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RESEARCH ARTICLE

The Influence of Accrual Anomaly and Winner-Loser Anomaly on Abnormal Return: The Indonesian Evidence

Abdul Ghofar and Rizqi Alfi Aunilah
Brawijaya University
ghofar@ub.ac.id

Abstract: This research aims to investigate the existence of two market anomalies—accrual anomaly and winner-loser anomaly—and compare whether these two anomalies significantly affect the abnormal return in Indonesia Stock Exchange (IDX). This research was designed into three steps: (1) Portfolios formation; (2) Test of Existence; and (3) Regression analysis, using the observation period of six years starting from 2002 to 2007. We found that winner-loser anomaly has been more significant in affecting abnormal return for the period of 2002–2007, despite that both accrual and winner-loser anomalies were indicated to exist in the period of observation. The test of accrual anomaly existence during six-year observation period has revealed that in 2003, low accrual firms had generated higher abnormal returns compared to the high accrual firms, for which it indicates the existence of accrual anomaly. The existence of winner-loser anomaly is justified by the significant effect of overreaction on the price reversal phenomena.

This research contributes to the study regarding accrual and winner-loser anomalies, attributed by the comparison between these two anomalies based on the statistical measurement analysis according to historical data. The results could be useful for investors to understand the characteristics of Indonesian capital market, in which the efficient market hypothesis is verified not to work properly, hence the publicly-available information should not be the sole information used to formulate their investment strategy.

Keywords: abnormal return, accrual anomaly, Efficient Market Hypothesis (EMH), winner-loser anomaly

JEL Classification: *G11 – G14*

Accrual anomaly, which has been referred by several empirical studies, is the persistence comparison between two components of earnings: accrual component and cash-flow component (Sloan, 1996). The accrual component has been less persistent than the cash-flow component. The market tends to misprice the stocks by overweighting the accrual and underweighting the cash-flow. As a result, the stock prices will be accordingly revised, for which the accrual-overweighed stocks decrease, while the

cash-flow-underweighted stocks increase. Therefore, abnormal returns appear as the subsequent impact of the mispricing.

Besides accrual anomaly, winner-loser anomaly has been also outstanding since De Bondt and Thaler (1985) studied that the "winner" stocks, those which extremely result in positive returns, and "loser" stocks, those which extremely result in negative returns, tend to be reversed in the following periods. It was shown that the reversal effect has been caused by overreaction hypothesis, stating that the market has overreacted so the good news becomes overweighed, while the bad news is underweighted.

Toha and Harahap (2012) revealed that accrual anomaly in Indonesia is considered to be different from United States' market as documented in Sloan (1996), in term of the context of consistency, correlation, and the characteristics of existence. The study of accrual anomaly in Indonesia has once been conducted by Ratmono and Cahyonowati (2005), showing that the mispricing on stock prices is indicated by the findings of abnormal accrual. On the other hand, Shi, Zhang, and Guo (2014) found that the strength of accrual anomaly in Sloan (1996) has been lower to the firms with analyst cash-flow forecasts, compiled by some controls on idiosyncratic risks, transaction costs, and firm characteristics.

Overreaction is justified to influence the stock prices, indicating market inefficiency, as stated by De Bondt and Thaler (1985). It was found that the loser portfolios have been able to surpass the winner's in the following period. Gunarsa and Ekayani (2011) detected the winner-loser anomaly on manufacturing industries of Indonesia Stock Exchange (IDX), indicating price reversal phenomena. Swandewi and Mertha (2013), Yull and Kirmizi (2012), Suarmanayasa and Susila (2008), and Dinawan (2007), also got the same findings. Otherwise, Yunita (2012) found that these kinds of phenomena are undetected on property and finance industries.

In connection with the inconsistency of market anomalies with market efficiency, there are implications of efficient market hypothesis (EMH) concept in accounting. As stated by Scott (2009), for which market efficiency refers to the usefulness of accounting information, the financial reporting has simultaneously provided the proper disclosure and facilitated the market to respond appropriately. Therefore, the efficient market has been considered to be such indicator, measuring that accounting has already succeeded in performing its role as "vehicle" which connects the firm management and investors. Consequently, the detection of market anomaly existence, which indicates the efficient market inconsistency and implicates financial reporting and accounting information usefulness, is considered to be urgent to investigate.

This research aims to answer the questions: (1) do accrual anomaly and winner-loses anomaly exist in Indonesia? and (2) which anomaly is more significant in influencing abnormal return in Indonesia? By answering these questions, this research is expected to fill the gap in the finance literature regarding market anomalies, as most research, especially in Indonesian setting, do not compare which anomaly, whether accrual anomaly or winner-loser anomaly, is more significant in influencing abnormal return. Understanding such comparison enormously contributes toward the understanding on the characteristics of the Indonesian capital market and how EMH works in such country setting. This could be useful for investors in formulating their trading strategies and how they should interpret and use publicly available information.

Literature Review

Efficient Market Hypothesis and Abnormal Return

In accounting theory, market efficiency is recognized as a crucial issue which has been discussed in several topics. Scott (2009) investigated the relationship between efficient market and accounting information usefulness. He found that if the market is considered to be efficient, the appropriate reactions by investors reflected by stock prices are indications that accounting successfully provided the information helpful in decision making. This concept is relevant to the discussion of full disclosure and decision usefulness.

In line with the stock price reflection, the condition of sophisticated investors who properly responded to the accounting information, market efficiency is related to the successful achievement by qualitative characteristics of financial statements, such as relevance, faithful representation, understandability, and other aspects as stated in Statement of Financial Accounting Concepts (SFAC) No. 8 (Financial Accounting Standards Board, 2010). SFAC, one of the referred standards in accounting theory, relating

to its interrelatedness with the science of accounting since it was formerly developed. Furthermore, EMH is an outstanding term in investment. Hartono (2007) defined the efficient market as a portrayal of the market where investors are able to react responsively to the information, which is completely reflected by stock prices and the achieved equilibrium price. He also stated that to achieve efficiency, it is highly significant to acquire the appropriate velocity and accuracy. Bodie, Kane, and Marcus (2005) stressed the point of information, which completely describes market efficiency.

Beaver (1989 as cited in Hartono, 2007) described the market efficiency based on: (1) Intrinsic value of securities, which refers to the consistency of the securities with their intrinsic and fundamental values—the securities are not mispriced as they are in accordance with the available information on financial statements; (2) Stock price valuation accuracy, which refers to the condition when investors are able to expect the prices of securities based on the available information; (3) Information distribution, which results in the availability of the historical information and publishes future information for the public; therefore, in efficient market, investors are improbable to get abnormal returns; and (4) Dynamic process which refers to the condition of the efficient market which is capable of adjusting the asymmetric information, so that the symmetric information is subsequently achieved by quick distribution of information.

Specifically discussing on abnormal return, it is defined as an indication of market inefficiency. Bodie et al. (2005) described abnormal return as securities returns that are excluded from market movements. In addition, abnormal return is accumulated to cumulative abnormal return (CAR), which is the total amount of abnormal returns for the period range of the issuance of announcement of information. In other words, abnormal return is a measurement that assesses the unexpected return in efficient market.

Accrual Anomaly

Studies on accrual anomaly have referred to Sloan (1996) who introduced the concept of two earnings components: (1) Accrual component and (2) Cash-flow component, which is frequently weighted as the same, despite that they should be weighted proportionally. Ratmono and Cahyonowati (2005) investigated more about the low persistence of accrual component as documented in Sloan (1996) that is caused by the abnormal accrual. The empirical study conducted by Toha and Harahap (2012) showed that there has been a difference in the characteristics of accrual anomaly in Indonesia with the like in the United States. Toha and Harahap (2012) found the inconsistent accrual anomaly existence in the period 2003 to 2006. In addition, the accrual anomaly is considered not to have significant influence on abnormal returns. The difference in characteristics of accrual anomaly is because of the different legal system, leading to the different characteristics between common law and code law, and between developed country and developing country (Choi & Meek, 2011). Therefore, it requires being distinguished using relevant classification.

