



**Earnings Announcement Abnormal Return and Volume  
on the Two Thai Trading Boards**

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by

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## **Abstract**

Trading on the stock market of Thailand is divided on two trading boards, the 'Main' and 'Foreign' boards. Since information perceived by foreign and Thai investors for the same event of the same stock might not be the same and, their reaction may result in different stock price and trading volume across the two boards. Evidence in this paper show that, in general, there are very small or insignificant abnormal returns on both trading boards during quarterly earnings announcements but there are some information leakages before actual earnings announcements occur. Moreover, foreign investors also capture the private information released before the event as much as local ones do. There is also evidence that return on foreign board tends to react with higher magnitudes, rising or dropping more sharply relative to main board's return which implies more information asymmetry on foreign board and reconfirm that foreigners do have more information processing capabilities than local investors.

## **1: Introduction**

In the stock exchange of Thailand, or 'SET', there are two trading boards, known as 'Main' and 'Foreign'. In 1987, Stock Exchange of Thailand set up Foreign Board as an alternative for foreign investors who wish to register the shares under their own names in order to obtain financial benefits arising from the investments. Securities on the Foreign Board are usually traded among foreigners once foreign ownership limit is reached. This implies that stock prices on the two trading boards are usually not the same and foreign board trading is accompanied by some noticeable premiums over the Main board.

As there can be differences between prices of same underlying asset across the two trading boards, it is interesting to investigate the causes of different price movements, or how the two group of investors, "Thai" and "Foreigners", perceived information differently. In this paper, I use Earnings Announcement events as a proxy for news release and further evaluate whether the differences of information perceived by investors on the two boards exist, and which factors can possibly be the causes of such deviations.

In reality, although trading is split into two boards for local and foreign investors, it is possible for investors to trade on the "other" board. Local investors can invest in foreign board shares at some premium while foreigner investors can also buy Main Board shares but without any eligibility to receive financial benefits from the investments. In addition, SET has introduced NVDR (non-voting depository receipt) in 2000 which aims to eliminate investment barriers for foreign investors. Like investing in a company's ordinary shares, NVDR investors also receive the same benefits but without rights for voting and there is also no restriction that Thai investors cannot invest in this instrument. Due to unavailability of NVDR ownership and traders' nationality data on Thailand's two trading boards, this paper assume that traders on Main board represent local investors while foreign board's trading denotes reactions from foreign investors.

By definition, earnings announcements risk premium is regarded as equity risk premium that occurs during earnings announcements period. As the event approaches, uncertainties increase and rational investors need more premiums to compensate for the increasing risk. However, the information perceived by foreign and Thai investors might be different and the limitations between the two trading boards can, possibly, lead to different stock prices for the same company. Hence, it is noteworthy to explain different response to the same information release by the two groups of investors on Main and Foreign trading boards around the earnings announcement events. To avoid confusion between Earnings Announcement Risk Premium and Equity Risk Premium, I will refer to Earnings Announcement Risk Premium in this paper as 'Earnings Announcements Abnormal Return'.

As a matter of fact, there are already a few papers investigating information transmission between main and foreign trading boards. By using Granger causality test on GARCH models with Thailand data set, Bhurivatana and Sawyer (1997) find that there are simultaneous volatility spillovers across two trading boards. Another interesting study in this area is the one from Chui and Kwok (1998) on China equity market, which also has two separate listings known as class A and B shares. The paper argues that foreigners receive news about China faster than local investors because of information barriers in China. From these empirical works, we can clearly see that there exist some differences in information processing, transmissions, and interpretations between local and foreign investors when segmented trading boards exist.

According to Kim and Verrecchia (1994 and 1997), information asymmetry increases on the date of the earnings announcement since some traders can better interpret and process earnings information than others. Actually, a paper by Bailey, Mao, and Sirodom (2004) has already tested this aspect for emerging markets (Thailand and Singapore) by verifying whether foreign investors have more information processing capabilities than local ones or not. By using data from 1989-1998, they find that foreign investors have superior interpretation of announcement information than local investors. However, the results might have been changed if another interval of data period is used, like

1998-2006 in this paper, because Thailand has improved its information and telecommunication infrastructure quite significantly over the last 10 years. Hence, this paper would re-confirm whether conclusion of Bailey, Mao, and Sirodom (2004), consequently refer to as 'BMS', will also hold for the stock exchange of Thailand in more recent years.

This paper intends to verify a number of hypotheses regarding information processing ability of foreign and local investors on the SET by examining stock return and volume around earnings announcements periods. This paper follows research methodologies used in "Investment Restrictions and the Cross-Border Flow of Information: Some Empirical Evidence" by Bailey, Mao, and Sirodom (2004). The research objectives are as follows;

- 1) To verify that earnings announcements abnormal return and volume exist before, during, and after announcement events for both Main and Foreign trading boards
- 2) To verify whether investors in foreign board have better information processing capabilities in terms of earnings announcement news than the main board
- 3) Try to explain the source of earnings announcement abnormal return and volume by using firms' characteristics (i.e. good/bad news or value/growth). See how important and different these characteristics are, in the view of investors traded on foreign and main boards.

In fact, the 2<sup>nd</sup> objective of this paper has already been verified before by BMS, using Thailand and Singapore annual earnings announcements data during 1988-1998. However, this paper is different from BMS because I use quarter earnings announcements data instead of annual. Comparing with yearly accounting information, quarterly announcements are unaudited but more frequent so it might yield different results from BMS study. Moreover, the sample period is also different. As Thailand has developed quite significantly in terms of information processing capabilities during the last 10 years, I believe the abilities to process released information of local investors might have improved over time and now the results might not be statistically different.

Evidence in this paper suggests that different perceptions and information processing capabilities differ between foreign and local investors in Thai stock market. In fact, the test results show three important findings. First, there are very small or insignificant abnormal returns on both trading boards during quarterly earnings announcement events while foreign board usually accompany by higher abnormal returns (from Figure 4), even with insignificant test results from statistical point of view. Moreover, return on foreign board tends to react with higher magnitudes, rise or drop more sharply relative to main board's return which implies that foreigners do have more information processing capabilities than local investors as expected.

Second, there are some information leakages before actual earnings announcements occur. In general, the leakage happens as early as day -10 which is about two weeks before the announcement. Foreign investors also capture the private information released before the event as much as local ones do. However, the reaction to news leakage is quite different between the two groups of investors. Foreign investors react faster than local investors when it comes to bad news leakage while they tend to hold their reaction for good news and sells on fact once earnings announcements are actually released. On the other hand, local investors trade base on leaked information for both good and bad news as the abnormal volume figure shows positive increase around day -10.

Third, timing of the announcements is not important for SET investors, both on main and foreign boards. Unlike other markets where early announcers are accompanied with positive abnormal return as they are signal for good news, there are no differences in terms of abnormal returns across the three timing types. For stock types, value stock shows more abnormal volume as expected but foreign board poses more abnormal return, without statistical significance, for value stock than on Main board.

The rest of the paper is organized as follows. Section 2 offers and reviews previous related researches' findings. Section 3 describes samples selection criteria in details and explains how this paper classifies firm-event for each characteristic. Section 4 states research hypotheses and testing methodology. Section 5 contains main findings on the relationship between abnormal returns

around earnings announcements and each firm-event characteristics defined in Section 3. Section 6 summarizes the findings and briefly discusses their importance.

## **2: Literature Review**

Previous literatures conducted on earnings announcements events can be classified into two major groups. The first group is papers that seek justification for the existence of earnings announcement abnormal return while the second group tries to verify the predictability of earnings announcement premium and analyze the post-announcement drift.

The well-known pioneers in the first group of literature are the papers from Penman(1984); Kalay and Lowenstein(1985); Chari, Jagannathan and Ofer(1988); Ball and Kothari(1991) which prove that returns on earnings announcement days are higher than on non-announcement days by using U.S. market data. These papers explain that the abnormal returns are compensations for holding securities during a period of increased uncertainty like the period around earnings announcement. As I assume that investors are rational, they would normally require higher returns around that period to compensate for increasing risks.

In addition to the announcement premium, earnings announcement event also provides abnormal trading volumes. According to Karpoff (1986), Kim and Verrecchia (1991a and 1991b), and Dontoh and Ronen (1993), trading volume usually reflects the revisions of investors' when there are news that contained relevant information of the firm. Therefore, if investors' belief before announcements is not much different from the actual earnings announcements, the belief revision volume will be more diverse. On the other hand, as the level of information asymmetry increases, trading volume around earnings announcements events would also be greater. Papers by Demski and Feltham (1994), and McNichols and Trueman (1994) have proven that information asymmetry increases as the earnings announcement date approaches. Besides, a number of studies try to explain the positive correlation of stock price and volume around earnings announcements. One possible explanation for the high volume around earnings announcements is differences of opinion about the meaning of the

announcements, which, in turn, lead to increasing volume and price (see Kandel and Pearson (1995)).

For the second group of related literature, many papers have tried to explain the movement or drift of stock return after the announcement. Some examples include Ball and Brown (1968); Brennan 1991; Fama 1998 who document the ex-post drift phenomenon where stock prices tend to increase after the earnings announcement if the earnings results are unexpectedly positive and vice versa. This drift is considered as a violation of stock market efficiency and many of the financial theorists have tried to explain that omitted risk factors, mis-measured returns, or research design flaws cause this phenomenon. However, the explanation for this part is still not clear and the post earnings announcement drift remains a mysterious challenge to the financial researchers.

Anyway, apart from the two main groups suggested above, many papers have also started to check the firm characteristic effects to the earnings announcement premium and try to find proper trading strategy that can be used during earnings announcement period. As suggested by Brandt et al (2006), stock abnormal returns around the earnings announcements dates (EAR) can be used as a good proxy to construct a portfolio that generates approximately 6.3% abnormal return on annual basis, according to their empirical test results using U.S. data. This kind of event-specific proxy can provide a better result than the portfolio that is formed by using traditional measures of unexpected earnings (Standardized Unexpected Earnings; SUE) because there are more information releases during earnings announcements apart from earnings itself such as sales margins and forward-looking plans.

In addition to stock returns drift in response to superior/inferior results when compared to market expectation, recent study from Frazzini and Lamont (2006) has proven that higher volume around earnings announcements have led to higher premium and higher buy volume from individual investors. Also, stocks that have had high past announcement premium tend to have high subsequent premium, and vice versa. Therefore, we can easily define ex-ante high premium stocks based on past announcement volume and premium and use this as a proxy to construct a portfolio that generates abnormal returns.

### **3: Data and Sample Selections**

The studied period in this paper is between 1998 and 2006. I choose to begin at 1998 because Thailand has experienced economic crisis in 1997 and there was some structural change in economic and financial market from that time. In addition, I exclude the stocks that are publicly offered later than 1998 and the stocks that were de-listed after 1998 in order to maintain completeness of the data set.

The quarterly earnings announcement events are gathered from Bloomberg, Thailand's Securities and Exchange Commission (SEC), and Kim Eng Securities database while daily trading price and volume for SET index and each selected sample firms on Main and Foreign Board are obtained from DataStream.

One severe problem in this study is the infrequent trading on the foreign board of SET which narrows down selected firm and event samples significantly. From all stocks in the stock exchange of Thailand, I can identify only 23 stocks that matched with the sample selection criteria, which is to be listed since 1998 until 2006 and has trading volumes on event days on Foreign board. Please see appendix 'Sample A1: Sample Firms' for the list of selected firm samples.

Additionally, for a given sample firm, announcement events are scoped down further with the criteria that the event must have at least 100 trading days out of 180 daily estimation windows on both main board and foreign board in order to make sure that beta estimation within selected estimation period (-200 to -21) is justifiable. Although about 755 events are available out of these 23 selected sample firms, only 368 events are in scope with enough 'Foreign' board trading daily data according to this given criteria.

Note that this study is also limited by the availability of market analyst expectations (or what we usually call "Analyst Review") due to incompleteness of analyst consensus database for Thailand during the studied period, especially in the earlier selected years. As this paper uses quarterly earnings data in the research, it would be difficult to justify which analyst review is for which quarter as there would be no indicator for such proxy. Therefore, this paper does not use 'Number of Analysts' and 'Forecast Dispersion' for a proxy of Pre-disclosure information

asymmetry as BMS did. Instead, I try to explain whether information is perceived differently between the two trading boards' investors for different characteristics of firms and events. For example, 'Stock Type' (Value or Growth) is used to define stock characteristics that might capture investors attention from different perspective while QoQ result and Announcement Timing is used to classify good or bad news for the sample events.

### **Abnormal Return**

By definition, earnings announcement premium is a return that compensates investors for the increased uncertainties of holding securities around the announcement period. There are three major practices used widely in previous literatures to detect the abnormal return, namely mean adjusted, market adjusted, and market model. Cohen et al (2005) proves that there are no significant differences between using mean-return of non-announcements period of the firm or returns of all non-announcing firms in the announcement period, although the latter is better in terms of reflecting the total market movements. This paper calculates normal return based on the market model because the market model also incorporates the movement due to the firm's own risk and market risk (via beta).

