INSIDER TRADE FILING AND EARNINGS ANNOUNCEMENT: EVIDENCE FROM THE STOCK EXCHANGE OF THAILAND

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF MANAGEMENT
COLLEGE OF MANAGEMENT
MAHIDOL UNIVERSITY
2014

Thesis
entitled
INSIDER TRADE FILING AND EARNINGS ANNOUNCEMENT: EVIDENCE FROM THE STOCK EXCHANGE OF THAILAND
was submitted to the College of Management, Mahidol University
for the degree of Master of Management (Financial Management)
on
29 October, 2014

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ACKNOWLEDGEMENTS

First of all I want to thank my family for their love and support throughout my whole studies at the College of Management. Without the mental support of both my loving mother and grandmother, I could have not succeeded in my pursuit of excellence during my postgraduate degree. You all are and will always be an inspiration and positive driver to my life and career. Secondly I want to thank every lecturer and classmate at the College of Management Mahidol University. You have helped me to gather and cultivate the knowledge and skill-set that was necessary to conduct this thesis.

Nareerat Taechapiroontong Ph.D., without her mentorship and general support I would have not been able to write this master thesis nor conduct the necessary research for the completion of this document. Asst.Prof. Chiraphol Chiyachantana Ph.D., who managed to push the boundaries of my knowledge further with all his research guidance was a critical success factor to my thesis. Eakapat Manitkajornkit Ph.D., without whom I could not have managed to complete all the immensely complicated programming algorithms, especially those related to SAS programming. Thank you for your moral support and technical consultancy.

I wish to also acknowledge and tell my appreciation towards all my dear friends and classmates who have accompanied me throughout this master thesis. Especially, Ram Saruthi Ph.D., who was always there to help me with both technical and moral support. Your advisory was and will be a life-long benefit to me. Last but certainly not least, I want to thank Chomporn Pattarapornpong and Prasit Cheunsirikulchai for their untiring assistance and great mental support. You both are wonderful people and without all the heart and positiveness you put into your everyday job, student life at CMMU would not be half as great as it is.

Kritanan Kwandham

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ABSTRACT

The purpose of this paper is to examine corporate insiders trading strategy from insider filing date in relation to earnings announcement of firms listed in the Stock Exchange of Thailand during 2003 to 2012. Corporate insiders trading activity is measured in term of amount of shares trade, frequency of transactions and value of shares trade before and after earnings announcement. Abnormal returns over earnings announcement day are used as a proxy to market responses to the announcement. By employing event-study approach, the results show that corporate insiders in Thailand buy and sell their own firm stock in view of positive market reaction from good news announcement. They also sell and buy their own firm stock in view of negative market reaction from bad news announcement. However, earnings announcement may not be the factor that corporate insiders use in order to make profit from entering or exiting their position on the foreknowledge of earnings information.

KEY WORDS: Insider Trade / Earnings / Announcement / Corporate Insiders / Thailand

67 pages

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CHAPTER I
INTRODUCTION

1.1 Background and Motivation

In a field of corporate finance, earnings announcement amounts as one of major events of public news announcement for listed companies. In a field of behavioral finance, before news is announced to public, information asymmetry may give competitive advantages to corporate insiders or large shareholders to benefit from uninformed market. With these two fields intact, insiders trading have been a long-studied area that scholars aim to investigate its fundamentals and applications. This thesis attempts to explore relationship between corporate insiders trading and mandatory disclosure of earnings announcement. Specifically, the relationship in Thailand is considered.

Insiders can be categorized into two group i.e. corporate insiders and large shareholders. A corporate insider is a person or a legal entity who acquired a position(s) in a company as a director of the boards, an executive or an auditor, and at the same time, holds company's security. A large shareholder is a person or a legal entity who owns more than 5% of voting right of common stocks in a listed company. Large shareholders may as well be presented in the company as a director of the board, an executive, or an auditor. As such, his/her activities will be regarded large shareholder and not corporate insider.