Winner-Loser Anomaly

Winner-loser anomaly was formerly developed by De Bondt and Thaler (1985), who were interested in investigating market behavior and psychology of individual decision- making. Both terms are the backgrounds of the findings on overreaction in their study, which was defined as the improper responses by the interacting investors in the market. It was found that the market has been inefficient by the detection of winner-loser anomaly, for which there has been some price reversals affecting the extremely high priced stocks (winners), performing less satisfactorily in the following period than the extremely low priced stocks (losers).

Figure 1 illustrates the overreaction, appropriate reaction in efficient market, and under-reaction by investors to respond to information. The efficient market reaction represents the quick and accurate response at the point of time t, so the stock prices are automatically reflected correctly. The overreaction influences the increase or decrease of stock prices, which subsequently requires some correction in the period after t, (it could be t + 1 or t + 2). For the under-reaction, the market tends to slowly respond to the information so certain period range is required to reach appropriate price. The following illustration is adapted from Ahmad and Othman (2002 as cited in Dinawan, 2007).

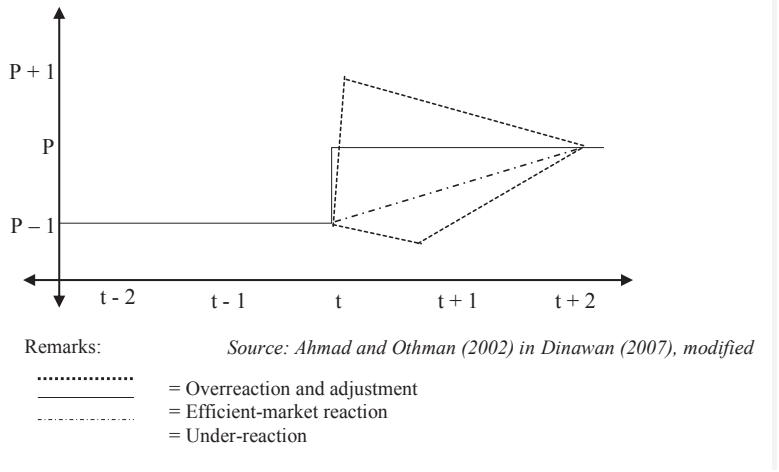

Figure 1. *Market reactions to new information.*

Gunarsa and Ekayani (2011) justified that there has been overreaction in Indonesia as documented in De Bondt and Thaler (1985), implying that the winner-loser anomaly has occurred. Consequently, the abnormal return appears along with the price reversals of winner and loser portfolios. Swandewi and Mertha (2013) have conducted a study in manufacturing sector in Indonesia Stock Exchange, which shows the significant differences between the mean of cumulative abnormal returns in the formation period with the test period, to each winner and loser portfolio. A research by Suarmanayasa and Susila (2008) showed that the winner-loser anomaly has been detected in Indonesia as the effect of overreaction. Besides, Yunita (2012) came up with different findings on the research related to winner-loser anomaly. It was found that there are no overreaction symptoms on the sector of property and finance in Indonesia Stock Exchange for the period 2010–2011.

Besides the studies related to winner-loser anomaly, Yull and Kirmizi (2012) and Dinawan (2007) showed that overreaction has an influence on price reversal, triggered by factors such as firm size, bid–ask spread, and liquidity. Nevertheless, both studies came up with different result. Yull and Kirmizi (2012) found that the three predictors—firm size, bid–ask spread, and liquidity—do not have significant influence on price reversals, while Dinawan (2007) revealed that those predictors have significant influence which investors can use to apply contrarian strategy accurately.

Based on the literature review, the hypotheses of this study are : (1) Accrual anomaly significantly influences abnormal return; and (2) Overreaction anomaly significantly influences price reversals. The terms "overreaction" and "price reversal" are used in the second hypothesis formulation, because: (1) winner-loser anomaly represents the existence of price reversal phenomena, which are affected by market overreaction and (2) either overreaction or price reversal is measured by abnormal return, each of which has different calculation technique basis, therefore it would be "less relevant and specific" if the term of abnormal return is used as the formulation of the first hypothesis. However, price reversal is accordingly generalized as the representation of abnormal return, considering its context as an indication of market inefficiency which is measured based on abnormal return.

Methodology

To examine the influence of accrual anomaly and winner-loser anomaly, we first applied anomaly existence test to both kinds of anomalies. The study was designed into these three following steps: (1) Portfolios formation; (2) Test of Existence; and (3) Regression analysis. This research used the observation period of six years starting from 2002 to 2007 under the following considerations: (1) The period of 2007 was decided to be the end of observation period as it had become the last year before the global crisis occurred, therefore this research is considerably free from bias; and (2) The period of 2002 was decided

to be the beginning of observation period to design this research according to winner-loser anomaly consideration which required five-year period as the minimum standard. However, this research aims to compare accrual anomaly with winner-loser anomaly, instead of merely focusing on one of the anomalies; thus it judgmentally defined the six-year period as the observation period, since the research references had used these following periods: (1) Toha and Harahap (2012) used four-year period; (2) Gunarsa and Ekayani (2011) used one-year period; (3) Swandewi and Mertha (2013) used four-year period; (4) Yull and Kirmizi (2012) used one-year period; (5) Dinawan (2007) used one-year period; and (6) De Bondt and Thaler (1985) used various periods, in which the five-year period had been considered as the detecting time of winner-loser anomaly. The purposive sampling was used as it was in line with the research objective that is investigating the accrual and winner-loser anomalies, resulting in 62 samples, as described in Table 1.

Considering the ending amount of samples is 62, which is only 31.47% of 197 of the total available data availability, it is required to implement the test of difference to identify the characteristics of similarity between the samples and population, therefore it is probable to assess whether the samples have represented the population. It shows that the significance exceeds 5% significance level value, for which it is 84.40%; with *t*-value of -0.197. The test-of-difference result is shown in Table 2.

Accrual Anomaly: Portfolios Formation, Test of Existence, and Regression Analysis

Following Toha and Harahap (2012), accrual anomaly test is started by forming 12 portfolios based on (1) Size; (2) Book-to-market-ratio (BM), and (3) Size/BM. The details of portfolio formation in the observation period of six years are described as follows:

Size-based portfolios
Measurement scale : Log of total assets
Data source : Financial statements – balance sheet, IDX
Portfolios : Big, mod-to-big, mod-to-small, and small

Table 1. *Purposive Sampling Description*

Remarks	Amount
Listed companies in IDX, for 2002–2007	369a
Included in the finance sector	(64)
Included in the property sector	(31)
Unavailability of data, referred to IDX	(70)
Unavailability of data, referred to Yahoo! Finance	(142)
Ending amount of samples	62
Amount of samples, six-year period	372

Notes: [a]Total asset data were available only for 197 of 369 listed companies in IDX, in the period of 2002–2007

Table 2. *Test of Difference Result on Samples and Population*

Mean **(Billion Rupiahs)**		**Deviation Std. (Billion Rupiahs)**		**Correlation**		**Test of Difference**			
Samples	**Population**	**Samples**	**Population**	**Value**	**Sig.**	**Lower**	**Upper**	***t***	**Sig.**
2.805	2.929	7.371	9.969	-0,005	0.930	-1.369	1.120	-0.197	0.844

Samples allocation :

Portfolio	Amount
Big	15
Mod-to-big	16
Mod-to-small	16
Small	15
Total	**62**

BM-based portfolios

Measurement scale : Book-to-market ratio
Data source : Financial statements – balance sheet, IDX
Portfolios : High-BM, mod-to-high-BM, mod-to-low BM, and low-BM
Samples allocation :

Portfolio	Amount
High-BM	15
Mod-to-high-BM	16
Mod-to-low-BM	16
Low-BM	15
Total	**62**

Size/BM-based portfolios

Measurement scale : Log of total asset; Book-to-market ratio
Data source : Financial statements – balance sheet, IDX
Portfolios : Big, high-BM; Big, low-BM; Small, high-BM; Small, low-BM
Samples allocation:

Portfolio	Amount
Big, high-BM	15
Big, low-BM	16
Small, high-BM	16
Small, low-BM	15
Total	**62**

After forming the portfolios, the test of existence was implemented by: (1) computing the abnormal return of every sample; (2) identifying the five highest and the five lowest accrual firms in every portfolio; and (3) subtracting the abnormal returns of the lowest accrual firms by the highest ones. The accrual anomaly is considered to exist if the assessment shows that the abnormal returns of lowest accrual firms are higher.