As this paper uses daily return with estimation period of 180 days, there are also problems of estimating beta for infrequent traded stocks, especially for foreign board. Using daily data, Betas estimation are likely to have a significant bias due to thin trading problem, result in illiquid firms reporting lower betas than what they should have and liquid firms reporting higher betas than what is justified. Moreover, serial correlation problem is also found because the prices of illiquid stocks may reflect in the index calculated in the next period, which, in turn, causes positive correlation with previous index. To overcome thin trading problems, I apply Dimson beta, or what usually called Dimson Aggregate Coefficients, to calculate foreign board abnormal return. For main board abnormal return, only market model unadjusted beta is used as the thin trading problem is not present.

Unlike Scholes-Williams beta estimation which assumes that a transaction takes place in every measurement interval, the Dimson beta does not require this strict assumption. Moreover, Dimson (1979) find that the aggregate coefficient technique provides more accurate beta than the other three popular thin-trading solutions (specifically, regression with only one lagged market index, trade-to-trade technique, and Scholes-Williams adjusted beta). For foreign board's abnormal return, this paper follows Dimson (1979) and obtains Dimson beta estimates for each announcement estimation period (-200 to -21) by summing the slope coefficients on the two leadings, two lags, and contemporaneous returns of a market index according to below OLS regression. This approach allows the beta estimate to reflect the spillover of returns that occur around non-trading.

$$R_j = a_j + \sum_{k=-2}^{k=+2} \beta_{jk} R_{mk}$$

(1)

Where  $R_j$  is the return of stock j

$R_{mk}$  is the market return at time k

After obtaining betas and intercepts for each event, the aggregate beta is calculated for foreign board

$$aggregate\beta_{jx} = \sum_{k=-2}^{k=+2} \beta_{jxk}$$

(2)

Where  $\beta_{jxk}$  is the beta of firm j event x period k estimates

aggregate $\beta_{jx}$  is the sum of all beta of firm j event x

I, then, use Dimson aggregate beta to estimate expected return on foreign board for each event day. For main board abnormal return, only normal beta from normal market model is used. Abnormal return (AR) is the difference between expected return and actual returns.

Main board's abnormal return

$$AR_{jt} = R_{jt} - (a_j + \beta_{jx} R_{mt})$$

(3)

Foreign board's abnormal return

$$\boxed{AR_{jt} = R_{jt} - (a_j + \text{aggregate}\beta_{jx}R_{mt})}$$

(4)

Where  $\text{aggregate}\beta_{jx}$  is the sum of all beta of firm j event x

$R_{mt}$  is the market return at event day t

$AR_{jt}$  is the abnormal return of event day t

From abnormal return of each event day, I further compute the average abnormal return of 'Main' and 'Foreign' boards and cumulative abnormal return of each board respectively. These values are used in t-statistic test in order to determine whether there are any significant returns on day t (event periods, t = -20 to 10) and whether abnormal return is cumulatively significant over the whole announcement event period.

### **Abnormal Volume**

This paper follows Bailey, Mao, and Sirodom (2004) for the approach to find abnormal volume. Expected trading volume is defined by the average daily volume over the entire estimation period (-200 to -21). However, as this paper uses quarterly earnings announcements as event dates, using estimation period back to -200 can, of course, overlap with other quarterly events. To exclude the unexpected impacts from other events to average abnormal volume, I only include the days in estimation period which are not 'Event days' of other events. The green bar in Figure 1 illustrates the estimation period which I use for calculating abnormal volume in case there are some overlapping.

**Figure 1: Finding abnormal volume in Estimation period**



Once the average volume of estimation period is found, abnormal volume is then calculated as the difference between event day trading volume and the expected trading volume, normalized by mean volume.

$$AV_{jxt} = (V_{jxt} - \mu V_{jx}) / \mu V_{jx}$$

(5)

Where  $\mu V_{jx}$  is the average abnormal volume in estimation period (-200,-21) of firm j event x

$V_{jxt}$  is the trading volume of firm j event x day t

$AV_{jxt}$  is the abnormal volume of firm j event x day t

### **Announcement Timing**

As suggested by previous studies, announcement timing does play important role in manipulating investors' expectations. Normally, firms with good news are more likely to announce early, while late announcers are usually firms with bad news. This paper follow the method used in Cohen et al (2005) to find the expected announcement date for each quarter of each sample firm. According to the model developed by Cohen et al (2005), median announcement date is used as the proxy for the expected announcement date because it is least likely to be affected by individual deviations for the normal disclosure schedule.

For each firm-quarter, I compute the deviation of actual announcement date from expected announced date to classify whether the actual announcement date is ‘Early’, ‘On-Time’, or ‘Late’.

$$Dev_{jq} = D_{jq} - Med_{jq}$$

(6)

where

j is the number of the firm

q is the number of quarter

$D_{jq}$  is the actual announcement date

$Med_{jq}$  is the median or expected announcement date

$Dev_{jq}$  is the deviation of actual announcement date from expected

If  $Dev_{jq} < -1$ , the quarter-firm is considered ‘Early’

If  $Dev_{jq} = -1, 0, \text{ and } 1$ ; the quarter-firm is considered ‘On-Time’

If  $Dev_{jq} > 1$ , the quarter-firm is considered ‘Late’

### **StockType**

This paper uses Price-to-book (P/B) ratio to identify whether the sample stock is perceived as ‘Value’ or ‘Growth’ stock for each announcement event. Price-to-book ratio data of each sample firm is retrieved from Datastream database. To classify ‘Value’ or ‘Growth’ stock for each event time, I first rank the P/B ratio of all samples for each announcement date. For each announcement event, the stock that is in the higher half of the group is then considered ‘Growth’ while the lower half is considered ‘Value’.

### **ResultsOoO**

As the analyst consensus information is not available for Thailand stock market during 1998 – 2006, which is our studied period, I have to find another proxy to indicate whether the announcement is perceived to be good or bad news. Although the earnings result is quite a different from analyst consensus as the former does not directly illustrate market expectation, it is also possible that the investors do have their own expectations according to previous year release. This paper assumes that investors predict earnings results based on results of last year

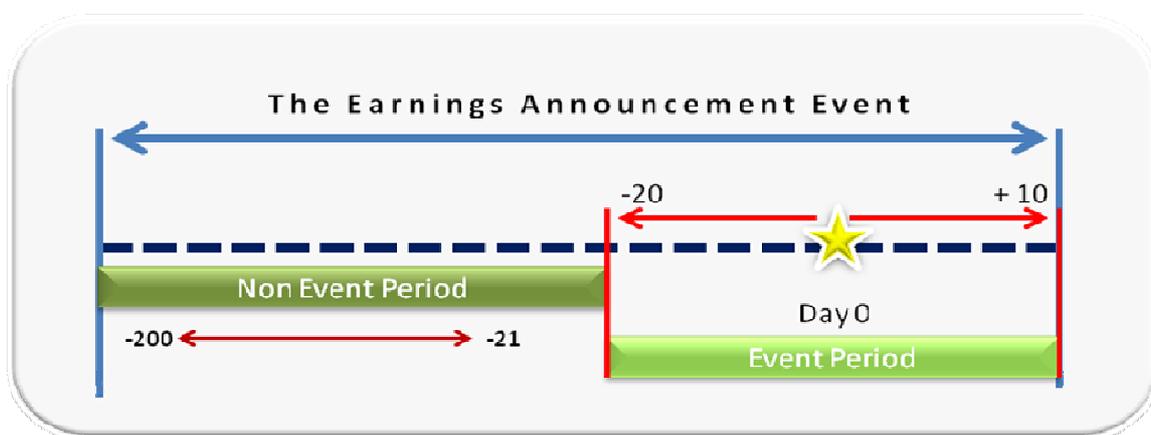
same quarter to take into account the cyclical effect of earnings. Hence, results Quarter-on-Quarter (QoQ) are used as a proxy for good or bad news.

To determine whether it is a good or bad news, I use net profit results from SETSMART database. Sign of changes of net profit over last year quarter is used to determine 'Up' or 'Down' category of each quarterly announcement events.

#### **4: Testing Hypothesis and Methodologies**

This paper conducts event studies by using quarterly announcement dates as Day 0. As pointed out before in the paper of Frazzini and Lamont (2006), looking at 3-day window around the announcement date misses much of the announcement premium. Besides, Thailand Stock Market is, in fact, full of news and rumors, which can possibly be accounted for information leaking before actual announcements. For this reason, this paper estimates the abnormal return for the 31-days window around actual announcement dates. The event period is defined as day -20 to day 10 (31 days in total where 0 is actual event date) while estimation periods are -200 to -21.

**Figure 2: Event and Estimation period**



In addition to standard event study, this paper also check the impact of each factor on announcement period abnormal return and volume to examine how each characteristics has an impact on the earnings announcements' abnormal return and volume. Apart from traditional student t-test, I also employ non parametric tests to avoid non-normality problem which might occur with small group of samples like in this paper. Wilcoxon Signed Rank and Kruskal-Wallis

(an extension of the Mann-Whitney U test to 3 or more groups) are applied to check the median of each group and compare across the groups respectively.

As the main purpose of this paper is to answer whether differences in information processing capabilities between Thai (Local) and foreign investors do exist and how firm characteristics and timing of announcements impacts these abnormal return and volume, the testing hypotheses are defined as follow. First, H1 tests the existence of earnings announcement abnormal return on both Main and Foreign boards. H2 apply the same tests with abnormal volume. Next, H3, H4, and H5 check firm characteristic impacts over abnormal return and volume on the two trading boards. Firm and Event characteristics used in this study includes timing of announcements, stock type, and good/bad news.

According to Different Opinion Hypothesis (Kandel and Pearson (1995)), different opinions usually lead to higher trading volume while the Volume Hypothesis suggests that higher volume leads to over-pricing. Therefore, different opinions about the announcement results will result in abnormal return and volume during announcement period. On the other hand, Under-reaction Hypothesis (Daniel, Hirshleifer, and Subrahmanyam (1998)) says that it is possible that investors under react to public signals due to different psychological biases: overconfidence and attribution. Overconfidence means investors overweight the value of private information while Attribution bias implies that investors tend to attribute past successes to superior skill but past failures to bad luck. Consequently, prices overreact to private signals and opinions but under-react to public ones. As earnings announcement convey public information, the under-reaction hypothesis suggest that market under-react to the earnings news and abnormal return should not exist. However, I still expect that different opinion hypothesis should hold for abnormal volume side. The following H1 and H2 are constructed to test these hypotheses for Thai stocks on the two trading boards. When comparing between Thai investors and Foreigners, I suspect that different opinion hypothesis should illustrate stronger impact on Main board if foreign investors have more information processing capabilities as proven in BMS.

**H1: Earnings Announcement Abnormal Return exists and there are some differences in abnormal return between foreign and main board.**

**H2: Earnings Announcement Abnormal Volume exists and there are some differences in abnormal volume between foreign and main board.**

Ideally, financial reports should provide information regarding the firms' performance on timely basis. Previous researchers have documented that early announcements of earnings are usually tied with good news while the contrary also hold for late announcers. Chambers and Penman (1984) show that early (late) announcers have higher (lower) stock prices. One of the possible explanations is that more time is required for the manager to improve the bad earnings. Since it is proven that timing of earnings announcement does have some impacts on stock market reaction, to verify with Thailand's SET data, this paper design and test the third hypothesis as follow.

**H3: Earnings announcement abnormal return and volume of 'Early', 'On-time', and 'Late' announcers are significantly different. The timing impacts should be the same for both Main and Foreign board.**

Repeated empirical research shows that there is some positive 'value stock' premium, which is the difference between the return of value and growth stocks. Fama and French (1992) suggest that the 'value premium' is something to compensate for risk in the firm's leverage, measured by the market-to-book ratio, which can be used a proxy for financial distress. On the other hand, behaviorists explain that this kind of value stock premium is subject to extrapolation hypothesis. According to Lakonishok et al (1994), investors tend to extrapolate past growth rates too far into the future and they usually come to a surprise after earnings are realized and financial results are made public. For value stocks, which imply low future growth rates, investors are pessimistic and usually have higher earnings results realization above expectations. This, in turn, results in positive returns for value stocks. On the contrary, the opposite holds for growth stocks. As investors tend to be optimistic about growth stock earnings' results, actual realizations usually come with negative return shift.

Thus, according to the behaviorist suggestion, we should expect that H4 results have higher abnormal return for Value firm, especially on good news. Moreover, if foreigners have more information processing capabilities than local investors as in our main research questions, foreign boards should present more reaction to the extrapolating surprises as there is more information asymmetry.