Insider trading refers to an activity that either type of insiders buys and sells security in their own companies; for instance, common share, preferred share, warrant, transferable subscription right or convertible debenture. Regulated by the Security Exchange Commission (SEC) of Thailand (SorJor. 12/1552), all insiders shall report their security trading activities in their own companies to SEC within 3 working days after the transaction date. Corporate insiders shall use 'Reporting of Changes in Security Holding Form (59-2)' for filing. This contains, but not limited to, the following contents: Transaction date, Type of transaction (Acquisition or disposition),

Number of security held before and after transaction, Method of transaction, Relationship to purchaser or transferee etc. Additionally, spouse and minor child of such persons shall also report changes in securities holding by the nominee of such persons.

As required by Thai laws and Stock Exchange of Thailand's (SET) regulations, financial report is a mandatory disclosure and a periodic activity (Bor.Jor./Por.11-00). All corporate firms listed in the SET are obliged to submit/file quarterly and year-end financial statements as follows (Bor.Jor./Por.23-00).

1. Quarterly financial statements (reviewed by an auditor); i.e. Form F45-1, F45-2 and F45-3, shall be submitted within 45 days after the end of the accounting period.

2. Yearly financial statements (audited by an auditor); i.e. Form F45-9, shall be submitted within 60 days after the end of the accounting period, should the firm opts for not submitting the fourth-quarter financial statement.

Practically, companies submit the financial statements to SET electronically via Stock Exchange of Thailand (SET) internal database. The document will appear instantaneously to public on SET website (http://www.set.or.th) at the same time it is being submitted. Hence, the submission process is also viewed as the earnings announcement activity as investors in the market (other than insiders) can obtain this valuable information directly in real time. Most Thai firms report to SET, hence announce to public, their financial statements very close or on the deadline. Keeping this as a constraint, some firms announced unaudited reports just before the deadline and decided to update the financial report at later dates to prevent regulatory actions.

In addition, a firm may announce financial forecasts to public before the actual earnings announcement, as an optional disclosure. Investors and outsiders in US and other well developed markets obtain these forecasts as their first source of inside information received from the company. However, as witnessed in Thailand, company itself hardly announces their earnings forecast. Investors obtain earnings forecast information from analysis available in the market e.g. by brokerage firms or financial analysts. Hence, earnings content that is solely conveyed from the company itself to public is from the earnings announcement day.

Internationally, there are many literatures, more recently such as Lakonishok and Lee (2001) and Inci et al. (2010), which shows insiders' trade itself is informative. Insiders are motivated by private information that will later disclose to public. For this reason, insiders may gain competitive advantages from stock price movement from a less informed market at times when information is released to public. Jaffe (1974) find that insiders possess special information and in some periods possess a large return. Besides, many outside investors have been attempted to mimic insiders' trades so as to gain some advantages on their trading profits. They can detect possibility of informed trading by insiders and does react to impound into the stock price as observed by Meulbroek (1992). Jeng et al. (2003) determine the performance of insider trading and find that they can earn abnormal as much as 6% when purchase. Outside the US security market, Del el Brio and Miguel (2002) also find that insiders in Spanish market are privy and earn excess returns exploiting nonpublic information while outsiders cannot realize abnormal profits through mimicking.

When specific to a particular type of information disclosure, corporate news announcement can be divided into voluntary disclosure (e.g. financial forecast, news clarification, rumour report) and mandatory disclosure (e.g. earnings announcement, dividend announcement, bankruptcy filing); different types of public disclosure results in different market sentiment. Scholars and investors are interested in individual disclosure to find out characteristics/behavior of insiders trades and to determine amount of special information that insider possess. John and Lang (1991) and Fuller (2003) focus on the insider trading around dividend announcement. Seyhun and Bradley (1997) aim to find a relationship of insiders in relation to corporate bankruptcy filing. Keown and Pinkerton (1981) study insider trading on merger announcement.

In spite of many researches on different types of announcement, earnings announcement is the event that occurs periodically and with great proportion which market and investors believe to have a significant impact on stock price movements. Internationally, there is a relationship between insiders trading and earnings announcement as depicted by Penman (1980).Penman (1982) shows that insiders has timing ability to trade their own stocks and earn abnormal returns through joint trading and information dissemination activities. Ke et al. (2003) find that insiders act to take

advantages from private information before a break of increasing earnings stream. Similarly, insiders trade on foreknowledge information against price-sensitive earnings disclosure as evidenced in Huddart et al. (2007).