The last step of accrual anomaly observation is regression analysis. It was implemented to: (1) size-based portfolios; (2) BM-based portfolios; (3) Size/BM-based portfolios; and (4) all 12 portfolios. The regression is formulated as follow:

$$AR_t=\beta_0+\beta_1\ ACC_{t-1}+\beta_2 SIZE_{t-1}+\beta_3 BM_{t-1}+\varepsilon_t \quad (1)$$

where: AR = abnormal return
ACC = accruals
SIZE = firm size
BM = book-to-market ratio

Winner-Loser Anomaly: Portfolios Formation, Test of Existence, and Regression Analysis

The winner-loser anomaly observation divides the research observation period into: (1) formation period and (2) test period. The formation period is defined as the period when the winner and loser portfolios are formed, while the test period is the period when the formed portfolios are treated as test of existence examination object. Table 3 illustrates the division of observation period.

The portfolios are formed into winner and loser for which each comprises various amount in every formation period. The samples are classified into winner (loser) portfolio if they have earned higher (lower) cumulative abnormal return compared with the market return in every formation period. Therefore, the winner and loser portfolios are formed by: (1) computing market return based on monthly realized return of Composite Stock Price Indices (CSPI) for each formation period; (2) identifying the highest and the lowest market realized return for each formation period; and (3) classifying samples into winner (loser) portfolios for each formation period.

The winner-loser anomaly is considered to exist if during the assessment the price reversals occurred by observing the price reversal phenomena, which the winner (loser) portfolios possess negative (positive) returns in the test periods. Price reversal phenomena were assessed by implementing test of difference by comparing the cumulative abnormal return in these paired periods: (1) formation periods and (2) test

Table 3. *Observation Period Division of Winner-Loser Anomaly Examination*

Observation	Formation Period	Test Period
1	January 2002 – June 2002	July 2002 – December 2002
2	July 2002 – December 2002	January 2003 – June 2003
3	January 2003 – June 2003	July 2003 – December 2003
4	July 2003 – December 2003	January 2004 – June 2004
5	January 2004 – June 2004	July 2004 – December 2004
6	July 2004 – December 2004	January 2005 – June 2005
7	January 2005 – June 2005	July 2005 – December 2005
8	July 2005 – December 2005	January 2006 – June 2006
9	January 2006 – June 2006	July 2006 – December 2006
10	July 2006 – December 2006	January 2007 – June 2007
11	January 2007 – June 2007	July 2007 December 2007

periods. The detected price reversals indicate that the winner-loser anomaly occurs.

After test of existence examination, the regression analysis was implemented to investigate whether the overreaction has contributed to the price reversal phenomena. The overreaction, in this case, was defined as the factor with strength that affected market inefficiency, implying that the winner-loser anomaly has been identified. Overreaction is measured by assessing monthly abnormal return in every formation period. The regression formula is presented as:

$$CAR_t = \beta_0 + \beta_1 AR_{t-1} + \varepsilon_t \quad (2)$$

where: CAR = cumulative abnormal return represents price reversal in the test period of *t*
AR = abnormal return represents overreaction in the formation period of *t-1*
t = observation period

Lastly, after assessing the results acquired from influence significance test of accrual and winner-loser anomaly to abnormal return as described previously, the last step is comparing them to define which one is more dominant in IDX, whether it is accrual or winner-loser anomaly.

Variable Definitions

This research has three variables: (1) Dependent variables, (2) Controlling variables, and (3) Independent variables. In line with the research objective, the variables were defined to investigate the influence of accrual and winner-loser anomalies on abnormal returns, each of which was measured by various indicators in accordance with its context in every implemented examination. Therefore, the variable definitions are described as follows:

Dependent variables. The dependent variables in this research are generally defined as "abnormal return", for which an indication of identified market inefficiency was examined in observing accrual and winner-loser anomalies. The abnormal return variable definitions are divided into accrual anomaly and winner-loser anomaly.

Accrual anomaly. As documented in Toha and Harahap (2012), the abnormal return is computed by subtracting portfolio return (average of the sum of stocks return) and realized return of individual stock. The computation is presented as follows:

$$AR = R_{i,t} - R_{p,t} \quad (3)$$

AR = abnormal return
$R_{i,t}$ = realized return of stock *i*, in the period of *t*
$R_{p,t}$ = portfolio return, in the period of *t*

Winner-loser anomaly. The dependent variable of winner-loser anomaly test is cumulative abnormal return, which represents price reversal. Generally, price reversal has similar contextual substance to abnormal return in the case of accrual anomaly: it indicates the existence of market inefficiency. The winner-loser anomaly concept tends to emphasize the "extreme" changes of abnormal returns, therefore, the dependent variable is designed to be the accumulated abnormal return in the test period. At last, the accumulated value does not only show the direction changes of abnormal return, but also any reflection of extremity which is the main object in winner-loser anomaly. The cumulative abnormal return computation is formulated as follows (Dinawan, 2007):

$$CAR_t = \Sigma AR_{i,t} \quad (4)$$

CAR = cumulative abnormal return (price reversal)
$AR_{i,t}$ = abnormal return of stock *i*, in the period of *t*
t = year in the test period

The abnormal return ($AR_{i,t}$) is computed by mean-adjusted model as elaborated in Hartono (2007). The model subtracts the expected return (the average of realized returns) by realized return as follows:

$$AR_{i,t} = R_{I,t} - \sum_{j=t_1}^{t_2} R_{I,j} \quad (5)$$

$AR_{i,t}$ = abnormal return of stock i, in the period of t
$R_{i,t}$ = realized return of stock i, in the period of t
$R_{i,j}$ = realized return of stock i, in the estimating period of j
j = the duration during estimating period, from t_1 to t_2
t = year in the test period

Controlling variables. In this research, two controlling variables are designed in accrual anomaly test to mitigate the bias effect possibility of dependent variable by including these following elements: (1) Size and (2) Book-to-market or BM. The size variable is measured by computing log of total assets as presented in financial statements, while the BM variable is determined by dividing book value (total equity per outstanding stock) by the stock price.

Independent variables. For accrual anomaly, the independent variable is designed as the accruals determined by income statement approach, as described in Sloan (1996 as cited in Scott, 2009). The accruals computation is formulated as follow.

Net Income = Operating Cash Flows ± Net Accruals,

or

Net Accruals = Net Income ± Operating Cash Flows

For winner-loser anomaly, the overreaction is set as independent variable. It represents the improper reaction of investors measured by abnormal return of stock every year in the portfolio formation period. The abnormal return is determined by mean adjusted model. Unlike the price reversal, in which the abnormal return is measured in the test period, the overreaction is defined by abnormal return measurement in formation period to identify the reaction appearing when a portfolio is formed.

$$AR_{i,t} = R_{i,t} - \sum_{j=t_1}^{t_2} R_{i,j} \quad (6)$$

where: $AR_{i,t}$ = abnormal return of stock *i*, in the period of *t*
$R_{i,t}$ = realized return of stock*i*, in the period of *t*
$R_{i,j}$ = realized return of stock*i*, in the estimating period of *j*
j = duration of estimating period, from t_1 to t_2
t = year in the formation period

Empirical Results

This section discusses the observation related to anomaly existence detection and analysis for its influence on abnormal return. The discussion starts

from accrual anomaly, winner-loser anomaly, and significance comparison of both anomalies.

Accrual Anomaly

a. Size-Based Portfolio

(i) Portfolio Formation

The size-based portfolios were formed based on log total asset of the entire 62 samples in this research. Firstly, the data of total asset were collected from the samples' financial statements, for each fiscal year ended 2002, 2003, 2004, 2005, 2006, and 2007. After being collected, the average of the total six-year total assets was calculated and the samples are ranked from the highest log total asset values to the lowest ones. The 15 highest ones were grouped into big firms, the first 16 ones were grouped into moderate-to-big firms, the next 16 ones were grouped into moderate-to-small-firms, and the last 15 ones were grouped into small firms.