**H4: Earnings announcement abnormal return and volume of 'Value' and 'Growth' stocks are significantly different. Foreign board should pose more reaction to the earnings news of value stock than on Main board.**

Other than the two factors argued above, market expectation also becomes increasingly important that during any given reporting season, if a stock shows results that are inferior to those expected then the shares would be sold, and sold drastically. The reason for this might be the growing role of hedge funds and other kinds of speculators. These facts are market realities, and they need to be taken into account if we're to understand what's driving share prices and abnormal return during earnings announcement period. However, as the analyst consensus information is not fully available for SET in this paper's studied period, instead, this paper uses Results Quarter-on-Quarter as a proxy to indicate whether the announcement is perceived to be good or bad news. I expect that there should be positive abnormal return and volume if the firm announces good news while the market should react oppositely in terms of abnormal return sign. However, abnormal volume should remain either the firm has good or bad news as per Different Opinion Hypothesis. To be specific, if foreign investors do have better information processing capability, the abnormal return on foreign board should, somehow, react more significantly than Main board. In fact, Kim and Verrecchia (1994) show that some traders with greater information-processing abilities might be able to take advantage from the market by using private information, which can lead to more information asymmetry and trading. Therefore, H5 is designed as follow.

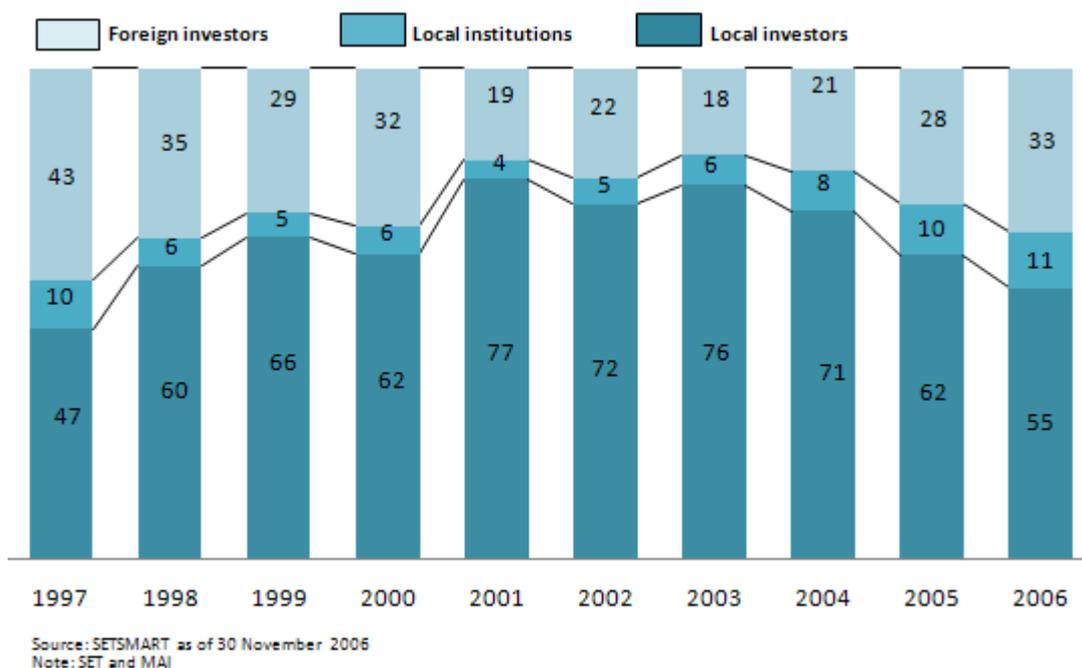
**H5: Earnings announcement abnormal return and volume of 'Good news' and 'Bad news' events are significantly different. The earnings result impacts should be the more significant on Foreign board than the Main board.**

## 5: Empirical Results

### Summary Statistics

Table 1 presents some key statistics of selected samples in terms of trading volume. From Table 1, it is clear that trading on foreign board is always thinner than on main board. This reconfirms SETSMART statistics presented in Figure 3 that Thai investors still dominates the market and it might also imply that foreign investors prefer to invest in SET through the nominee channels (or NVDR) instead of using the ‘Foreign’ board. Unfortunately, the unavailability of information about nominee trades prevents us from verifying further on this issue.

**Figure 3: Transactions by investor type**



Since this paper intends to investigate the difference in information processing ability between two groups of investors, it is important to note our main research assumption that Thai investors trade only on ‘Main’ board while Foreigners mainly trade on ‘Foreign’ board. This, in fact, might not be the case in reality as ‘Foreign’ board is also open for Thai investors and foreigners can also invest on the ‘Main’ board, under Nominees’ names. Furthermore, due to NVDR data unavailability during the 1998-1999, this paper also exclude Thailand NVDR trading data which might also been traded by foreigners.

Finally, the provided numbers in Table 1 also show that attention-grabbing and different opinion hypothesis seems to hold for the Thai stock market as trading volume in the event months are usually higher than non-event months. This confirm the main assumption of this paper that investors trade more around the announcement news as there are information releases from the announcements.

### **Abnormal Return and Abnormal Volume**

In H1, I hypothesize that abnormal return do exist for Thai Stock market during earnings announcement events and the results from Table 3 seems to confirm that, even with very weak significant level of 0.10. By using Wilcoxon Signed Rank test to avoid non-normality problem, Table 3 shows significant negative abnormal return on Main board on day -4, 5, and 7 while foreign board poses positive abnormal return occur on day 0, the day that earnings announcement occur.

The negative signed abnormal return on main board seems to be consistent with Under-reaction hypothesis which expect that investors might under-react to public information. In fact, most of the selected sample firms are considered 'Blue chips' in their respective industry and these popular stocks are, usually, full of news and rumors. Hence, one possible explanation for the Main board's under-reaction to quarterly earnings announcements is that local investors believe they have better private information which they can use for trading at some other times (or maybe not around quarterly announcement period) so they do not give full attention to the quarterly announcements as much as the theorists expect.

On the other hand, foreign board abnormal return results also imply that foreign investors pay more attention to the earnings announcement news than local investors as we can clearly see from the significant positive abnormal return that happens exactly on event day 0. These different results between the two trading boards can be explained by the fact that foreigners are more limited to stock rumors due to language and distance barriers. Hence, they are more focused on quarterly announcements and their reactions are more aligned with traditional expectations.

From Table 4, which give us an idea of abnormal volume during event periods, we can see that Different Opinion Hypothesis hold for Thai Stock market, especially on Main board as its results pose significant abnormal volume on most event days, particularly around day -6 to +6. When combining abnormal volume results with scarcity of positive abnormal return on Main board, it confirms that local investors have diverse opinion about the earnings results, which lead to higher trading volume but not necessarily accompany with positive abnormal return.

In contrast, abnormal volume results from foreign board are highly significant at the start of our event period, day -20, disappear, and show up again on event day 1-3 and 6. This irregular result can possibly imply three things. First, there may be some information leakages on foreign board as early as day -20, or before what local investors can perceive later from day -6 onward. Second, some foreign investors may postpone trades until actual news is released and there is some delay for their information gathering process as the positive abnormal volume only reappear on day 1, unlike local investors which play around with expectations and speculations about 1-2 weeks before the event occur. Lastly, there is a severe problem of infrequent trading on foreign board and this has restricted this research significantly. Hence, further research should be done to verify the existence of abnormal volume on foreign board of SET again, once trading volume there is more frequent.

### **Timing Impact**

Results in Table 5 and 6 fail to confirm the existence of timing impacts on abnormal return as hypothesized in H3. This paper finds that timing of earnings announcements matters in Thai equity market only in terms of trading volume where 'Late' announcements do not receive much attention from investors as much as 'Early' and 'As expected' events. However, there is no positive abnormal return associated with these higher trading volume and 'Early' announcements do not necessarily mean 'Good news' for Thai firms.

In contrast with previous researchers, including Chambers and Penman (1984), on average, there are negative abnormal returns for 'As expected' and

‘Early’ announcement timing on the main board while there is insignificant positive average abnormal return for ‘Late’ announcers. On foreign board, the sign of abnormal returns for early announcer is also negative, even though it has no significance from t-test. This consistent sign results between the two boards might imply that both Thai and foreign investors in Thai stock market rely on analyst opinion of actual earnings results. Because analyst actual earnings results review may not be issued on time when there are early announcements, market is confused by released information and investors do not act as expected.

Regarding abnormal volume results from panel B of Table 5, main board shows significant positive average abnormal volume for all types of timing while ‘Early’ announcers pose most significant abnormal return on foreign board. These results show that local investors trade more, with positive abnormal volume, for the three kinds of announcement timings while foreign investors reacts more when the news is announced earlier than expected. Moreover, from Table 6, cumulative abnormal volume (CAV) is not significantly different from 0 in case of late announcement on both boards while the other two cases are. This suggests that ‘Late’ announcements do not receive as much consideration from SET investors as ‘Early’ and ‘As expected’ do.

By the way, when compared across the three timings, ANOVA F-statistics in Panel C and D show no differences among their mean/median abnormal return and abnormal volume on both trading boards. This is aligned with the fact that average abnormal returns of the three timings are not statistically different from 0 as shown in Panel A but it is contrast with previous researches that find more abnormal return for ‘Early’ and less return for ‘Late’ cases. This result can be explained by sample statistics in Table 2 which shows about the same number of Good and Bad news for early announcers. Hence, ‘Early’ announcements do not necessarily mean good news for Thai firms as suggested by researches done in other markets. In fact, the market response to good and bad news is analyzed further in the next section regarding earnings results impact.

Interestingly, Figure 6 shows that abnormal return on foreign board usually demonstrates higher level of information asymmetry since it reacts quicker to the news than the main board abnormal return. This is in line with one of the

assumptions that foreign investors have more information processing capabilities when the news is released. However, for abnormal volume side (6.2, 6.4, and 6.6), main board exhibits higher abnormal volume for ‘As expected’ and ‘Late’ announcers while foreign investors seem to trade more, with higher abnormal volume’, when it is the ‘Early’ events, which is aligned with the statistical test results in table 5. In fact, Figure 6.4 is pointing out that there is earnings information leakage even before the actual announcement occurs as foreign board’s trading volume start to rise abnormally as early as day -4.

Figure 7 also confirm information leakage findings as figure 7.2, 7.4, and 7.6 shows positive cumulative abnormal volume rising before day 0, with more magnitude on main board. Local investors seem to receive faster private information than foreigners as the abnormal volume of foreign board start to rise slower for all kinds of announcement timings. For ‘Early’ and ‘As Expected’ cases, the leakage begins as early as day -10 while information leakage only happens around day -4 for ‘Late’ events. This may be because investors are not focused when the earnings announcements are postponed so they do not pay enough attention to the information leakage that they perceive and under-reaction occurs.

### **Earnings Results Impact**

Table 7 represents t-test results for abnormal volume and return for each group of earnings results, “Up” and “Down”, in order to verify hypothesis 5. Panel A shows no significant abnormal return for both cases but the sign is aligned with traditional expectation. Positive sign for good (“Up”) and negative for bad (“Down”) news. Panel B confirms the expected results that there are positive abnormal volume for both good and bad news. However, local investors react more significantly for good news while foreigners trade more when the news is bad. As there is no abnormal return for both cases as suggested by Panel A, Panel C results of abnormal return equality test between the two kinds of news show no statistical differences. Also, the abnormal volume equality test in Panel D proves that good and bad news do have different impacts over abnormal return from both Thai and Foreign investors view.

Regarding cumulative abnormal return and volume for the two types of earnings results, Table 8 Panel A show that there is no significant cumulative abnormal return for all cases while, according to Panel B, cumulative abnormal volume is statistically different from 0 in case of good news on Main board only. When testing equality of mean and median, from Panel C, D, E and F, mean and median CAR on main boards are different between the two types of earnings results. Medians CAV of the two results are statistically different at 95% level of significance on the main board while foreign and main boards' cumulative abnormal volumes (CAV) are different in case of good news.

Figure 8, again, shows more fluctuations for foreign board's abnormal return which also represents higher information asymmetry. Figure 9 reconfirm this finding by showing more response from foreign board on cumulative abnormal returns (CAR). When the news is good, foreign board poses more positive accumulated abnormal return while more negative accumulated abnormal return is exhibited when there is bad news. One noticeable fact from Figure 9.1 is that cumulative abnormal return for good news on main board is mostly resides in the negative zone. The possible explanation for this might be because good earnings meet local market expectations.

In addition, Figure 9.2 and 9.4 also show that bad news is uncovered before good news, especially for foreign investor group. The result of cumulative abnormal volume (CAV) demonstrates that foreign investors react earlier than local ones when it comes to bad news while they hold their response to good news until day 0 to capture all possible upside that the stock itself might have. The bad news leakage occurs as early as day -18 on foreign boards and day -12 on main board. In contrast to the bad news, local investors shows their reactions to good news earlier than foreigners as cumulative abnormal volume tends to rise as early as day -11 on main board while the volume on foreign board only picks up once the actual announcement is taking place.

### **Stock Type Impact**

The results represent in Table 9-10 confirm H4, which means earnings announcement abnormal return and volume of 'Value' and 'Growth' stocks are

significantly different. In fact, value stock offer more returns during announcement period as expected. Also, foreign board has more reaction (more abnormal return) to the earnings news of value stock than on Main board. This means foreigners do have more information processing capabilities than local investors as expected in the main research question.

