of government bonds on May 28, 1999, because T-statistic for this test is -1.6426 greater than T-critical two-tail of -2.1604.

Conclusion

The results of this study shows us that the banking reforms announcement held on March 13, 1999 which consists of the closure of 38 private banks, 9 private banks will be recapitalized, and the takenover or nationalization of 7 private banks, did not get a positive respond from the market. In contrast, this event got a negative respond from the market. This condition, has been proved by insignificant difference between banking stock returns before and after the event date. Furthermore, the results from abnormal return test, found some significant abnormal returns around the event date. The magnitude of significant abnormal returns decreased gradually from -3.64 percent on day -14 before the event date, to -13.56 percent on day -12 after the event date.

The result of trading volume activity tests, shows that there was a significant increase on trading volume activity of banking stocks after the event date. The reversal pattern of decreasing banking stock return and increasing on trading volume activity of banking stocks, supported our belief that significant increase was forced by the increasing of selling stocks activity (supply side), which means that the event was an unfavorable event or bad news. It also meant that the success of the banking reforms done by government is being questioned.

There is a reason why the market has responded negatively, and that is the banking reforms announcement was delayed by the government. It was announced two weeks or more before the event date, so market has already responded about the content of the banking reform announcement.

The results from the second event study test, also shows us that the issuance of government bonds announcement for the recapitalized banks and guarantees program on May 28, 1999, was responded negatively by the market. This condition, has been proved by insignificant difference between banking stock returns before and after the event date. The result of trading volume activity test, also found that there is no significant difference between trading volume activity before and after the event date. And, based on the result of abnormal return test, there were market uncertainty responding to the event. Abnormal returns were found significantly both positive and negative abnormal returns.

In general, strategic measures has been taken by the government on March 13, 1999 and May 28, 1999 did not show a positive signal to the market as our expectation. This means that the banking reforms was not successfully implemented from the market's point of view.

The finding from abnormal return test, do not support the semi-strong efficiency of the Jakarta Stock Exchange.

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