(ii) Test of Anomaly Existence

The study treated each sample similarly by computing the realized return—each realized return computation began from the fourth month after fiscal year, assuming that during that period investors had made appropriate decision—of each sample. On the other hand, this study determined the return for each portfolio by counting down the average sum of the samples' (the portfolio's composition) returns. The abnormal return for each individual sample was acquired from subtracting the portfolio's return by the individual sample's return. Then, it ranked the samples in each portfolio based on the accruals from the highest to the lowest. At last, we picked the five highest and the five lowest and defined the difference between them. Table 4 presents the difference resulted from each portfolio for each fiscal year. As described in its definition, accrual anomaly suggests that low accrual abnormal return performs better than the high accruals. Therefore, in this case, accrual anomaly is considered

Table 4. *Test of Accrual-Anomaly Existence for Size-Based Portfolios*

Portfolio	2002			2003			2004		
	Accruals		Difference	Accruals		Difference	Accruals		Difference
	High	Low		High	Low		High	Low	
Big firms	-0.18%	-2.43%	-2.26%	-3.08%	1.64%	4.72%	-1.20%	2.27%	3.48%
Moderate-to-big firms	-0.55%	1.42%	1.97%	-3.29%	4.53%	7.82%	-0.92%	-0.39%	0.53%
Moderate-to-small firms	7.74%	-4.17%	-11.91%	-0.76%	-1.81%	-1.06%	5.52%	-0.50%	-6.01%
Small firms	-1.41%	3.02%	4.44%	-3.31%	3.26%	6.57%	0.70%	1.62%	0.92%
Total			**-7.76%**			**18.05%**			**-1.09%**

Portfolio	2005			2006			2007		
	Accruals		Difference	Accruals		Difference	Accruals		Difference
	High	Low		High	Low		High	Low	
Big firms	1.68%	0.44%	-1.24%	2.99%	-0.59%	-3.58%	1.39%	2.20%	0.81%
Moderate-to-big firms	-0.23%	-2.91%	-2.69%	-0.21%	0.20%	0.41%	-1.60%	-2.27%	-0.67%
Moderate-to-small firms	-1.52%	-0.08%	1.44%	-0.15%	0.21%	0.35%	6.05%	-1.02%	-7.07%
Small firms	0.63%	-1.07%	-1.71%	1.90%	-1.40%	-3.30%	-3.84%	-2.63%	1.22%
Total			**-4.19%**			**-6.12%**			**-5.72%**

to exist when the difference result shows the positive number, for which it implies that low accrual firms had generated the higher abnormal return than the high accrual ones. Overall, the accrual anomaly was detected in 2003 for 18.05%, contributed by moderate-to-big-firm portfolio and small firm portfolio with 7.82% and 6.57% difference respectively.

(iii) Regression Analysis

Based on the applied regression model as described previously, the result, which has been generated by size-based portfolios, is presented on Table 5. It shows that moderate-to-big-firm portfolio in 2002 has been considerably selected as the best regression model among all, for which: (1) *F*-probability is 0.035, implying that the three variables including accrual (ACC), firm size (SIZE), and book-to-market value (BM) simultaneously reflect the abnormal return (AR); (2) *R*-probability is 0.646, implying that the entire variables in the model have strong correlation to each other; and (3) Adj. *R*-square probability is 0.271, implying that the predictors (ACC, SIZE, and BM) are relatively able to influence the dependent variable (AR), or, in other words, the predictors explain the dependent variable by 27.1%, while the remaining 72.9% (100%-27.1%) is contributed by the factors which has been excluded from the model. However, in this model, ACC presents the probability value of 9.4%, above the significance level standard of 5%. It indicates that ACC, as independent variable, insignificantly influences AR, the dependent variable. On the other hand, the constant value (C) and SIZE

Table 5. *Regression Testing of Size-Based Portfolios*

Year	Portfolio	ACC		SIZE		BM		C		N	R	Adj. R Square	F-Stat
		Coef.	Prob.	Coef.	Prob.	Coef.	Prob.	Coef.	Prob.				
2002	Big	0.362	0.527	-0.277	0.407	0.573	0.302	0.139	0.409	15	0.388	-0.081	0.351
	Mod-to-Big	-0.555	0.094	-0.651	0.043	-0.277	0.265	0.75	0.042	16	0.646	0.271	0.035
	Mod-to-Sm	0.743	0.046	0.688	0.062	-0.076	0.758	-2.015	0.064	16	0.56	0.142	0.196
	Small	-0.459	0.117	-0.332	0.221	-0.04	0.889	0.296	0.233	15	0.582	0.158	0.192
2003	Big	-2.37	0.037	-0.527	0.184	-2.075	0.037	0.486	0.179	15	0.587	0,.166	0.183
	Mod-to-Big	-0.156	0.635	0.266	0.42	-0.059	0.835	-0.547	0.413	16	0.374	-0.075	0.597
	Mod-to-Sm	-0.367	0.271	-0.799	0.027	-0.129	0.58	0.933	0.026	16	0.622	0.234	0.107
	Small	-0.15	0.604	-0.339	0.233	-0.268	0.359	0.676	0.223	15	0.487	0.03	0.375
2004	Big	-0.808	0.275	-0.12	0.77	-0.299	0.607	0.054	0.784	15	0.493	0.037	0.363
	Mod-to-Big	-0.085	0.788	-0.131	0.682	0.25	0.413	0.16	0.699	16	0.244	-0.176	0.858
	Mod-to-Sm	0.766	0.021	-0.242	0.424	-0.045	0.847	0.429	0.401	16	0.651	0.28	0.076
	Small	-0.556	0.05	-0.284	0.281	-0.06	0.817	0.196	0.302	15	0.605	0.192	0.157
2005	Big	-1.424	0.199	-0.669	0.182	-0.1143	0.203	0.352	0.177	15	0.443	-0.023	0.473
	Mod-to-Big	0.292	0.357	0.056	0.861	0.221	0.435	-0.071	0.844	16	0.438	-0.01	0.448
	Mod-to-Sm	-0.375	0.301	0.333	0.361	-0.344	0.227	-0.662	0.365	16	0.409	-0.041	0.515
	Small	-0.242	0.392	0.155	0.583	0.39	0.188	-0.138	0.526	15	0.467	0.005	0.419
2006	Big	-1.02	0.317	-0.551	0.286	-0.68	0.396	0.312	0.284	15	0.332	-0.132	0.719
	Mod-to-Big	0.056	0.825	-0.276	0.281	-0.588	0.021	0.181	0.237	16	0.684	0.334	0.049
	Mod-to-Sm	0.037	0.904	0.449	0.157	-0.204	0.434	-0.546	0.162	16	0.498	0.06	0.313
	Small	0.038	0.9	-0.053	0.861	0.304	0.329	0.024	0.895	15	0.31	-0.151	0.764
2007	Big	-1.923	0.015	-0.814	0.052	-1.344	0.027	0.605	0.051	15	0.656	0.274	0.092
	Mod-to-Big	0.134	0.666	0.017	0.956	-0.366	0.225	-0.013	0.989	16	0.349	-0.098	0.656
	Mod-to-Sm	0.12	0.749	0.258	0.491	-0.002	0.995	-0.542	0.498	16	0.349	-0.098	0.655
	Small	-0.225	0.472	-0.168	0.591	-0.133	0.673	0.159	0.5884	15	0.328	-0.136	0.728

show the significant value for each at 4.3% and 4.2% respectively. Nevertheless, considering the overall results generated from the entire models of size-based portfolios, ACC has been frequently coming out as the most influential variable among predictors, for which it shows the significant indication by appearing with the value below (or equal to) 5% standardized significance level: (1) 4.6% on moderate-to-small firms, in 2002; (2) 3.7% on big firms, in 2003; (3) 2.1% on moderate-to-small firms, in 2004; (4) 5% on small firms, in 2004; and (5) 1.5% on big firms, in 2007. Overall, the most significant value of ACC was discovered in 2007, on big-firm portfolio, with negative amount coefficient of -1.923, which indicates that every increase regarding ACC for single point has mitigated abnormal return. In conclusion, the result of the observation represents the accrual anomaly concept: the higher accruals, the lower abnormal return, and (or) vice versa.

b. BM-Based Portfolio

(i) Portfolio Formation

The BM-based portfolio formation was determined based on the ratio between the book value and market value of each stock. The book value per fiscal year was computed by dividing the total equity of each sample to the number of outstanding stocks. The market value was the adjusted closing price of each stock. The average of book-to-market ratio during observation period was calculated and ranked from the highest to the lowest. Among the 62 samples, the highest 15 were grouped into high-BM firms, the following 16 were grouped into moderate-to-high-BM firms, the following 16 were grouped into moderate-to-low BM firms, and the last 15 were grouped into low-BM firms.