Moreover, cumulative abnormal volume is higher and more significant for growth stocks for both boards, which means growth stocks are more popular for investors in Thai stock markets. The mean abnormal volume equality test results in Panel D of Table 9 also confirm this finding. The reason is because Thailand is still considered an emerging market with a lot of speculations and growth stocks is normally traded at premium, which captures more investors' attention. Hence, growth stocks are traded more relative to value ones.

The graphs in Figure 11 show that abnormal return is relatively higher on foreign boards for both 'Value' and 'Growth' stocks. However, it is clear to see in Figure 11.1 and 11.3 that the cumulative abnormal returns of 'Growth' stocks are mostly negative while 'Value' stocks have positive abnormal return. On the cumulative abnormal volume, growth stocks dominate and there are more signals of information leakage for 'Value' stock as early as day -14. Figure 11.4 also shows that before the informal earnings information is uncovered, value stocks has relatively low trading (negative cumulated abnormal volume) compared to normal period. This is because the market does not expect earnings results of value stocks as much as growth ones so there are fewer trades for value stocks.

## **6: Conclusion**

This paper documents the impact of quarterly earnings announcements events on abnormal volume and abnormal return for the Thai stock market. The different in information processing capabilities and perceptions over different firm-event characteristics are analyzed and compared between the two groups of investors, local on 'Main' board and foreigners on 'Foreign' board. The results offer some insights on how the anticipation and release of earnings affect information asymmetry in the Thai stock market. I find that, in general, there are very small or insignificant abnormal returns on both trading boards during quarterly earnings announcement events while foreign board usually accompany

by slightly higher abnormal returns. Moreover, there are some information leakages before actual earnings announcements occur and there is evidence that foreign investors also capture the private information released before the event as much as local ones do. Timing of the announcements is not important for SET investors, both on main and foreign boards while 'Value' stock shows more abnormal volume than 'Growth' ones, especially on foreign board. There are also evidences that foreign board's return tends to react with higher magnitudes, rise or drop more sharply relative to main board's return which imply more information asymmetry on foreign board and reconfirm that foreigners do have more information processing capabilities than local investors as expected in the main research question. These results have implications for investors attempting to find practical trading strategies around earnings announcements period as the details of abnormal return and volume reactions to different firm characteristics are analyzed. The results may also assist regulators in developing policies that help increase liquidity of the SET's foreign board and minimize information asymmetries.

It is important to also note that there are many limitations in data availability during the studied period of this research and the selected samples are quite restricted. Therefore, future extended study may also be conducted once there are more trades on SET's foreign boards and/or more information of Thailand's NVDR is available.

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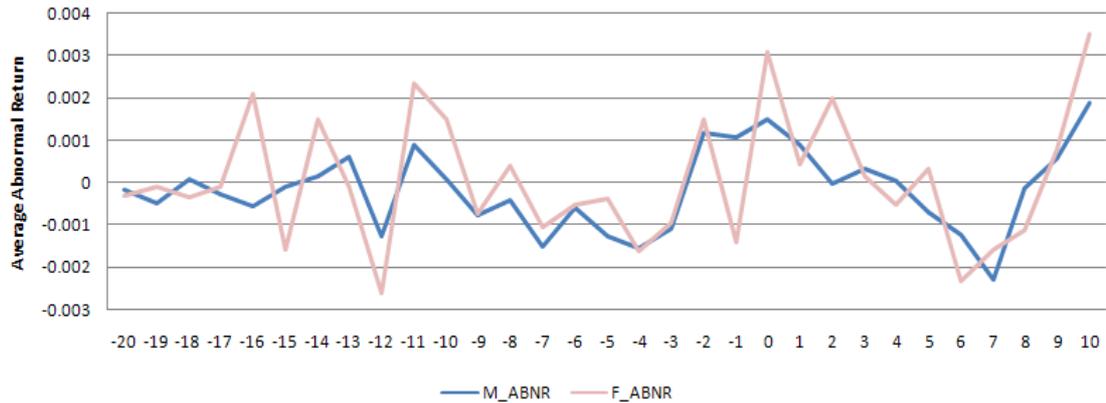
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**Figure 4: Average Abnormal Return during Quarterly Earnings Announcements**

This figure shows average abnormal return by event day. Normal returns are estimates based on Market model on main board while on Dimson beta is applied to find normal return on foreign board of each event. Panel A compare the abnormal return on the two trading boards while Panel B show the difference of abnormal return (Foreign – Main).

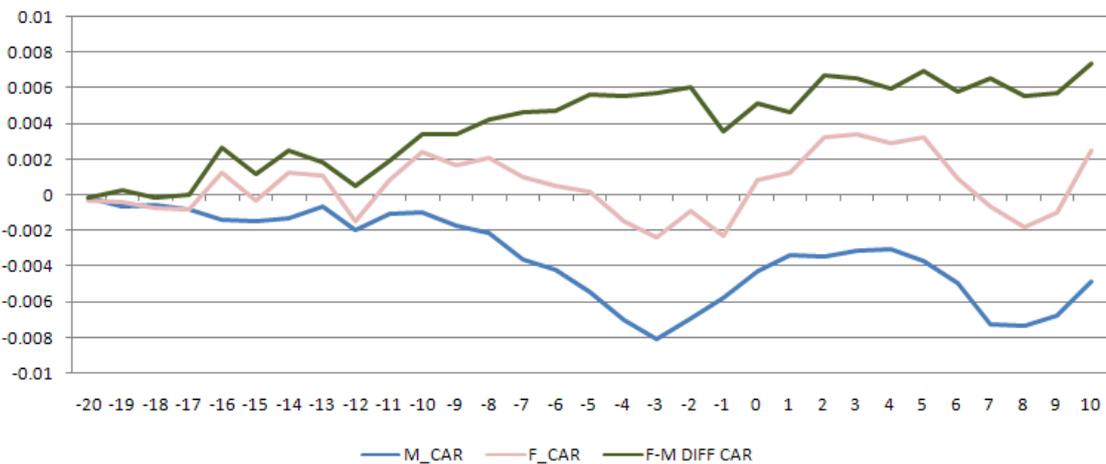
**Panel A: Average Abnormal Return on the two trading boards by event day**



**Panel B: Abnormal Return Difference (Foreign – Main) by event day**



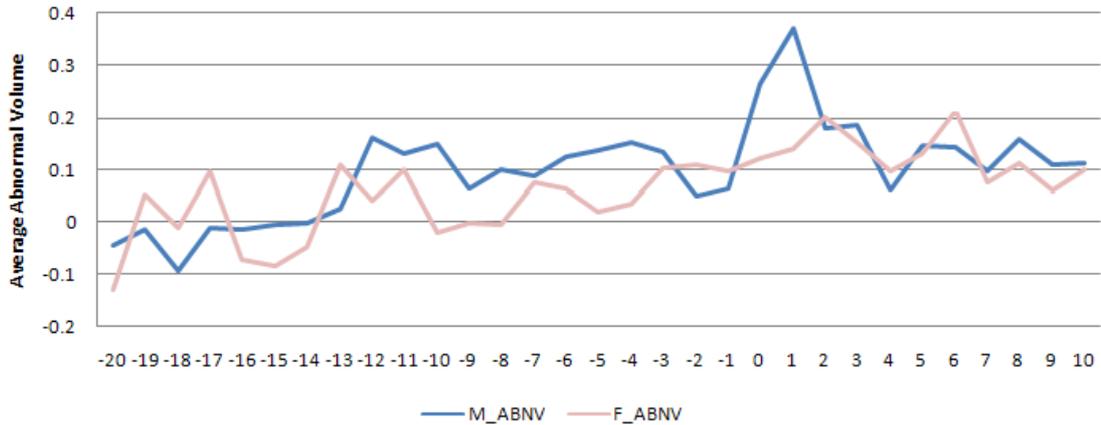
**Panel C: Cumulative Abnormal Return on the two trading boards and the difference (Foreign -Main)**



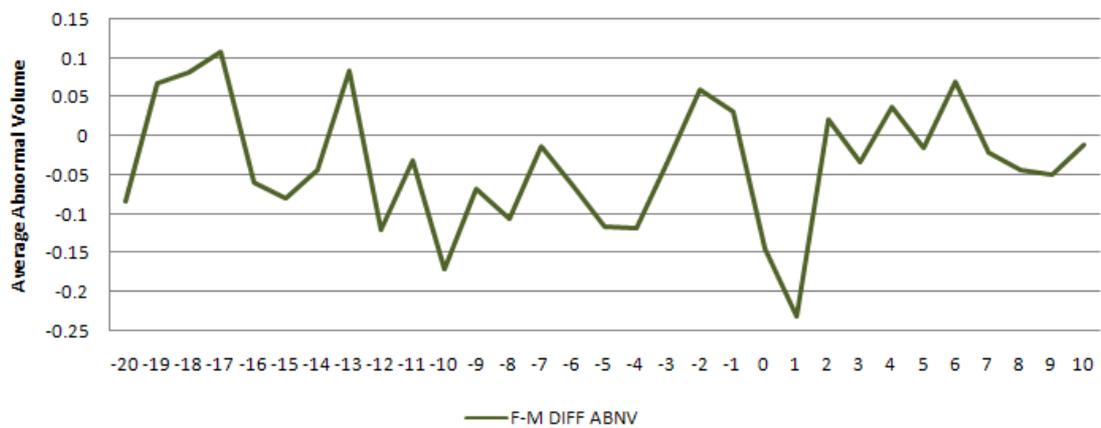
**Figure 5: Average Abnormal Volume during Quarterly Earnings Announcements**

This figure shows average abnormal volume by event day. Panel A compare the abnormal volume on the two trading boards while Panel B show the difference of abnormal volume (Foreign – Main). Panel C illustrate the cumulative average abnormal volume on the two trading boards.

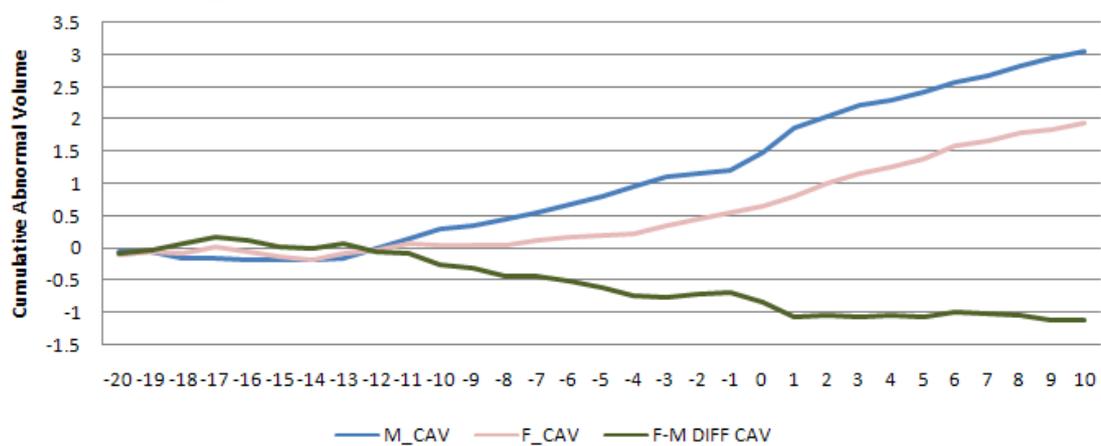
**Panel A: Average Abnormal Volume on the two trading boards by event day**