In Thai capital market, news announcement associated with company earnings account for more than 60% of the overall news published in the Stock Exchange of Thailand (SET) from 2003 to 2012. Boonyawat et al. (2004) examines the profitability of insiders (corporate insiders and large shareholders) trading and a pool of public news announcements for SET50 firms in year 2002. Laoniramai (2007) using more comprehensive data to find a relationship of insiders trades around news announcement and abnormal returns during the announcement period. Results show that insiders in Thailand trades on private information and gains abnormal returns from purchase.

So far, studies from Thai literatures are limited to insiders behavior surrounding general news announcement as a whole. None has been done to targeting uses of superior information on specific news announcements even though there are many significant findings of them in developed markets (e.g. USA or UK). Hence, it is an opportunity to explore corporate insiders trading in Thailand in association with mandatory disclosure of earnings announcement.

1.2 Research Questions and Objective

Exploration on the relationship between insider trading and earning announcement are based on the following research questions:

1. Do insiders trade for their own firm from private information on earnings announcement?
2. What are insiders trading behavior around earnings announcement days
3. Do insiders avoid trading in jeopardy period from laws and regulations enforcement?

To answer the research questions, this study aims to find a relationship of corporate insiders trading on their own firm stock, using insider filing date, before and/or after company's earnings news announcement in the SET. The trading period in

question is 40 trading days before and after each quarterly and yearly earnings news announcement during 2003 to 2012.

1.3 Contributions of the Study

The need and significant of this study are worthwhile for various reasons. Firstly, this study will be one of the first to provide empirical evidences showing if insiders in Thai firms act on foreknowledge earnings information and use it for their own advantages (i.e. gaining abnormal returns).

Secondly, it will be the first time that the market will understand insiders trading behavior on their own firm stocks around the earnings announcement.

Lastly, regulators and policy makers could benefit from understanding insiders timing behavior whether they trade in jeopardy periods, henceforth, laws and regulations can be modified to achieve better market control.

The rest of the thesis is organized as follows. Literatures in respect of insider trading and news announcement in international market and Thai market are discussed. Hypotheses are, then, developed before data and methodology aims for investigating insider trading in SET are explained. Statistical data of the study as well as methodologies including event study and regression analysis are explained. Lastly, results will be discussed with summary and recommendations for future development.

CHAPTER II
LITERATURE REVIEW

This section lays down research background and studies that broadly examine relationship between insiders trading and earnings news announcement, as follows. Insiders trading related to information disclosure on all types of news announcement (or disclosure) is discussed before narrowing down to the trade associated with earnings news announcement. Next relevance researches focusing on trades and its effect from regulatory action are looked into. Finally, the review concentrates at current insider trading activities documented for Thai capital market.

2.1 Insiders Trading Related to Information Disclosure

Many previous studies focus on private access to information of insiders and their trading behavior; for example, Jaffe (1974) find that insiders earn abnormal returns regarding news announcements. However, it was not a specific announcement which leads to different market reaction nowadays. Elliot et al. (1984) confirms that, in a long event window, for 5 types of different information disclosure (i.e. annual earnings, large dividend changes, bond rating changes, mergers and bankruptcies), insiders gain abnormal returns in relation to the public announcement due to uses of private information, from 1975 to 1979. In the study of top and bottom 10% of the changes in earnings announcement, results strongly suggest that insiders increased buying and delayed selling before good news when earnings increase. They explain that insiders may trade on private information in small firms (less than $100M dollar) rather than in the large ones.

Givoly and Palmon (1985) study insiders trading and their relationship to public information disclosure in an American Exchange Stock (AMEX) from 1973 to 1975. With a sample of 11information announcement events, including earnings announcement, evidence shows that abnormal returns to insider transactions during

news announcement period are not associated with public disclosure of specific news information. Results further show that a significant abnormal return of insiders is gained due to outside investors trying to mimicking insiders' trade.

Mitchell and Mulherin (1994) find that news published by Dow Jones announcement (1983-1990), keeping day-of-the-week as a control variable, has a direct relationship with market activity. They use 3 proxies: trading volume, the absolute value of market returns, and the sum of the absolute value of firm-specific returns. But the observed relation is weak.