(ii) Test of Anomaly Existence

As the treatment, the study applied size-based portfolios, to each BM-based portfolio. It calculated abnormal return by subtracting portfolio return (the average of total monthly-return average of the stocks included in each portfolio) to realized return—for which the calculation began from the fourth month after fiscal year—of individual stock per year. After that, the accruals were identified to assess the difference between the five highest accruals and the five lowest ones. Table 6 shows the overall accrual anomaly existing in 2003 and 2007 among the formed BM-based portfolios, at 16.93% and 8.32% respectively.

Table 6. *Test of Accrual Anomaly Existence for BM-Based Portfolios*

Portfolio	2002			2003			2004		
	Accruals		Difference	Accruals		Difference	Accruals		Difference
	High	Low		High	Low		High	Low	
High-BM firms	-2.04%	1.72%	3.76%	-0.18%	0.39%	0.57%	2.88%	-1.70%	-4.58%
Moderate-to-high BM firms	5.18%	-0.84%	-6.02%	-5.39%	7.70%	13.09%	3.60%	-1.24%	-4.84%
Moderate-to-low BM firms	0.78%	-2.11%	-2.89%	-3.51%	6.30%	9.81%	-0.16%	4.45%	4.61%
Low-BM firms	-0.77%	2.50%	3.27%	5.47%	-1.07%	-6.54%	-1.30%	3.02%	4.32%
Total			-1.87%			16.93%			-0.50%

Portfolio	2005			2006			2007		
	Accruals		Difference	Accruals		Difference	Accruals		Difference
	High	Low		High	Low		High	Low	
High-BM firms	0.14%	-1.07%	-1.21%	-0.85%	0.64%	1.49%	3.49%	-0.89%	-4.38%
Moderate-to-high BM firms	-1.08%	-2.17%	-1.09%	-0.21%	-0.82%	-0.61%	0.25%	-4.69%	-4.94%
Moderate-to-low BM firms	2.05%	0.17%	-1.88%	2.30%	-1.57%	-3.87%	0.71%	-0.28%	-0.99%
Low-BM firms	-1.79%	-1.76%	0.02%	2.47%	-0.56%	-3.02%	-3.29%	-1.30%	1.99%
Total			-4.16%			-6.01%			8.32%

Table 7. *Regression Testing of BM-Based Portfolios*

Year	Portfolio	ACC		SIZE		BM		C		N	R	Adj. R Square	F-Stat
		Coef.	Prob.	Coef.	Prob.	Coef.	Prob.	Coef.	Prob.				
2002	High BM	-0.19	0.706	0.055	0.913	0.13	0.664	0.002	0.981	15	0.27	-0.18	0.833
	Mod-to-High BM	0.212	0.553	0.216	0.583	-0.367	0.255	-0.087	0.79	16	0.343	-0.103	0.668
	Mod-to-Low BM	-0.294	0.348	-0.615	0.053	-0.263	0.318	0.141	0.025	16	0.57	0.156	0.18
	Low	0.11	0.717	-0.28	0.363	0.054	0.858	0.078	0.208	15	0.326	-0.138	0.732
2003	High BM	-0.065	0.879	0.357	0.412	-0.298	0.274	-0.04	0.57	15	0.518	0.068	0.311
	Mod-to-High BM	-0.311	0.448	0.085	0.837	-0.271	0.385	0.008	0.977	16	0.444	-0.003	0.433
	Mod-to-Low BM	-0.823	0	0.083	0.614	0.305	0.043	-0.024	0.484	16	0.888	0.736	0
	Low	-0.041	0.882	-0.449	0.121	-0.17	0.538	0.269	0.076	15	0.49	0.033	0.368
2004	High BM	0.035	0.938	0.465	0.313	-0.012	0.966	-0.063	0.407	15	0.438	-0.028	0.484
	Mod-to-High BM	0.583	0.067	0.235	0.386	0.017	0.953	-0.117	0.502	16	0.543	0.118	0.226
	Mod-to-Low BM	-0.241	0.479	-0.393	0.23	-0.304	0.291	0.132	0.085	16	0.504	0.068	0.301
	Low	-0.093	0.756	-0.353	0.24	0.062	0.833	0.073	0.155	15	0.36	-0.108	0.662
2005	High BM	-0.284	0.567	-0.489	0.332	-0.11	0.707	0.13	0.281	15	0.324	-0.139	0.736
	Mod-to-High BM	0.052	0.873	-0.118	0.722	-0.04	0.901	0.069	0.626	16	0.144	-0.224	0.967
	Mod-to-Low BM	-0.315	0.366	-0.333	0.307	-0.302	0.312	0.078	0.124	16	0.46	0.015	0.397
	Low	0.115	0.708	0.006	0.986	0.099	0.754	0.021	0.829	15	0.148	-0.245	0.968
2006	High BM	-0.941	0.035	-0.723	0.095	-0.233	0.346	0.128	0.066	15	0.623	0.222	0.131
	Mod-to-High BM	0.296	0.229	-0.13	0.593	-0.67	0.012	0.082	0.202	16	0.662	0.298	0.066
	Mod-to-Low BM	0.287	0.374	-0.243	0.455	-0.264	0.35	0.094	0.255	16	0.457	0.011	0.404
	Low	0.171	0.532	0.479	0.099	-0.088	0.745	-0.054	0.19	15	0.49	0.033	0.37
2007	High BM	0.201	0.686	0.305	0.541	0.097	0.748	-0.128	0.591	15	0.209	-0.217	0.916
	Mod-to-High BM	-0.006	0.985	-0.035	0.904	-0.287	0.321	0.12	0.733	16	0.288	-0.146	0.782
	Mod-to-Low BM	0.081	0.82	0.005	0.99	-0.204	0.567	0.025	0.726	16	0.184	-0.208	0.934
	Low	-0.029	0.922	-0.33	0.285	0.059	0.843	0.196	0.196	15	0.321	-0.142	0.741

Comparing the two indicating numbers regarding the anomaly, it can be concluded that the fiscal year of 2003 has resulted the greatest amount (13.09%), which is mainly contributed by moderate-to-high BM firm portfolio.

(iii) Regression Analysis

Table 7 presents the regression result for BM-based portfolios. It can be defined that the best regression model, in this case, is the moderate-to-low BM firm portfolio in 2003, for which it has: (1) *F*-probability value for 0.00, which has reached the maximum level, meaning that the entire predictors have strongly influenced the dependent variable; (2) the consistent implication with accrual anomaly concepts is represented by the negative coefficient resulted from ACC variable, for -0.823, justified by the probability value of 0.00 which is the maximum significance level; and (3) significant result on BM variable, for probability value of 4.3%, which is below 5% standardized level. Nevertheless, either SIZE or C variable has insignificant influence based on this model, for 61.4% and 48.4% respectively.