**Panel B: Abnormal Volume Difference (Foreign – Main) by event day**

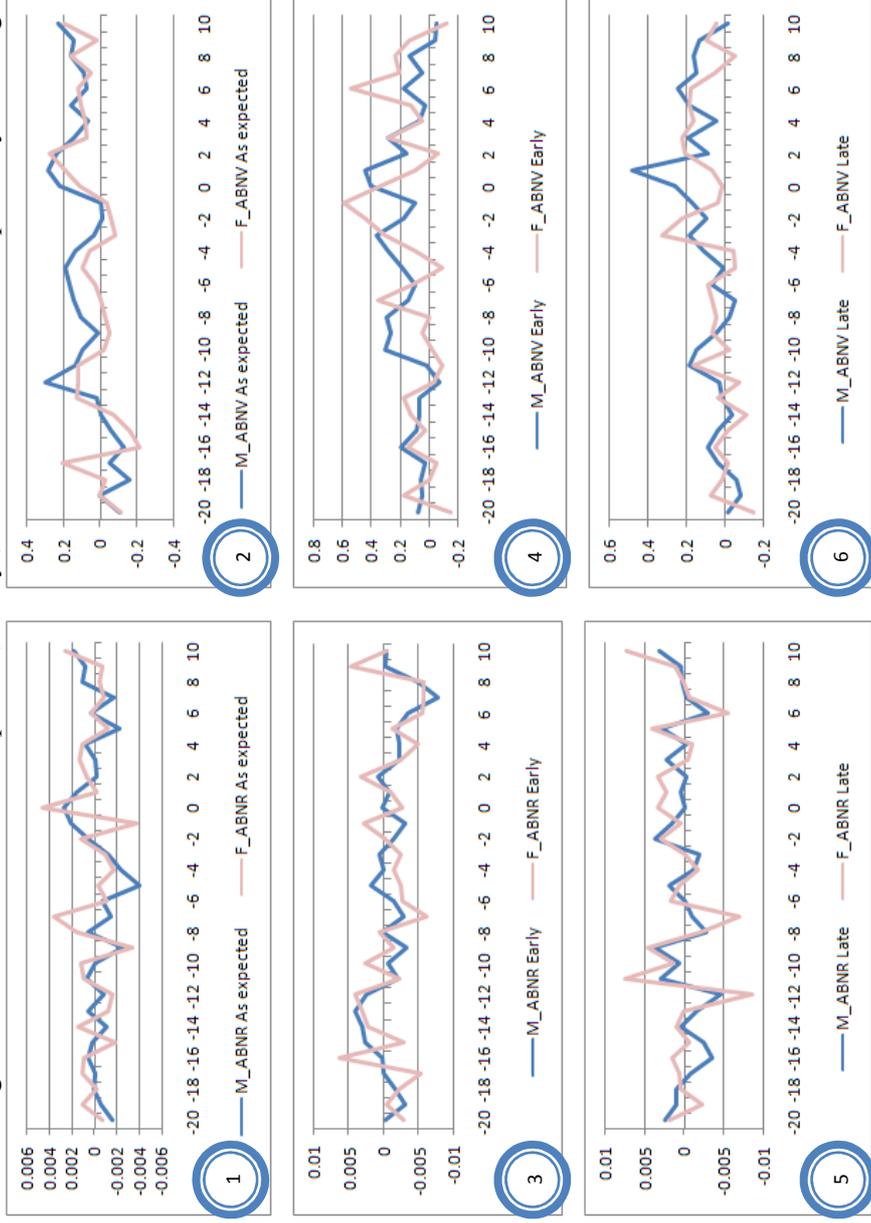


**Panel C: Cumulative Abnormal Volume on the two trading boards and the difference (Foreign -Main)**



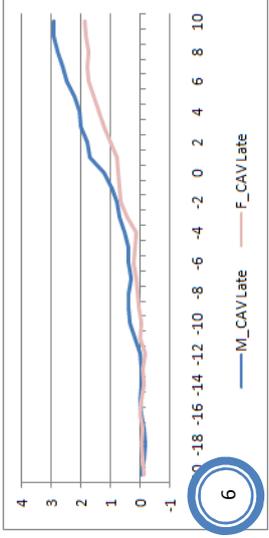
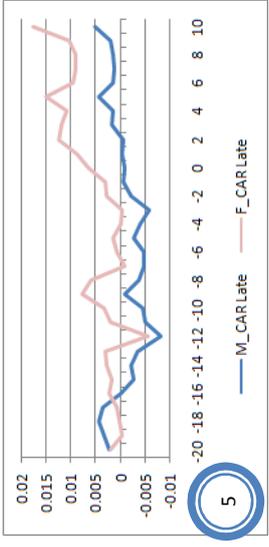
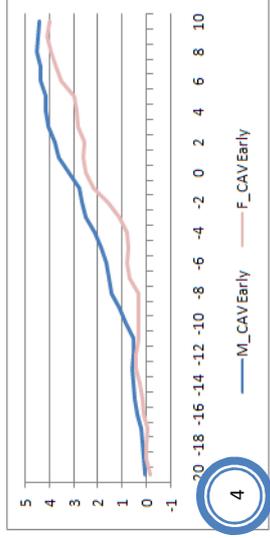
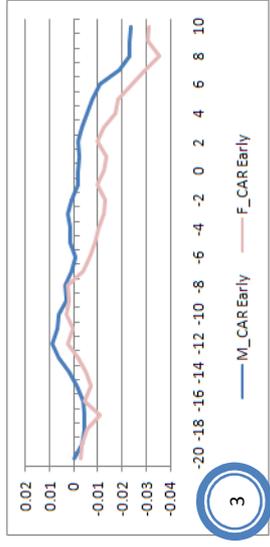
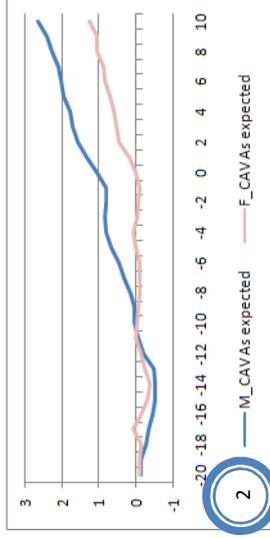
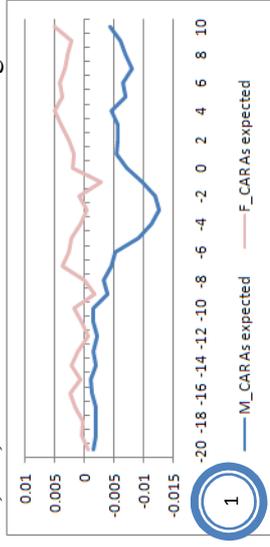
**Figure 6: Average Abnormal Return and Abnormal Volume for each announcement timing on the two trading boards**

This figure shows average abnormal return and average abnormal volume by event day for each of the three announcement timing categories. This paper follows the method applied in Cohen et al (2005) to use median announcement date as the proxy for the expected announcement date. Figures 6.1, 6.3, and 6.5 show average abnormal returns of 'As Expected', 'Early', and 'Late' announcers respectively while figures 6.2, 6.4, and 6.6 show average abnormal volumes.



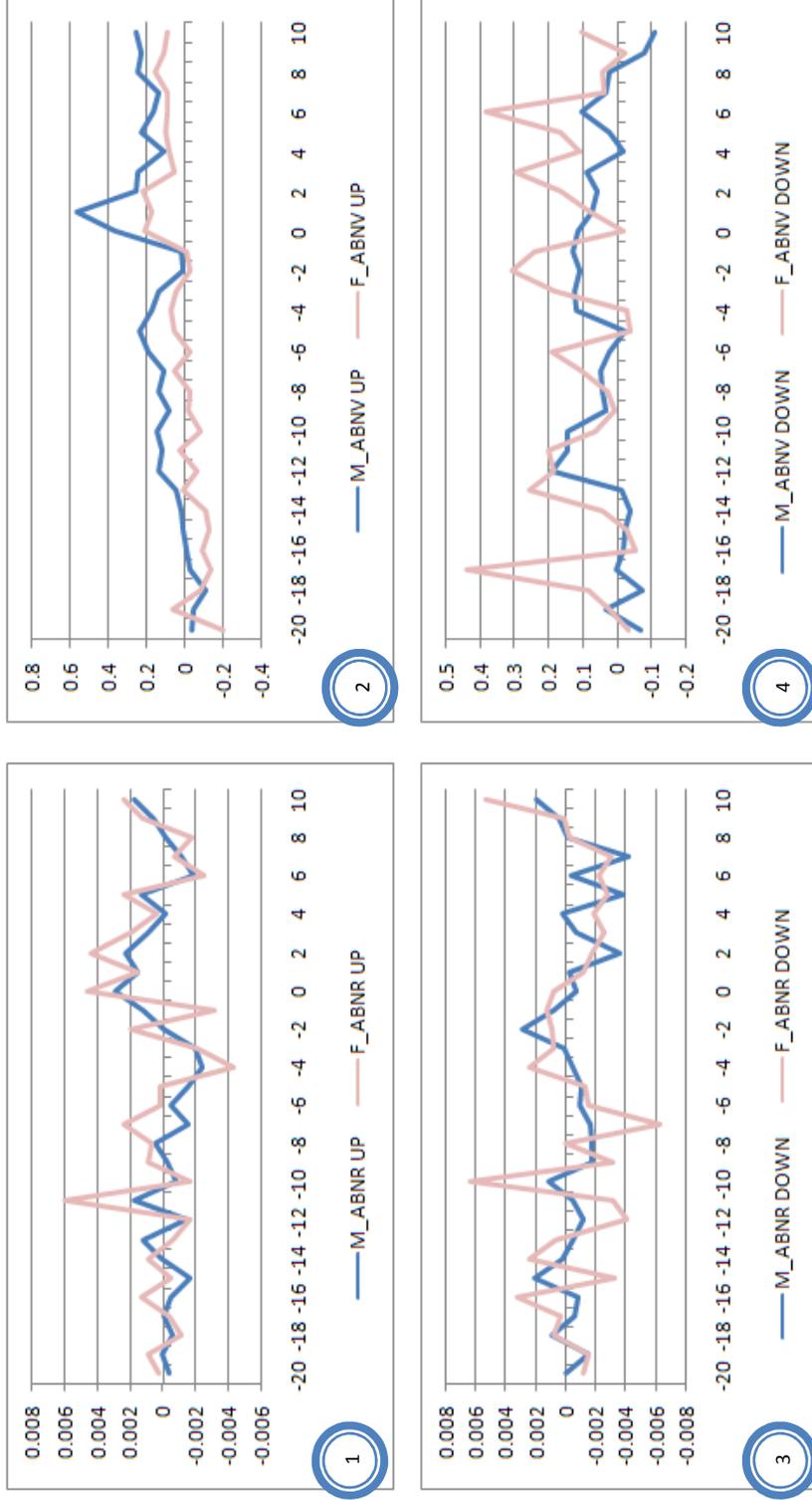
**Figure 7: Cumulative Abnormal Return and Cumulative Abnormal Volume for each kind of Earnings Announcements Timing**

This figure shows cumulative average abnormal return and cumulative average abnormal volume by event day for each of the three announcement timing categories. Figures 7.1, 7.3, and 7.5 show cumulative average abnormal returns of ‘As Expected’, ‘Early’, and ‘Late’ announcers respectively while figures 7.2, 7.4, and 7.6 show cumulative average abnormal volumes.



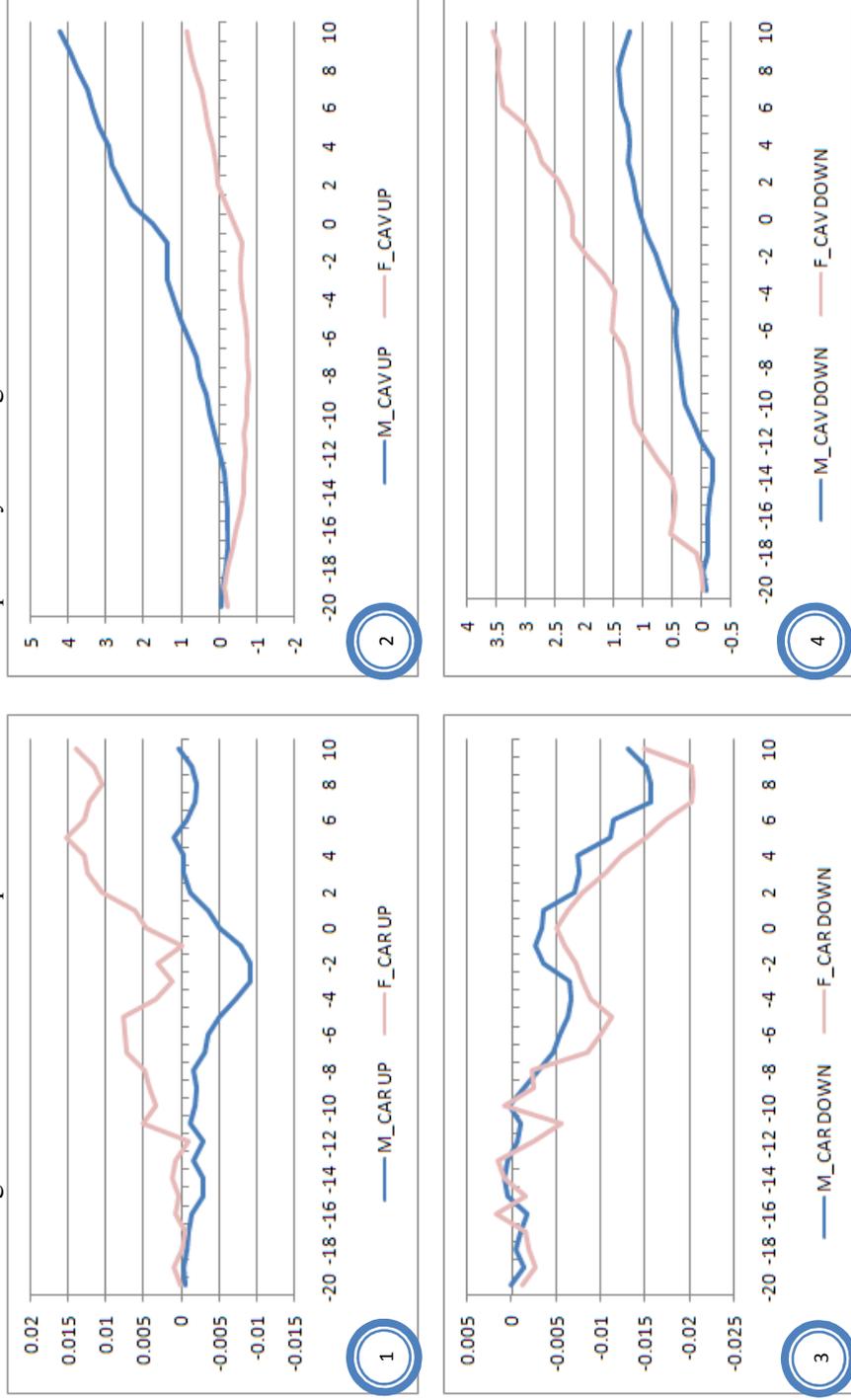
**Figure 8: Average Abnormal Return and Abnormal Volume for two kinds of earnings results on the two trading boards**

This figure shows average abnormal return and average abnormal volume by event day for each kind of earnings announcements results. This paper use net profit results from SETSMART database. Sign of changes of net profit over last year quarter is used to determine 'Up' or 'Down' category of each quarterly announcement events. Figures 8.1 and 8.3 show average abnormal returns of 'Up' and 'Down' results respectively while figures 6.2 and 6.4 show average abnormal volumes.