Del Brio et al. (2002) investigate insiders trading profit and information content in Madrid Stock Exchange from 1992 to 1996. Study finds that the market is in semi-strong form as insiders (both corporate insiders and large shareholders as a whole) can beat the market by taking advantages from private information before it is made public.

Jeng et al. (2003) attempt to evaluate insiders' trading performance by using various value-weighted portfolio methods and found that the purchase portfolio earns abnormal returns, as much as 11.2%, but the sale portfolio does not. One-third of this over-performance is due to insiders' propensity to buy small stocks (so called value stocks) and those with higher market beta's. Average abnormal return of this over performance ranges from 52 to 68 basis points per month. Also, one-third of this abnormal return accrues within the first 5 days after the trade and one-half within the first month. They also find that, in raw returns, insiders sell growth stocks that perform well in the past. In contrast, results are economically and statistically insignificant when the portfolio-performance methods are deployed. They demonstrate that using informativeness of intensive trading is not necessarily a good proxy for value-weighted insider returns (i.e. many studies find that intensive insider selling forecasts negative abnormal returns). When looking at firm characteristic, they find that buying in small firms do not earn significantly higher returns that buying in large firm, for example.

Fidrmuc et al. (2006) find that, in the UK, there is a significant market reaction associated with directors and CEOs transactions. For directors, there is a higher market reaction from their purchases than sells. It is interpreted as sells have

lower informational content and it may partly due to liquidity needs. In addition, the information content from the CEOS trade is lower than the one from directors'.

Kallunki et al. (2009) study whether insiders are motivated to trade only from using private information. Using Swedish insiders trading data, one of the findings show that insiders sell less before a bad earnings announcement, on average. Within this group, the ones who have big proportion of their wealth in their own stock sell more before bad earnings announcement, and vice versa. They also find that insider selling can be used as information for future returns for the insiders with greatest proportion of wealth in their own company's stock.

Betzer and Thiessen (2009) documented that corporate insiders trades in Germany has significant abnormal returns. Insiders trades (July 2002- June 2004) affect share price as high as 3.6% after insiders' purchases and -3.54% after insiders' sales. Price run-ups also induced insiders to sell and trading before earnings announcement yield higher impact on stock price.

Korczak et al. (2010) document that insiders trade on private information is driven by a trade-off between incentive to gain from the foreknowledge disclosure and jeopardy from regulatory actions. Data comprises of firms in the FTSE All Share Index (UK) from 1999-2002. Larger portion of insiders trades before good news announcement, comparing to bad news announcement. Insiders strategically time their trades and choose amount of shares bought before good news announcement. In comparison, insiders neglect amount of shares and choose whether to sell or not to sell before bad news announcement. And, there is a negative relationship between an importance of future news announcement and probability of insider selling.

2.2 Insiders Trading and Earnings Announcement

Penman (1982) demonstrates that corporate insiders use private information to timing their trades in relation to the date of earnings forecasts announcement. They obtain abnormal returns by taking advantages from the information that will be publicly announced and from occurrences in stock price revision.

With a similar objective, Chambers and Penman (1984) study insiders behavior and ability to trade at the right time, i.e. timeliness, using 100 randomly selected New York Stock Exchange firms, from 1970 – 1976. They document that there is no significant relationship between variability of stock returns and reporting lags. However, when introducing an expected reporting date as criteria of timeliness, there is a higher return variability in earnings reports that is released earlier than expected comparing with the one released on time or later. Also, firms publish earnings report early (late) when they have good (bad) news as abnormal returns is positive (negative) when reports are released earlier than expected.

Sivakumar and Waymire (1994) show evidence on incidence and profitability of insider trades preceded by quarterly earnings announcement in the US market from 1984 to 1989. Insiders trade increases after earnings report but the trades are not associated with foregone trading profits. Secondly, insiders buy (sell) following negative (positive) unexpected earnings announcement. Post-announcement insider trades are found to be relating with significant abnormal returns.