Compared to the selected model from size-based portfolios, this model performs better as it considers the significance of the probability value of *F* and ACC. Moreover, this model results in an the *R*-value of 88.8%, implying that there has been strong correlation, as well as adj. *R*-square indicator showing the percentage of 73.6%, which means that the predictors have dominant proportion in explaining the dependent variable, while the remaining 26.4% (100%-73.6%) has been allocated to the model's excluding factors.

c. Size/BM-Based Portfolio

(i) Portfolio Formation

The study has designed size/BM-based portfolios based on (1) firm size, including big firms and small firms; and (2) BM grouping classification, including high-BM firms and low-BM firms. Therefore, in this case, the observation is subjected to apply the research treatment to these formed portfolios: (1) Big firms, high BM; (2) Big firms, low BM; (3) Small firms, high BM; and (4) Small firms, low BM.

The portfolio formation technique is determined similarly, either to size or BM-based portfolios as described previously. The size/BM-based portfolio formation, in other word, is defined by combining the size-based and BM-based formations. Firstly, it groups the samples into big and small firms by ranking each based on log total asset. Then, it classifies both groups—big firms and small firms—into high-BM and low-BM firms by identifying the book-to-market ratio individually and sorting the group member samples from the highest to the lowest. Finally, there are four grouping portfolio, as previously mentioned.

(ii) Test of Anomaly Existence

As the test of anomaly existence was conducted in size and BM-based portfolios, it was required to assess the abnormal return for each individual sample per observation year. The portfolios return was subtracted to realized return average, while accrual anomaly indication was acquired from the difference identification, between the five highest accruals and five lowest accruals on each portfolio.

Based on the result of the overall result analysis, it is found that accrual anomaly is detected, as well, in 2003, by 8.02%. In connection with both previous results regarding the test of anomaly existence results, it is concluded that the accrual anomaly has consistently existed in 2003, one of the six-year observation period. Furthermore, considering the testing result related to the biggest numbers to be the indicators of anomaly existence to the entire portfolios, it is revealed that accrual anomaly tends to occur on those which possess big or high BM. It is justified by the difference amount resulted from the tests performed to (1) Moderate-to-big firms; (2) Moderate-to-high BM firms; and (3) Big firms, high-BM portfolios. Therefore, the findings of this research differ from the findings of Toha and Harahap (2012), for which they detected the inconsistency of anomaly existence either based on observation year period or the portfolio grouping formation. In contrast, this research has implied that the year 2003 is consistently considered as the period when the anomaly occurred. Table 8 shows the test of anomaly existence results for size/BM-based portfolios.

(iii) Regression Analysis

The regression to size/BM-based portfolios has resulted with the best two models regarding the influence significance test according to F-probability value: (1) Small firms, low BM in 2002 (0.024) and (2) Small firms, high BM in 2004 (0.000). Considering the *R* and adj. *R*-value of the both selected models, the second, small firms, high-BM model in 2004 is better,

Table 8. *Test of Accrual Anomaly Existence for Size/BM-Based Portfolios*

Portfolio	2002			2003			2004		
	Accruals		Difference	Accruals		Difference	Accruals		Difference
	High	Low		High	Low		High	Low	
Big firms, high BM	-3.67%	2.86%	6.54%	-4.38%	2.55%	6.92%	0.67%	0.00%	-0.67%
Big firms, low BM	1.35%	-2.40%	-3.75%	-0.76%	4.78%	5.54%	-1.09%	2.02%	3.11%
Small firms, high BM	5.04%	-2.14%	-7.18%	1.86%	0.87%	-0.99%	6.53%	-2.79%	-9.33%
Small firms, low BM	-1.40%	0.69%	2.09%	3.50%	0.04%	-3.46%	-0.36%	4.04%	4.40%
Total			-2.31%			8.02%			-2.49%

Portfolio	2005			2006			2007		
	Accruals		Difference	Accruals		Difference	Accruals		Difference
	High	Low		High	Low		High	Low	
Big firms, high BM	0.17%	-0.20%	-0.38%	-1.42%	1.78%	3.19%	-1.72%	-2.83%	-1.11%
Big firms, low BM	2.76%	-0.64%	-3.41%	2.82%	-1.19%	-4.02%	1.17%	0.52%	-0.64%
Small firms, high BM	-0.94%	-0.77%	0.17%	-0.65%	-0.34%	0.31%	4.76%	-3.50%	-8.27%
Small firms, low BM	-2.29%	0.40%	2.69%	0.51%	-0.08%	-0.59%	-3.11%	-0.52%	2.59%
Total			-0.92%			-1.11%			-7.43%

by (1) the amount of 0.905 and 0.774, which indicate that the correlation among the three predictors and the dependent variable is relatively strong; and (2) that 77.40% probability dominates the coverage potential of the predictors in explaining the dependent variable. Nevertheless, this model has showed insignificant indications related to the influence of controlling variables, either SIZE or BM. Despite the maximum result, it was revealed that the independent variable ACC has the probability value of 0.000. Regardless of the maximal significant influence of ACC, it is important to note that the coefficient for ACC has shown positive number, which means that it has been inconsistent with accrual anomaly concept. Table 9 shows the detailed information.

Winner-Loser Anomaly

The winner-loser anomaly observation was started by calculating monthly realized return of each selected sample, amounting to 62 samples. The realized return calculation was started from the second month of the year in six-year of the observation period. The mean adjusted model was applied to assess the abnormal returns of the samples.

(i) Portfolio Formation

The portfolio formation step in every formation period was started by the identification of the highest increasing amount of the market price and the lowest decreasing amount of the market price. The identification was conducted during the related formation period as the formation basis. Either the maximum or minimum value in every six-month formation period was defined to comply with the winner-loser anomaly concept, for which it emphasizes overreaction hypothesis: market reaction is considered to be overreaction whenever the extreme increase or decrease occurs. In this context, the market return refers to Composite Stock Price Indices (CSPI) of the relating period during the observation. A sample was grouped into winner (loser) portfolio when it had

Table 9. *Regression to BM-Based Portfolios*

Year	Portfolio	ACC		SIZE		BM		C		N	R	Adj. R Square	F-Stat
		Coef.	Prob.	Coef.	Prob.	Coef.	Prob.	Coef.	Prob.				
2002	High BM	-0.19	0.706	0.055	0.913	0.13	0.664	0.002	0.981	15	0.27	-0.18	0.833
	Mod-to-High BM	0.212	0.553	0.216	0.583	-0.367	0.255	-0.087	0.79	16	0.343	-0.103	0.668
	Mod-to-Low BM	-0.294	0.348	-0.615	0.053	-0.263	0.318	0.141	0.025	16	0.57	0.156	0.18
	Low	0.11	0.717	-0.28	0.363	0.054	0.858	0.078	0.208	15	0.326	-0.138	0.732
2003	High BM	-0.065	0.879	0.357	0.412	-0.298	0.274	-0.04	0.57	15	0.518	0.068	0.311
	Mod-to-High BM	-0.311	0.448	0.085	0.837	-0.271	0.385	0.008	0.977	16	0.444	-0.003	0.433
	Mod-to-Low BM	-0.823	0	0.083	0.614	0.305	0.043	-0.024	0.484	16	0.888	0.736	0
	Low	-0.041	0.882	-0.449	0.121	-0.17	0.538	0.269	0.076	15	0.49	0.033	0.368
2004	High BM	0.035	0.938	0.465	0.313	-0.012	0.966	-0.063	0.407	15	0.438	-0.028	0.484
	Mod-to-High BM	0.583	0.067	0.235	0.386	0.017	0.953	-0.117	0.502	16	0.543	0.118	0.226
	Mod-to-Low BM	-0.241	0.479	-0.393	0.23	-0.304	0.291	0.132	0.085	16	0.504	0.068	0.301
	Low	-0.093	0.756	-0.353	0.24	0.062	0.833	0.073	0.155	15	0.36	-0.108	0.662
2005	High BM	-0.284	0.567	-0.489	0.332	-0.11	0.707	0.13	0.281	15	0.324	-0.139	0.736
	Mod-to-High BM	0.052	0.873	-0.118	0.722	-0.04	0.901	0.069	0.626	16	0.144	-0.224	0.967
	Mod-to-Low BM	-0.315	0.366	-0.333	0.307	-0.302	0.312	0.078	0.124	16	0.46	0.015	0.397
	Low	0.115	0.708	0.006	0.986	0.099	0.754	0.021	0.829	15	0.148	-0.245	0.968
2006	High BM	-0.941	0.035	-0.723	0.095	-0.233	0.346	0.128	0.066	15	0.623	0.222	0.131
	Mod-to-High BM	0.296	0.229	-0.13	0.593	-0.67	0.012	0.082	0.202	16	0.662	0.298	0.066
	Mod-to-Low BM	0.287	0.374	-0.243	0.455	-0.264	0.35	0.094	0.255	16	0.457	0.011	0.404
	Low	0.171	0.532	0.479	0.099	-0.088	0.745	-0.054	0.19	15	0.49	0.033	0.37
2007	High BM	0.201	0.686	0.305	0.541	0.097	0.748	-0.128	0.591	15	0.209	-0.217	0.916
	Mod-to-High BM	-0.006	0.985	-0.035	0.904	-0.287	0.321	0.12	0.733	16	0.288	-0.146	0.782
	Mod-to-Low BM	0.081	0.82	0.005	0.99	-0.204	0.567	0.025	0.726	16	0.184	-0.208	0.934
	Low	-0.029	0.922	-0.33	0.285	0.059	0.843	0.196	0.196	15	0.321	-0.142	0.741