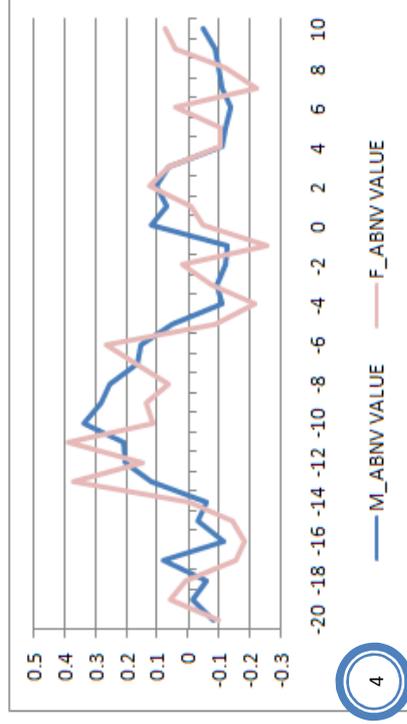
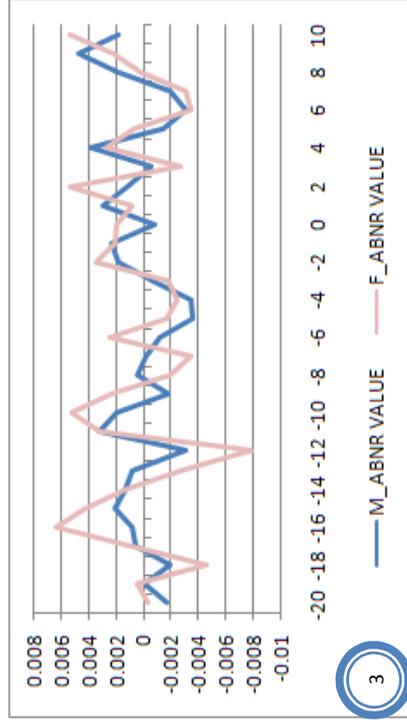
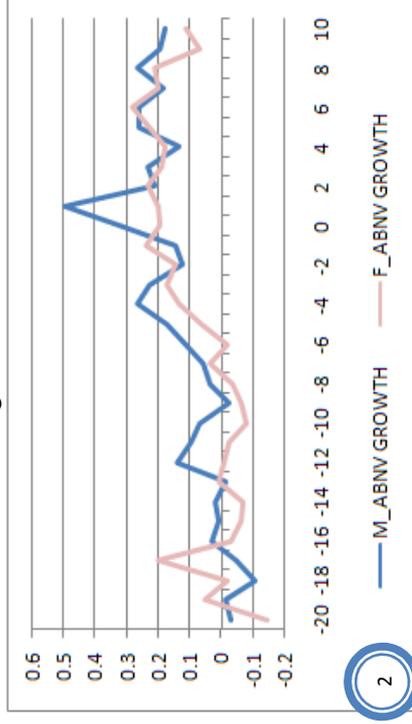
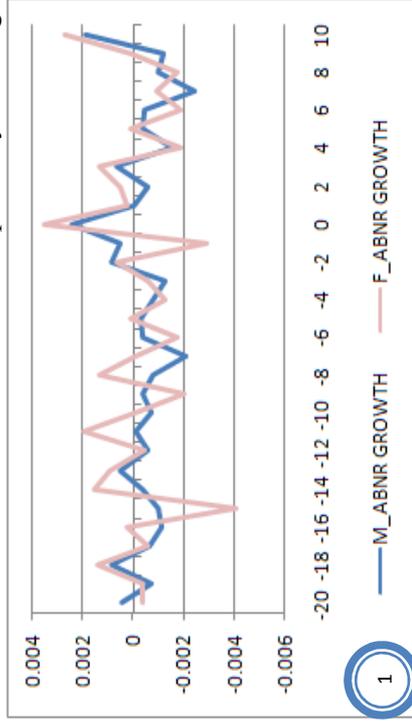
**Figure 9: Cumulative Abnormal Return and Cumulative Abnormal Volume for two kinds of earnings results**

This figure shows cumulative average abnormal return and cumulative average abnormal volume by event day for each kind of earnings results. Sign of changes of net profit over last year quarter is used to determine 'Up' or 'Down' category of each quarterly announcement events. Figures 9.1 and 9.3 show cumulative average abnormal returns of 'Up' and 'Down' results respectively while figures 6.2 and 6.4 show cumulative average abnormal volumes.



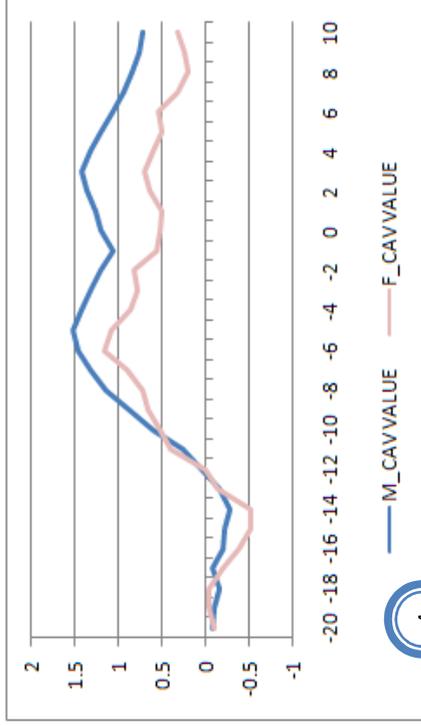
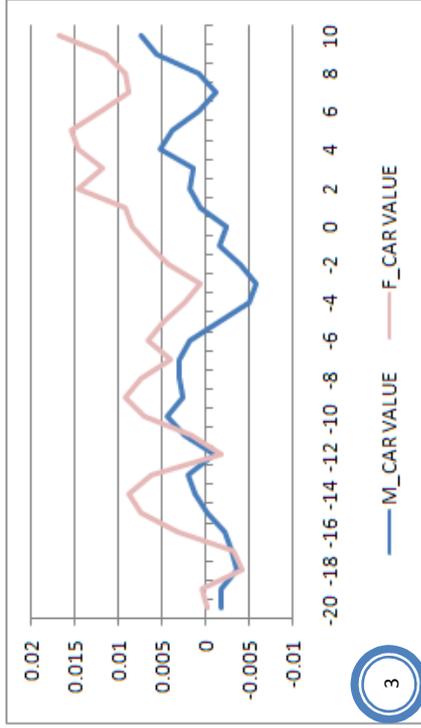
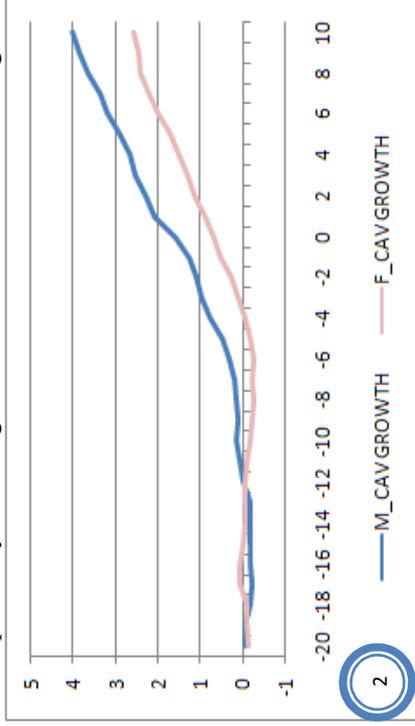
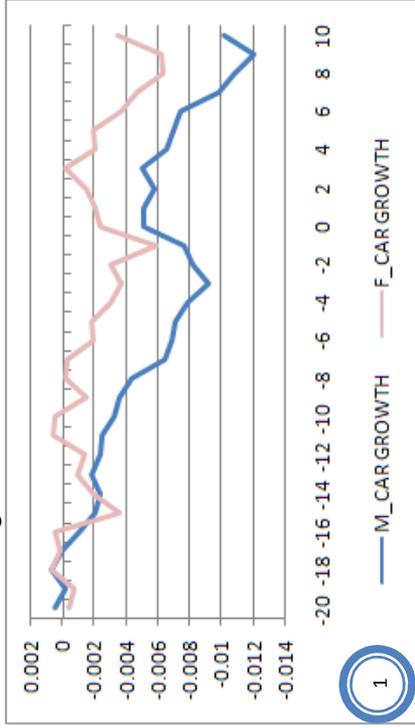
**Figure 10: Average Abnormal Return and Abnormal Volume for two stock types (Value/Growth) on the two trading boards**

This figure shows average abnormal return and average abnormal volume by event day for each stock type. This paper uses Price-to-book (P/B) ratio to identify whether the sample stock is perceived as 'Value' or 'Growth' stock for each announcement event. Figures 10.1 and 10.3 show average abnormal returns of 'Growth' and 'Value' stocks respectively while figures 10.2 and 10.4 show average abnormal volumes.



**Figure 11: Cumulative Abnormal Return and Cumulative Abnormal Volume for two stock types (Value/Growth)**

This figure shows cumulative average abnormal return and cumulative average abnormal volume by event day for each stock type. This paper uses Price-to-book (P/B) ratio to identify whether the sample stock is perceived as 'Value' or 'Growth' stock for each announcement event. Figures 11.1 and 11.3 show cumulative average abnormal returns of 'Growth' and 'Value' stocks respectively while figures 11.2 and 11.4 show average abnormal volumes.



## Table 1 : Summary Statistics of Samples

This table represents some key characteristics of selected samples especially in terms of volume and size on the two trading boards. Trading data during 1998-2006 is from DataStream. Only firms that have been listed for the full studied period (1998-2006) are selected into the sample group.

<b>Panel A: Overall Samples Statistics</b>		
Total Number of Sample Firms	23	Firms
Total Number of Earnings Events Available for Sample Firms	755	Events
Total Number of Selected Earnings Events Samples	358	Events
<b>Size</b>		
Mean Market Cap of Sample Firms	96,863	Million Baht
Median Market Cap of Sample Firms	50,014	Million Baht

<b>Panel B: Statistics by Trading boards</b>	<b>Foreign</b>	<b>Main</b>	<b>Unit</b>
<b>Arithmetic Mean of trading volume</b>			
In the earnings announcement event month	1,888,040	7,690,497	Shares
In non-event month	1,520,997	7,220,052	Shares
For entire sample period	1,631,768	7,363,476	Shares
<b>Median of trading volume</b>			
In the earnings announcement event month	302,000	2,267,700	Shares
In non-event month	247,925	1,982,559	Shares
For entire sample period	263,000	2,057,196	Shares

**Table 2: Data category counts for all events**

This table represents the number of selected samples in each characteristics used in the hypothesis testing of this paper.

Row Labels	Result	TYPE	Count of Event Number
<b>AS EXPECTED</b>			
	<b>Down</b>		
		Growth	44
		Value	23
	<b>Up</b>		
		Growth	95
		Value	32
<b>AS EXPECTED Total</b>			<b>194</b>
<b>EARLY</b>			
	<b>Down</b>		
		Growth	18
		Value	10
	<b>Up</b>		
		Growth	21
		Value	12
<b>EARLY Total</b>			<b>61</b>
<b>LATE</b>			
	<b>Down</b>		
		Growth	36
		Value	11
	<b>Up</b>		
		Growth	38
		Value	18
<b>LATE Total</b>			<b>103</b>
<b>Grand Total</b>			<b>358</b>

**Table 3: Event Study of Abnormal Returns during Quarterly Earnings Announcements**

This table reports event study results on abnormal returns. Selected Earnings Events are those with trading activity in both main and foreign board at the event date and have more than 80 trading days in estimation period of 180 days. Abnormal stock returns are generated using one-factor market model for both boards but foreign board beta estimation is estimated by follow the approach used in Dimson (1979). Wilcoxon Non-parametric Signed Rank Test is used to examine the significance of the abnormal return on each event day to avoid non-normality problem.