Lustgarten and Mande (1995) analyze trading pattern of insider-trading their own stock with foreknowledge information of earnings announcement and examine relationship between the insiders trade and financial analysts' earnings forecast. They identify types of news (i.e. good or bad) by using forecast error. This is achievable by comparing the latest financial analysts' earnings forecast and the actual earnings during the announcement. Results show that insiders buy undervalued securities and/or delay purchases of overvalued securities, while sales are not related to the forecast error.

Noe (1999) finds that managers use private information to trade heavily in their own stock after management earnings forecast announcement, than at other times. Insiders increase sell (buy) activity tends to occur after earnings forecast with positive (negative) stock price reaction. Moreover, post-disclosure net insider transaction amounts are correlated with firms' long-term earnings performance, but not management earnings forecast.

Ke et al. (2003) study breaks of a string of earnings increases using quarterly earnings data in the US market from 1981 to 1999. Insiders increase frequency of net insider sales in the 9^{th} to 3^{rd} quarter proceeding to a break of a string.

Though, they infer that motivation of insiders trades are partly from specific foreknowledge of a break in earnings string. Results also show that insider selling, as early as 2 years before the break, is economically significant. This is to prevent any losses from inclining stock price during the announcement of the break.

Following Ke et al.'s work in 2003, Huddart et al. (2007) study insiders trading around earnings announcement date and filing date in the US stock market, in a narrow event window. They find evidences that corporate insiders trade with foreknowledge of public earnings announcement. Corporate insiders exploit inside information by trading after earnings announcement and before filing to earn profit from the information made public at the filing. In addition, such as passive trading strategy of insiders is found to be significant. Results, however, are not sufficient to associate insiders trading profit at earnings announcement dates and 20 days period preceding the announcement.

Recently, Kolasinski and Li (2010) investigate insiders trades and market reaction following quarterly earnings reports. They study trading from 1980 to 1997 in the US stock market. Results show that managerial-insiders do not trade by using private information of future earnings alone, but incorporate information from stock mispricing and market under-reaction, during the announcement. They buy (sell) after good (bad) earnings when there is low (high) price reaction from the market at a time of earnings announcement, and this price reaction generates abnormal returns.

2.3 Insiders Trade to Avoid Risk from Regulatory Actions

Sivakumar and Waymire (1994) mention that policies limiting periods of acceptable insider trades do alter when trade occur, however insiders still gain trading profits. This is in line with the findings from Givoly and Palmon (1985) which state that there is no linkage between insider trading and foreknowledge of forthcoming disclosures.

Seyhun and Bradley (1997) mention that despite insiders selling their own stock before the firm's bankruptcy filing to avoid loss, the top executive will not trade within 30 days preceding the filing date. The result obtained from studying insiders'

transaction after 1984 legislation that regulatory action is imposed to prevent insiders using private information to benefit from uninformed market.

Ke et al. (2003) confirms that corporate insiders aware of legal jeopardy when trading for their own benefits by using private information on future earnings. There is an increase in insider selling frequency from 9th to 3rd quarter before a break of increasing earnings strings, to avoid negative return. But, there is little trading activities 2 quarters immediately before the announcement of break. Their earnings and trading data is for 1994 – 1997.Recently, Korczak et al. (2010) finds evidence that regulations and reputational risk have an effect on insiders trading behavior in the UK. In addition, it is likely that insiders with higher reputational risk i.e. CEOs, will limit their trading before bad news. However, in German market, the findings from Betzer and Theissen (2009) show that position of insider within the firm has no effect on the magnitude of price reaction in the market. This is inconsistent with the information hierarchy hypothesis.

Laws and regulations on insiders trading on their firm stocks may not cover enough aspects of the insiders trades, hence there are still rooms for insiders to make profits whilst having no or less jeopardy. Therefore, this subject is important and demand better understanding of relationship of trade jeopardy especially within Thailand, where no researches has been published relevant to earnings disclosure.

2.4 Insiders Are Contrarian

In addition, several researches identify traits of insiders that they are contrarian and use private information to time their trades. Rozeff and Zarman (1998) study market in 1978 to 1991 and find that corporate insiders buy more on high cash flow to price ratio stock (value stock), and vice versa for growth stock. Though, they trade opposing with prior stock return i.e. insiders will trade more when prior stock return is low. Therefore, this signifies the fact that insiders are contrarian investors.