Table 10. *Portfolios Composition for Winner-Loser Anomaly*

Observation in Formation Period	Winner Portfolio Composition	Loser Portfolio Composition	Total
1	22 samples	40 samples	62 samples
2	16 samples	46 samples	62 samples
3	38 samples	24 samples	62 samples
4	26 samples	36 samples	62 samples
5	10 samples	52 samples	62 samples
6	28 samples	34 samples	62 samples
7	21 samples	41 samples	62 samples
8	17 samples	45 samples	62 samples
9	26 samples	36 samples	62 samples
10	22 samples	40 samples	62 samples
11	18 samples	44 samples	62 samples

increased (decreased) over (below) the market increase (decrease) in the period.

According to the observation, there are 11 portfolios from the total number of 11 formation period. The lists of portfolio composition are presented in Table 10.

(ii) Test of Anomaly Existence

For every observation, the test of difference was applied to (1) cumulative abnormal return of each sample in the formation period and (2) cumulative abnormal return of each sample in the test period. At last, relying on the price reversal indication and supported by relevant significance level, the study picked some observations strongly indicating price reversal to apply regression analysis regarding the test of how the overreaction has influenced the detected price reversal phenomena.

Table 11 presents the test of difference results of winner and loser portfolios. The price reversal phenomenon, on winner portfolios, for which it tends to change the price direction to negative position (or decrease), had occurred during the observation period. It is justified by the movement of the mean value when the portfolios were formed to the value when they were tested: it is positive in the formation period, while it is negative in the test period. The research reveals that the price reversal phenomena were detected in these following observations: 1, 2, 4, 5, 6, 7, and 8, based on the test of difference result. Furthermore, the most significant indication related to the correlation is found in the observation period 5, with negative number of -61.2%. Nevertheless, the paired indication of the period shows relatively low indication for 18.3% (over significance level of 5%), among the overall observation periods. As a result, the study picked another selected observation period to treat it as the regression analysis' subject, for which it is the observation period of 2, the biggest indication number after the ex-selected observation period of 5, among the entire results. It is -38.4%, with paired significance value of 12.9%, better than the observation period of 5.

The price reversal phenomena were also found on loser portfolios in the observation period of 2, 3, 5, 9, and 10. Among the five price reversal phenomena, considered by the movement direction from negative to positive position, the observation period of 2 was selected as the proper result fitting the regression analysis. It is justified by the maximum significance level appointing to 0%, either on correlation or paired. The correlation shows the negative value of -63% and the difference regarding the characteristics of cumulative abnormal return between the formation period and test period strongly appears. It is represented by the *t*-value of -4.414, which exists on the rejection area regarding the conclusion decided for the hypothesis. This result implies that there has been a difference on the mean of portfolios, between the formation and test period. Therefore, either winner or loser portfolios of the second observation period

Table 11. *Test-of-Difference Result on Winner and Loser Portfolios*

Winner Portfolios								
Observation Period	Mean		Correlation		Paired			
	Formation Period	Test Period	Value	Sig.	Lower	Upper	t	Sig.
1	0.360	(0.239)	(0.313)	0.156	0.123	1.073	2.620	0.016
2	0.336	(0.128)	(0.384)	0.142	(0.152)	1.079	1.606	0.129
3	0.392	0.119	(0.139)	0.404	0.057	0.488	2.566	0.014
4	0.426	(0.292)	(0.381)	0.055	0.521	0.915	7.502	-
5	0.064	(0.100)	(0.612)	0.060	(0.093)	0.421	1.442	0.183
6	0.514	(0.096)	0.112	0.572	0.417	0.804	6.463	-
7	0.301	(0.317)	0.201	0.382	0.469	0.768	8.611	-
8	0.225	(0.032)	(0.018)	0.946	(0.005)	0.520	2.081	0.054
9	0.149	0.005	(0.300)	0.137	(0.024)	0.312	1.770	0.089
10	0.294	0.403	(0.242)	0.278	(0.422)	0.204	(0.727)	0.475
11	0.717	0.0012	(0.005)	0.979	0.390	1.020	4.540	-
Loser Portfolios								
Observation Period	Mean		Correlation		Paired			
	Formation Period	Test Period	Value	Sig.	Lower	Upper	t	Sig.
1	(0.089)	(0.353)	0.045	0.781	0.125	0.402	3.847	-
2	(0.330)	0.230	(0.630)	-	(0.816)	(0.304)	(4.414)	-
3	(0.000)	0.005	0.060	0.779	(0.238)	0.228	(0.047)	0.963
4	(0.055)	(0.265)	(0.063)	0.717	0.085	0.334	3.420	0.002
5	(0.203)	0.233	(0.171)	0.227	(0.575)	(0.297)	(6.307)	-
6	(0.036)	(0.009)	(0.071)	0.691	(0.143)	0.088	(0.486)	0.630
7	(0.100)	(0.074)	0.074	0.646	(0.161)	0.108	(0.396)	0.694
8	(0.140)	(0.131)	0.062	0.688	(0.118)	0.100	(0.171)	0.865
9	(0.084)	0.012	(0.248)	0.145	(0.224)	0.032	(1.520)	0.137
10	(0.039)	0.345	0.088	0.591	(0.609)	(0.159)	(3.456)	0.001
11	0.001	0.323	0.130	0.535	(0.507)	(0.138)	(3.612)	0.001

Source: Research Documentation, Using IBM SPSS Statistics

is considered to be relevant for regression analysis, in order to assess how significant the overreaction had influenced price reversal phenomena.

(iii) Regression Analysis

The regression analysis includes: (1) independent variable of overreaction represented by monthly abnormal return in the formation period of each portfolio and (2) dependent variable of price reversal represented by cumulative abnormal return in the test period. The results show that the selected winner portfolio (observation 2) has no significant influence on the dependent variable, justified by the probability value of 30.4%, which exceeds the significance level standard of 5%. Furthermore, the *R* value and adj. *R* square suggests that the relationship between the independent and dependent variable is quite low showing the percentage of 10.6%. Also the capability of the independent variable in predicting its dependent variable appoints to 0.1%, implying that the remaining

99.9% (100%-0.1%) is the dominant proportionate for any factors excluded from the model. The *F* value of 0.304 indicates that the overreaction as the independent variable is weak in explaining the dependent variable of price reversal in the observation period of 2. In conclusion, the winner-loser anomaly, in this case, did not occur.

Unlike the regression result regarding the winner portfolios, the loser portfolios resulted in high significance level of overreaction in influencing price reversal. The *F* probability value is under the standard significance level of 5%, for which it appoints to 0.2%. Hence, compared to the winner portfolio result, it is concluded that the loser portfolios has been more justifiable in line with winner-loser anomaly, for which the overreaction is considered as the factor affecting the price reversal existence.