Event Day	Main Board		Foreign Board		Wilcoxon Two-Sample Test
	Median	P-Value	Median	P-Value	P-Value
-20	-0.00051	0.7504	-0.00059	0.4076	0.6071
-19	-0.00068	0.4081	0.00046	0.6128	0.3331
-18	-0.00196	0.5028	-0.00189	0.3560	0.7237
-17	0.00024	0.6786	-0.00036	0.9563	0.7675
-16	-0.00107	0.2159	0.00056	0.4157	0.1832
-15	-0.00105	0.3297	-0.00216	0.0721	0.3466
-14	-0.00148	0.5188	-0.00019	0.7968	0.7092
-13	-0.00068	0.5891	0.00012	0.8719	0.9081
-12	-0.00196	0.1032	-0.00293	0.1454	0.9095
-11	0.00051	0.9990	0.00034	0.3798	0.5642
-10	0.00050	0.7408	-0.00010	0.9840	0.8025
-9	-0.00149	0.4035	0.00024	0.6641	0.8890
-8	-0.00008	0.5568	-0.00023	0.7239	0.9808
-7	-0.00131	0.1116	-0.00117	0.5740	0.5625
-6	-0.00124	0.2300	-0.00007	0.7373	0.6843
-5	-0.00124	0.5473	-0.00103	0.4911	0.8924
-4	-0.00201	0.0244**	-0.00192	0.1677	0.9084
-3	0.00035	0.7190	-0.00143	0.6914	0.9759
-2	0.00011	0.8499	0.00188	0.3267	0.4579
-1	0.00101	0.4966	-0.00158	0.2304	0.1679
0	0.00109	0.5575	0.00358	0.0400*	0.2505
1	0.00001	0.7937	-0.00063	0.7909	0.9400
2	-0.00035	0.6075	0.00083	0.4705	0.4468
3	-0.00097	0.7178	0.00010	0.5997	0.8148
4	-0.00081	0.4621	-0.00026	0.8225	0.9004
5	-0.00215	0.0294*	0.00025	0.6899	0.4607
6	-0.00138	0.2183	-0.00063	0.2157	0.9010
7	-0.00232	0.0476*	-0.00133	0.2045	0.8367
8	0.00027	0.8483	-0.00064	0.3708	0.5576
9	-0.00106	0.9162	-0.00057	0.7925	0.9233
10	0.00060	0.2391	0.00069	0.1982	0.8642

\*\*\* / \*\* / \* = significant at 0.01/ 0.05/ 0.1 level (two-tailed test)

**Table 4: Event Study of Abnormal Trading Volume during Quarterly Earnings Announcements**

This table reports event study results on abnormal trading volume. Abnormal trading volumes are generated as the differences between trading volume and the mean of daily volume for that stock over the estimation window (-200, -21), normalized by mean volume. Student t-test is applied to examine the significance of the standardized mean abnormal trading volume on the two trading boards.

Event Day	Main Board			Foreign Board			Differences (F-M)		
	AV	t-stat	P-Value	AV	t-stat	P-Value	AV	t-stat	P-Value
-20	-0.04600	-0.92	0.3569	-0.13000	-2.51	0.0127**	-0.10600	-1.66	0.0974
-19	-0.01400	-0.32	0.7498	0.05240	0.66	0.5079	0.06230	0.81	0.4161
-18	-0.09300	-2.12	0.0347*	-0.01100	-0.17	0.8617	0.05950	0.99	0.3213
-17	-0.01000	-0.21	0.8353	0.09690	0.55	0.5825	0.09030	0.54	0.5910
-16	-0.01300	-0.24	0.8098	-0.07200	-1.28	0.2015	-0.08700	-1.60	0.1111
-15	-0.00400	-0.09	0.9318	-0.08500	-1.67	0.0957	-0.09800	-1.76	0.0786
-14	-0.00300	-0.07	0.9465	-0.04700	-0.83	0.4095	-0.05000	-0.91	0.3644
-13	0.02630	0.46	0.6451	0.11010	1.34	0.1800	0.04620	0.56	0.5780
-12	0.16050	2.49	0.0132**	0.04050	0.62	0.5377	-0.13400	-1.92	0.0561
-11	0.13190	1.83	0.0686	0.10000	1.31	0.1925	-0.06500	-0.88	0.3808
-10	0.14960	1.85	0.0654	-0.02100	-0.30	0.7667	-0.19500	-2.25	0.0251*
-9	0.06550	1.14	0.2540	-0.00300	-0.04	0.9647	-0.09600	-1.64	0.1027
-8	0.10250	1.73	0.0850	-0.00400	-0.05	0.9570	-0.13900	-2.16	0.0316*
-7	0.08870	1.52	0.1282	0.07560	1.06	0.2899	-0.01900	-0.27	0.7869
-6	0.12690	2.30	0.0222**	0.06230	0.86	0.3895	-0.07200	-0.95	0.3432
-5	0.13730	2.38	0.0178**	0.02010	0.31	0.7541	-0.12400	-1.95	0.0521
-4	0.15420	2.78	0.0057**	0.03510	0.62	0.5387	-0.13200	-2.31	0.0214**
-3	0.13600	2.54	0.0116**	0.10360	1.20	0.2297	-0.04000	-0.52	0.6049
-2	0.04990	0.90	0.3670	0.10840	1.49	0.1375	0.04070	0.63	0.5293
-1	0.06480	1.09	0.2776	0.09600	1.14	0.2554	0.01700	0.21	0.8324
0	0.26620	4.49	<.0001***	0.12160	1.87	0.0630	-0.14800	-2.02	0.0439*
1	0.37100	4.40	<.0001***	0.13890	2.13	0.0340*	-0.26000	-2.89	0.0041***
2	0.17980	2.98	0.0031***	0.20050	2.79	0.0056**	0.00090	0.01	0.9890
3	0.18460	3.02	0.0027***	0.15080	2.22	0.0269*	-0.06100	-0.90	0.3695
4	0.06100	1.13	0.2591	0.09690	1.26	0.2102	0.01230	0.16	0.8743
5	0.14670	2.14	0.0330*	0.13140	1.70	0.0902	-0.05600	-0.85	0.3947
6	0.14310	2.50	0.0127**	0.21240	2.19	0.0293*	0.05560	0.64	0.5201
7	0.09770	1.88	0.0609	0.07500	1.09	0.2764	-0.04800	-0.68	0.4942
8	0.15760	1.94	0.0531	0.11360	1.34	0.1812	-0.06100	-0.93	0.3536
9	0.11070	1.21	0.2279	0.05990	0.92	0.3567	-0.08100	-0.98	0.3288
10	0.11230	1.41	0.1582	0.09990	1.50	0.1337	-0.05200	-0.67	0.5062

\*\*\* / \*\* / \* = significant at 0.01/ 0.05/ 0.1 level (two-tailed test)

**Table 5: t-test results for mean abnormal return and mean abnormal volume of each kind of earnings announcements timings**

This table represents t-test results that verify whether average abnormal return and average abnormal volume of each kind of announcement timings are equal to 0 or not. This paper follow the method used in Cohen et al (2005) to find the expected announcement date for each quarter of each sample firms.

Panel A: Check whether AR is 0 using t-test

Trading Boards	Variable	Mean	t-value	p-value
Main	As Expected	-0.0001	-0.46	0.6448
	Early	-0.00076	-1.60	0.1097
	Late	0.0002	0.40	0.6928
Foreign	As Expected	0.0002	0.43	0.6702
	Early	-0.001	-1.49	0.1358
	Late	0.0006	1.02	0.3081

Panel B: Check whether mean AV is 0 using t-test

Trading Boards	Variable	Mean	t-value	p-value
Main	As Expected	0.0860	5.66	<.0001***
	Early	0.1438	5.68	<.0001***
	Late	0.0939	4.50	<.0001***
Foreign	As Expected	0.0417	2.21	0.0274*
	Early	0.1306	3.61	0.0003***
	Late	0.0609	2.61	0.0092**

Panel C: Test equality of AR between the three timing categories

Trading Boards	Method	df	Value	Probability
Main	Anova F-statistic	(2, 11095)	0.99289	0.3705
Foreign	Anova F-statistic	(2, 11095)	1.680534	0.1863

Panel D: Test equality of AV between the three timing categories

Trading Boards	Method	df	Value	Probability
Main	Anova F-statistic	(2, 11080)	1.794863	0.1662
Foreign	Anova F-statistic	(2, 10488)	2.722771	0.0657

\*\*\* / \*\* / \* = significant at 0.01/ 0.05/ 0.1 level (two-tailed test)

**Table 6: Test mean and median Cumulative Abnormal Return and Cumulative Abnormal Volume for each kind of timing announcements**

Panel A and B of this table represents both parametric and non-parametric test results that verify whether cumulative average abnormal return(CAAR) and cumulative average abnormal volume(CAAV) of each kind of announcement timings are equal to 0 or not. Panel C and D further check the equality of CAAR and CAAV among the three timing categories while Panel E and F test for equality of CAAR and CAAV of the three timings between the two trading boards.

Panel A: Check whether CAR is 0							
Trading Boards	Variable	Mean	Median	t-test		Wilcoxon Signed Rank test	
				t-stat	p-value	S-Stat	P-value
Main	As Expected	-0.0042	-0.0021	-0.46	0.6435	-553.50	0.4811
	Early	-0.0237	-0.0266	-1.68	0.0990	-258.50	0.0628
	Late	0.0051	-0.0023	0.40	0.6923	93.00	0.7613
Foreign	As Expected	0.0049	-0.0019	0.49	0.6218	-74.50	0.9245
	Early	-0.0307	-0.0372	-1.94	0.0575	-281.50	0.0422*
	Late	0.0177	0.0175	1.30	0.1961	401.00	0.1884
Panel B: Check whether CAV is 0							
Trading Boards	Variable	Mean	Median	t-test		Wilcoxon Signed Rank test	
				t-stat	p-value	S-Stat	P-value
Main	As Expected	2.6641	0.3881	2.62	0.0095**	1112.50	0.1559
	Early	4.4511	2.0097	2.41	0.0192**	273.50	0.0486*
	Late	2.9062	-0.9919	1.70	0.0916	147.00	0.6310
Foreign	As Expected	1.2194	-0.4350	1.21	0.2266	88.50	0.9104
	Early	3.8117	0.3438	1.73	0.0888	117.50	0.4032
	Late	1.7938	0.5442	1.04	0.2990	24.00	0.9375

**Panel C: Test equality of mean of CAR between the three timing categories**

Trading Boards	Method	df	Value	Probability
Main	Anova F-statistic	(2, 355)	1.013924	0.3638
	Kruskal-Wallis (tie-adj.)	2	2.155928	0.3403
Foreign	Anova F-statistic	(2, 355)	2.481639	0.0851
	Kruskal-Wallis (tie-adj.)	2	5.482537	0.0645

**Panel D: Test equality of mean of CAV between the three timing categories**

Trading Boards	Method	df	Value	Probability
Main	Anova F-statistic	(2, 355)	0.327074	0.7212
	Kruskal-Wallis (tie-adj.)	2	1.557956	0.4589
Foreign	Anova F-statistic	(2, 355)	0.639391	0.5282
	Kruskal-Wallis (tie-adj.)	2	0.428771	0.8070

**Panel E: Test equality of mean of CAR between the two trading boards**

Timing	Method	df	Value	Probability
As Expected	t-test	386	0.67739	0.4986
	Kruskal-Wallis (tie-adj.)	1	0.139807	0.7085
Early	t-test	120	0.329233	0.7426
	Kruskal-Wallis (tie-adj.)	1	0.137814	0.7105
Late	t-test	204	0.674559	0.5007
	Kruskal-Wallis (tie-adj.)	1	0.718046	0.3968

**Panel F: Test equality of mean of CAV between the two trading boards**

Timing	Method	df	Value	Probability
As Expected	t-test	386	1.010727	0.3128
	Kruskal-Wallis (tie-adj.)	1	0.742852	0.3887
Early	t-test	120	0.22226	0.8245
	Kruskal-Wallis (tie-adj.)	1	0.633982	0.4259
Late	t-test	204	0.459349	0.6465
	Kruskal-Wallis (tie-adj.)	1	0.142522	0.7058

**Table 7: t-test results for mean abnormal return and mean abnormal volume of each group of earnings results**

This table represents t-test results that verify whether average abnormal return and average abnormal volume of each group of earnings announcement results are equal to 0 or not. To determine whether it is a good or bad news, I use net profit results from SETSMART database. Sign of changes of net profit over last year same quarter is used to determine ‘Up’ or ‘Down’ category of each quarterly announcement events.