Huddart (2001) studies events which insiders report their trading activities and conclude that insider prevent market makers to deduce the insider's private information by adding noise to his/her demand (so called dissimulation). He found that insiders trade on private information before public released of such information.

Secondly, stock price adjustments due to insider trade are comparable to the public disclosure of those trades (insider trading report or filing). Lastly, before and after insiders trades filing, the price adjustments to those trades remain the same.

Lakonishok and Lee (2001) focus on informative of trades in NYSE, AMEX and Nasdaq stock exchanges from 1975 – 1995 and find that insiders trading itself is informative from purchasing activity while private information from selling activity cannot be predicted. In addition, it is found that market ignores to receive valuable information when insiders' trades occur i.e. during reporting and filing. There is limited action around the days insider trades and return observed is less than 0.5%. This initial market under-reaction from insiders trades is later supported by the finding of Kolasinski and Li (2010) which state that insiders can exploit the market under-reaction after earnings announcement.

By using aggregate insider trading as a market movement predictor, insiders act as contrarian investors and able to time the market. When insiders are buying markets on average do well, and vice versa, with the spread return more than 10%. They also find that insiders have advantage when timing index of small stocks comparing large stocks, hence insiders performance is related to firm size. Moreover, insiders prefer to buy stocks with poor past-performance with low book-to-market ration and sell stock with good past-performance.

Piotroski and Roulstone (2005) assert the fact that insiders are contrarian and their purchase is positively related to future earnings performance and book-to-market ration, but inversely related to past return. Given good earnings news, insiders at glamour (low book-to-market ratio) firms sell, but insiders at value (high book-to-market ratio) firms buy. Their study involves insiders trading activity from 1992 to 1999. Most recent study by Baryeh (2012) shows that insiders buy well-performing firms and sell bad-performing firms related to SEO activity. This no doubt supports the fact that insiders are contrarians.

2.5 Insiders Trading in Thailand

Boonyawat et al. (2004) investigate profitability of insiders trading in SET50 firms of Thai stock market in the year 2002. They conclude that corporate

insiders gain abnormal returns when they are buyers and buy their own stock prior to increases in stock price. Further, they find that outsiders can earn abnormal returns by mimicking insider purchase transaction. Though, this provides lower abnormal returns in comparison to insiders themselves. In addition, the study supports informational hierarchy hypothesis that CEOs and president in Thai firms have more valuable information of the future prospects, in longer period.

Laoniramai (2007) studies insider trading behavior with corporate news announcement using comprehensive data set from 2000-2008. It is concluded that after insiders buy, there is a positive abnormal return in the market, but there is no negative abnormal return after selling. Insiders' selling and buying preceding good news announcement shows significant impact on abnormal returns. Profoundly, buying before good news announcement greatly impacts on price. This suggests that insiders act on private information only for buying purposes.

CHAPTER III
HYPOTHESIS DEVELOPMENT

Based on the findings of Huddart et al. (2007) insiders may profit from foreknowledge of earnings information and trade in two periods i.e. before and after earnings announcement. For an 'active return' trading strategy, when insiders anticipate that market response will result in stock price hikes (market view the announcement as 'good news' announcement) at the earnings announcement, they will buy before the announcement to achieve an active return. When insiders anticipate that market response will result in stock price falls (market view the announcement as 'bad news' announcement) at the earnings announcement, they will sell before the announcement to achieve an active return.

For a 'passive return' trading strategy, when insiders anticipate that market response will result in stock price hikes (market view the announcement as 'good news' announcement) at the earnings announcement, they will delay their selling activity and sell after the announcement. When insiders anticipate that market response will result in stock price falls (market view the announcement as 'bad news' announcement) at the earnings announcement, they will delay their buying activity and buy after the announcement to achieve a passive return.

A firm's stock abnormal return is used as a proxy to determine the type of news whether it is good or bad. The stock abnormal return is a market interpretation of the news. It has incorporated any rises or falls of the price according to the news content at the announcement with respect to analysts' forecasts or other sources of earnings expectations before the announcement.