According to the regression result for the selected winner and loser portfolios, it is shown that the overreaction has significantly influenced price reversal. It is justified by the probability number in overreaction column, also the *F*-stat of 0.1%, which is under significance level standard of 5%. However, the *R* value of 0.170 implies that the model only reflects the variables correlation for 17%. Furthermore, the adj. *R*-square value of 0.026 indicates that the independent variable of overreaction is considered to be able to predict the dependent variable for 2.6%, while the remaining 97.4% (100%-2.6%) comes from the excluded factors. At last, the second hypothesis formulated in this research is accepted: "The overreaction has significantly influenced price reversal." Table 12 shows the regression results of winner and losers portfolios.

Winner-Loser Anomaly: Further Exploration

As the description about the winner-loser anomaly results has been explained, it is significant to acquire further identification regarding some information which had lead the arising overreaction, which influences the price reversal. By investigating the details of the related information, firstly the study categorized the information into "good news" and "bad news", and then defined the connection between the news and the statistical description as presented previously.

The investigation regarding overreaction factor was started from daily stock price collection during the observation period of 2, for which it was set from the date of July 1, 2002, to June 30, 2003. The acquired daily stock price data were referred by the daily market return calculation during the period, resulting with the maximum and minimum values as the increase and decrease representatives of the stock prices: (1) The maximum market return value was detected on April 7, 2003, showing the increasing number for 4.47%; while (2) The minimum market return value was detected on October 14, 2002, showing the decreasing number for -10.36%.

Table 12. *Regression to Winner-Loser Portfolios*

Winner Portfolios							
Overreact		**C**		**N**	**R**	**Adj. R Square**	**F-Stat**
Coef.	**Prob.**	**Coef.**	**Prob.**				
(0.106)	0.304	(0.124)	0.008	96	0.106	0.001	0.304
Loser Portfolios							
Overreact		**C**		**N**	**R**	**Adj. R Square**	**F-Stat**
Coef.	**Prob.**	**Coef.**	**Prob.**				
(0.186)	0.002	0.183	-	276	0.186	0.031	0.002
Winner-and-Loser Portfolios							
Overreact		**C**		**N**	**R**	**Adj. R Square**	**F-Stat**
Coef.	**Prob.**	**Coef.**	**Prob.**				
(0.170)	0.001	0.123	-	372	0.170	0.026	0.001

Source: Research Documentation, Using IBM SPSS Statistics

It was found that on April 7, 2003, Indonesia had increased its GDP (Gross Domestic Product) to 2.04% in the first three month period of 2003 as compared to the last three-month period of 2002 (Badan Pusat Statistik, 2003). This information is considered as good news affecting the increasing market return due to investors' reaction. This represents the simultaneous relationship, as described by the theory of national income, for which the national income (NI) as measured by GDP is computed by expenditure-based approach: Y = C + I + G + (X-M), for the countries applying opened system economy, while Y = C + I + G, for the countries applying closed system economy; which Y is for national income, resulted by the accumulated amounts of: (1) C, as consumption, (2) I, as investment, (3) G, as government expenditure, and (4) (X-M), as net export in the opened-system economy. Hence, by analyzing the national income equation, it is concluded that the market return, as of the components included contributing in determining the national income, had increased simultaneously by the raising GDP in the three month period of 2003. This further explains why the overreaction has been undetected based on the regression result: since the increasing market return was due to the implication regarding the relationship among the entire variables of national income equation, not because of the investors' emotional responses for the certain issues.

Moreover, the exploration regarding the information appearing when the market return showed the most significant decrease, these two issues were considered as bad news: (1) on a national scope, it was reported that on October 14, 2002, the Indonesian government strived to secure the embassies and consulates in response to the bomb explosion in Bali on October 12, 2002. The incidental memorabilia in Bali is defined as the threat for either Indonesian's territorial security or international relations with any countries ("Pemerintah Indonesia Perketat", 2002); (2) on an international scope, it was found that there appeared the critical threat by PII (Pelajar Islam Indonesia, an Islamic student organization in Indonesia) to the United States President George W. Bush regarding the US' offensive attack on Iraq. PII aimed to sentence Bush through International Court, as well as forcing US to withdraw its veto jurisdiction from United Nations (UN) ("Bush Akan Diseret", 2002). The two issues have been reasonable in describing the market overreaction on the related date. Either the national or international issue had affected the investors' emotional responses in Indonesian market. Lastly, based on the identification of good news and bad news, the exploration results have synchronously explained why the loser portfolios that have higher significance level have more potential in complying with the winner-loser anomaly concept than the winner portfolios.

The Comparison of Significance Value between Accrual Anomaly and Winner-Loser Anomaly

Based on the result of observations regarding accrual anomaly and winner-loser anomaly, it is found that either accrual or winner-loser anomaly existed in Indonesian market during six-year observation period. Nevertheless, the significance level of accrual contribution in influencing abnormal return is lower than the overreaction contribution in influencing price reversal. Therefore, based on the regression analysis, the winner-loser anomaly is considered to be more dominant for Indonesian market. It indicates that the investors had improperly weighted the new and old information instead of the accrual and cash-flow information.

In connection with the contradiction between both anomalies with EMH, the accrual anomaly is considered to be in contrast with the market efficiency concept based on intrinsic value of securities, while winner-loser anomaly tends to oppose the market efficiency concept based on the dynamic process. Hence, relying on the comparison regarding the significance level of each anomaly's influence, for which the winner-loser anomaly has been more dominant than accrual anomaly, it is concluded that the Indonesian market is inefficient based on dynamic process. However, in the light of the detected accrual anomaly during the observation, it is also justifiable that the Indonesian market is inefficient based on intrinsic value of securities, in spite of the fact that it has been inconsistent during the research.

Conclusions and Limitations

Based on the results obtained during the six-year observation period, it can be concluded that accrual anomaly has no significant influence on the abnormal return in Indonesia. It is justified by the regression resulted that the significance

level exceeded the significance level standard of 5%, although the anomaly existence has been detected during the observation with the inconsistent indications assessed, either according to the yearly observation, or the portfolio formation basis. As the Indonesian capital market is an emerging market which is characterized with high growth and high risk, economic and market factors could be more significant in influencing investors' trading strategy. Factors such as economic growth, inflation, exchange rates, and other systematic risk factors are more significant factors, which may influence abnormal return, rather than unsystematic risk factors such as accrual anomaly and firm performance.

The regressed winner-loser anomaly portfolios that resulted in overreaction have significantly influenced the price reversal. The good news and bad news information are the affecting factors of overreaction, which has been identified in this research, are in line with the statistical description indicating the winner-loser anomaly occurrence.

In the six-year observation period, the comparison regarding the significance level of the accrual and winner-loser anomaly influences reveal that the winner-loser anomaly is more dominant in Indonesian market. It indicates that the market has improperly weighted the new and old information. Hence, complying with the dynamic process represents the asymmetric information in Indonesian market, which is in contrast with Efficient Market Hypothesis (EMH).

This research was designed to compare the two kinds of anomalies, accrual and winner-loser, for which each is not similarly characterized. The overall research techniques, including sampling, determining observation period, and analyzing the significance relating to the predictors' contribution in influencing the dependent variables are aimed to reach the comparability between both anomalies. Consequently, the research result would possibly differ from those which only test one of them (accrual or winner-loser). Furthermore, the concluding basis regarding the market inefficiency only considers the four criteria: (1) Intrinsic value of securities; (2) Stock price valuation accuracy; (3) Information distribution; and (4) Dynamic process. There are other criteria in defining market inefficiency, such as the statement of Atkins and Dyl (1990 as cited in Dinawan, 2007), suggesting that the detected overreaction is not enough to indicate the market inefficiency, but the possibility regarding investment strategy, in response to the overreaction is another consideration. Therefore, whenever it is found that the investment strategies are possible to apply, the market is defined to be efficient.

Besides, the potential errors in defining market inefficiency (or efficiency) is possible considering the matter revealed by Fama (1998) about misconducting the criteria definition regarding market efficiency in long-term period. In this context, along with the statement of Atkins and Dyl (1990 as cited in Dinawan, 2007), it is recommended to observe specifically by formulating more reliable model in price formation, as the standardized market efficiency definition, instead of only conducting empirical study (as implemented in this research).

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