**Panel A: Check whether AR is 0 using t-test**

Trading Boards	Variable	Mean	t-value	p-value
Main	Up	0.0000	0.05	0.9571
	Down	-0.0004	-1.22	0.2236
Foreign	Up	0.0005	1.23	0.2171
	Down	-0.0005	-1.10	0.273

**Panel B: Check whether mean AV is 0 using t-test**

Trading Boards	Variable	Mean	t-value	p-value
Main	Up	0.1362	9.01	<.0001***
	Down	0.0402	2.55	0.0108**
Foreign	Up	0.0279	1.88	0.0603
	Down	0.1145	4.39	<.0001***

**Panel C: Test equality of AR between the two classifications of result**

Trading Boards	Method	df	Value	Probability
Main	t-test	11096	0.981142	0.3265
	Anova F-statistic	(1, 11096)	0.962639	0.3265
	Kruskal-Wallis (tie-adj.)	1	0.528816	0.4671
Foreign	t-test	11096	1.623374	0.1045
	Anova F-statistic	(1, 11096)	2.635343	0.1045
	Kruskal-Wallis (tie-adj.)	1	0.494224	0.482

**Panel D: Test equality of AV between the two classifications of result**

Trading Boards	Method	df	Value	Probability
Main	t-test	11081	4.240896	0.0000***
	Anova F-statistic	(1, 11081)	17.9852	0.0000***
	Kruskal-Wallis (tie-adj.)	1	35.48562	0.0000***
Foreign	t-test	10489	3.092942	0.0020***
	Anova F-statistic	(1, 10489)	9.566288	0.0020***
	Kruskal-Wallis (tie-adj.)	1	1.126044	0.2886

\*\*\* / \*\* / \* = significant at 0.01/ 0.05/ 0.1 level (two-tailed test)

**Table 8: Test mean Cumulative Abnormal Return and Cumulative Abnormal Volume for each earnings results**

Panel A and B of this table represents both parametric and non-parametric test results that verify whether cumulative average abnormal return(CAAR) and cumulative average abnormal volume(CAAV) of each earnings results are equal to 0 or not. Panel C and D further check the equality of CAAR and CAAV among the two kinds of earnings results while Panel E and F test for equality of CAAR and CAAV between the two trading boards.

Panel A: Check whether CAR is 0				t-test		Wilcoxon Signed Rank test	
Trading Boards	Variable	Mean	Median	t-stat	p-value	S-Stat	P-value
Main	Up	0.0005	-0.0021	0.06	0.9553	-226.00	0.8065
	Down	-0.0130	-0.0148	-1.18	0.2414	-715.50	0.1457
Foreign	Up	0.0141	0.0087	1.51	0.1336	1059.00	0.2504
	Down	-0.0150	-0.0160	-1.32	0.1876	-785.50	0.1100

Panel B: Check whether CAV is 0				t-test		Wilcoxon Signed Rank test	
Trading Boards	Variable	Mean	Median	t-stat	p-value	S-Stat	P-value
Main	Up	4.2172	1.9229	4.11	<0.0001***	2799.00	0.0022***
	Down	1.2449	-1.1521	0.98	0.3287	-235.50	0.6332
Foreign	Up	0.8172	-0.3971	0.90	0.3706	-252.00	0.7848
	Down	3.3614	0.4431	2.17	0.0313*	527.50	0.2843

**Panel C: Test equality of mean of CAR between the two results**

Trading Boards	Method	df	Value	Probability
Main	t-test	356	0.9914	0.3222
	Anova F-statistic	(1, 356)	0.9829	0.3222
	Kruskal-Wallis (tie-adj.)	1	1.2547	0.2627
Foreign	t-test	356	1.9725	0.0493*
	Anova F-statistic	(1, 356)	3.8907	0.0493*
	Kruskal-Wallis (tie-adj.)	1	3.9715	0.0463*

**Panel D: Test equality of mean of CAV between the two results**

Trading Boards	Method	df	Value	Probability
Main	t-test	356	1.8219	0.0693
	Anova F-statistic	(1, 356)	3.3192	0.0693
	Kruskal-Wallis (tie-adj.)	1	5.4438	0.0196**
Foreign	t-test	356	1.5118	0.1315
	Anova F-statistic	(1, 356)	2.2856	0.1315
	Kruskal-Wallis (tie-adj.)	1	0.7150	0.3978

**Panel E: Test equality of mean of CAR between the two trading boards**

Timing	Method	df	Value	Probability
Up	t-test	430	1.0905	0.2761
	Kruskal-Wallis (tie-adj.)	1	0.8957	0.3439
Down	t-test	282	0.1271	0.8989
	Kruskal-Wallis (tie-adj.)	1	0.0332	0.8555

**Panel F: Test equality of mean of CAV between the two trading boards**

Timing	Method	df	Value	Probability
Up	t-test	430	2.4783	0.0136**
	Kruskal-Wallis (tie-adj.)	1	5.4931	0.0191**
Down	t-test	282	1.0578	0.2911
	Kruskal-Wallis (tie-adj.)	1	1.0203	0.3125

**Table 9: t-test results for mean abnormal return and mean abnormal volume of each type of stock**

This table represents t-test results that verify whether average abnormal return and average abnormal volume of each type of stock are equal to 0 or not. Price-to-book ratio data of each sample firm is retrieved from Datastream database. To classify ‘Value’ or ‘Growth’ stock for each event time, firstly I rank the P/B ratio of all samples for each announcement date. For each announcement event, the stock that is in the higher 50 percentile group is then considered ‘Growth’ while the lower half is considered ‘Value’.

**Panel A: Check whether AR is 0 using t-test**

Trading Boards	Variable	Mean	t-value	p-value
Main	Growth	-0.0003	-1.28	0.1996
	Value	0.0002	0.59	0.5564
Foreign	Growth	-0.0001	-0.35	0.7288
	Value	0.0005	0.94	0.3483

**Panel B: Check whether mean AV is 0 using t-test**

Trading Boards	Variable	Mean	t-value	p-value
Main	Growth	0.1297	9.46	<.0001***
	Value	0.0229	1.25	0.2105
Foreign	Growth	0.0835	5.05	<.0001***
	Value	0.0105	0.43	0.6661

**Panel C: Test equality of AR between the two types of Stock**

Trading Boards	Method	df	Value	Probability
Main	t-test	11096	1.1988	0.2306
	Anova F-statistic	(1, 11096)	1.4372	0.2306
	Kruskal-Wallis (tie-adj.)	1	4.5518	0.0329*
Foreign	t-test	11096	1.0527	0.2925
	Anova F-statistic	(1, 11096)	1.1082	0.2925
	Kruskal-Wallis (tie-adj.)	1	4.8703	0.0273*

**Panel D: Test equality of AV between the two types of stock**

Trading Boards	Method	df	Value	Probability
Main	t-test	11081	4.4070	0.0000***
	Anova F-statistic	(1, 11081)	19.4220	0.0000***
	Kruskal-Wallis (tie-adj.)	1	43.31842	0.0000***
Foreign	t-test	10489	2.416041	0.0157**
	Anova F-statistic	(1, 10489)	5.837253	0.0157**
	Kruskal-Wallis (tie-adj.)	1	46.76816	0.0000***

\*\*\* / \*\* / \* = significant at 0.01/ 0.05/ 0.1 level (two-tailed test)

**Table 10: Test mean Cumulative Abnormal Return and Cumulative Abnormal Volume for each type of stock**

Panel A and B of this table represents both parametric and non-parametric test results that verify whether cumulative average abnormal return(CAAR) and cumulative average abnormal volume(CAAV) of each stock types are equal to 0 or not. Panel C and D check the equality of CAAR and CAAV among the two types of stock while Panel E and F test for equality of CAAR and CAAV between the two trading boards.

Panel A: Check whether CAR is 0		t-test		Wilcoxon Signed Rank test			
Trading Boards	Variable	Mean	Median	t-stat	p-value	S-Stat	P-value
Main	Growth	-0.0101	-0.0145	-1.30	0.1934	-1914.00	0.0985
	Value	0.0075	0.0058	0.59	0.5578	174.50	0.5847
Foreign	Growth	-0.0034	-0.0071	-0.42	0.6784	-780.00	0.5018
	Value	0.0168	0.0123	1.16	0.2486	243.50	0.4454

Panel B: Check whether CAV is 0		t-test		Wilcoxon Signed Rank test			
Trading Boards	Variable	Mean	Median	t-stat	p-value	S-Stat	P-value
Main	Growth	4.0188	2.0816	4.21	<.0001***	3584.00	0.0018***
	Value	0.7071	-1.5060	0.49	0.6281	-324.50	0.3087
Foreign	Growth	2.4677	0.7509	2.57	0.0107**	1442.00	0.2138
	Value	0.3017	-1.2615	0.19	0.8503	-343.50	0.2810

**Panel C: Test equality of mean of CAR between the two results**

Trading Boards	Method	df	Value	Probability
Main	t-test	356	1.2122	0.2262
	Anova F-statistic	(1, 356)	1.4694	0.2262
	Kruskal-Wallis (tie-adj.)	1	1.7840	0.1817
Foreign	t-test	356	1.2752	0.2031
	Anova F-statistic	(1, 356)	1.6260	0.2031
	Kruskal-Wallis (tie-adj.)	1	0.9450	0.331

**Panel D: Test equality of mean of CAV between the two results**

Trading Boards	Method	df	Value	Probability
Main	t-test	356	1.8951	0.0589
	Anova F-statistic	(1, 356)	3.5914	0.0589
	Kruskal-Wallis (tie-adj.)	1	6.2620	0.0123**
Foreign	t-test	356	1.1997	0.2311
	Anova F-statistic	(1, 356)	1.4393	0.2311
	Kruskal-Wallis (tie-adj.)	1	2.7595	0.0967

**Panel E: Test equality of mean of CAR between the two trading boards**

Timing	Method	df	Value	Probability
Growth	t-test	502	0.5863	0.5579
	Kruskal-Wallis (tie-adj.)	1	0.2761	0.5993
Value	t-test	210	0.4785	0.6328
	Kruskal-Wallis (tie-adj.)	1	0.0783	0.7796

**Panel F: Test equality of mean of CAV between the two trading boards**

Timing	Method	df	Value	Probability
Growth	t-test	502	1.1463	0.2522
	Kruskal-Wallis (tie-adj.)	1	1.5787	0.209
Value	t-test	210	0.1878	0.8512
	Kruskal-Wallis (tie-adj.)	1	0.0181	0.8931

## Appendix A1: Sample Companies

Main column contains the stock symbol traded on the ‘Main’ trading board while ‘Foreign’ column has the stock symbol traded on the ‘Foreign’ board according to SETSMART database. The selected firms are those that have trading activities on the announcement event date 0 on both boards. Also, the recent listed firms (after 1998, the start of our study period) are excluded from the sample scope. Size is categorized by the firm’s market cap on the 8<sup>th</sup> on December 2006 relative to mean market cap of all sample firms.

Main	Foreign	Name
ADVANC	ADVANC-F	ADVANCED INFO SERVICE PUBLIC COMPANY LIMITED
BANPU	BANPU-F	BANPU PUBLIC COMPANY LIMITED
BAY	BAY-F	BANK OF AYUDHYA PUBLIC COMPANY LIMITED
BBL	BBL-F	BANGKOK BANK PUBLIC COMPANY LIMITED
BEC	BEC-F	BEC WORLD PUBLIC COMPANY LIMITED
EGCOMP	EGCOMP-F	ELECTRICITY GENERATING PUBLIC COMPANY LIMITED
KBANK	KBANK-F	KASIKORN BANK PUBLIC COMPANY LIMITED
KGI	KGI-F	KGI SECURITIES (THAILAND) PUBLIC COMPANY LIMITED
KTB	KTB-F	KRUNG THAI BANK PUBLIC COMPANY LIMITED
LH	LH-F	LAND AND HOUSES PUBLIC COMPANY LIMITED
PTTEP	PTTEP-F	PTT EXPLORATION AND PRODUCTION PUBLIC COMPANY
RCL	RCL-F	REGIONAL CONTAINER LINES PUBLIC COMPANY LIMITED
SATTEL	SATTEL-F	SHIN SATELLITE PUBLIC COMPANY LIMITED
SCB	SCB-F	THE SIAM COMMERCIAL BANK PUBLIC COMPANY LIMITED
SCCC	SCCC-F	SIAM CITY CEMENT PUBLIC COMPANY LIMITED
SCC	SCC-F	THE SIAM CEMENT PUBLIC COMPANY LIMITED
SCIB	SCIB-F	SIAM CITY BANK PUBLIC COMPANY LIMITED
SHIN	SHIN-F	SHIN CORPORATION PUBLIC COMPANY LIMITED
SUC	SUC-F	SAHA-UNION PUBLIC COMPANY LIMITED
TMB	TMB-F	TMB BANK PUBLIC COMPANY LIMITED
TRUE	TRUE-F	TRUE CORPORATION PUBLIC COMPANY LIMITED
TUF	TUF-F	THAI UNION FROZEN PRODUCTS PUBLIC COMPANY LIMITED
UCOM	UCOM-F	UNITED COMMUNICATION INDUSTRY PUBLIC COMPANY LIMITED