Insiders trading intensity is measured by imbalance of insiders' trade. The imbalance can be measured from net insider purchases' frequency or net insider purchases' volume or net insiders' purchase value. Hence, for an active trading strategy to hold true, the trade imbalance shall be positive (negative) before good (bad) news. Empirically, there is a positive relationship between insider trading imbalance

before the announcement and abnormal return at the announcement. In contrast, for a passive trading strategy to hold true, the trade imbalance shall be positive (negative) after good (bad) news. Empirically, there is a negative relationship between insider trading imbalance after the announcement and abnormal return at the announcement. Hence, the first and the second hypothesis arise.

H1a: Insiders use active trading return strategy. Insiders buy before good news announcement. Net insider purchases' imbalance before the announcement is positive when abnormal return at the announcement is positive.

H1b: Insiders use active trading return strategy. Insiders sell before bad news announcement. Net insider purchases' imbalance before the announcement is negative when abnormal return at the announcement is negative.

H2a: Insiders use passive trading return strategy. Insiders buy after bad news announcement. Net insider purchases' imbalance after the announcement is positive when abnormal return at the announcement is negative.

H2b: Insiders use active trading return strategy. Insiders sell after good news announcement. Net insider purchases' imbalance after the announcement is negative when abnormal return at the announcement is positive.

Following the first two hypotheses which look into trading in two distinctive time periods, insiders however can enter into a trading activity before the announcement and reverse their positions after the announcement to profit from the same foreknowledge of a disclosure. When they anticipate that stock price will rise at the announcement (market interpretation as good news), insiders will buy before and sell after the announcement. When they anticipate that stock price will fall at the announcement (market interpretation as bad news), insiders will sell before and buy after the announcement to regain their positions. Thus, hypothesis 3 and 4 can be written as follows.

H3: Insiders makes active return using an active return trading strategy by buying before and selling after good news announcement. Net insider purchases' imbalance is positive before the announcement and negative after the announcement when abnormal return at the announcement is positive.

H4: Insiders makes passive return using passive return trading strategy by selling before and buying after bad news announcement. Net insider purchases'

imbalance is negative before the announcement and positive after the announcement when abnormal return at the announcement is negative.

In addition, more behaviors will also be studied to confirm the findings of the previous hypotheses whether insiders in Thai capital market trade and react uniquely. Corporate insiders may trade in the same momentum before and after the announcement. Insiders may be able to predict the prices or market return's direction at the announcement due to private information but may not be able to predict the return's intensity. They would react positively, as per H1 and H2, buying (selling) before good (bad) news, and once they see that the market responses in the same direction but with greater intensity than they expected, they will increase their buying (selling) portions after the announcement. This is derived from the assumption that insiders in Thailand may not be certain with their own market expectations. Thus, they do not enter into a trading position fully until they see the market's reaction as a confirmation of their expectation, hence react subsequently.

H5: Insiders are following-trend trader. Insiders buy before and after good news announcement. Net insider purchases' imbalance is positive before and after the announcement when abnormal return at the announcement is positive.

H6: Insiders are following-trend trader. Insiders sell before and after bad news announcement. Net insider purchases' imbalance is negative before and after the announcement when abnormal return at the announcement is negative.

Further, in order to confirm the hypotheses described, following hypotheses are developed in the similar manner to Hypothesis 1 and 2 but with different means of testing i.e. regression analysis.

H7: Insiders use active return trading strategy. There is a positive relationship between Net insider purchases' imbalance before the announcement and abnormal return at the announcement period.

H8: Insiders use passive return trading strategy. There is a negative relationship between Net insider purchases' imbalance after the announcement and abnormal return at the announcement period.

Many studies such as Chambers and Penman (1984) find an inverse relationship between firm size (market value or market capitalization) and reporting lag of earnings i.e. smaller firm size appear to have long lag time in reporting earnings

announcement. Moreover, small firms have larger price reactions to earnings reports (Jeng et al. (2003) and Kolasinski and Li (2010)).Hence, significance of the size of firm will also be tested. Market value (MV) or market capitalization at the end of each earnings quarter, for each firm, will be used. There shall be a ‘negative’ relationship between size of firm and net insider trade imbalance. In other words, smaller firms tend to have greater insider trade imbalances than larger firms.

CHAPTER IV
DATA AND METHODOLOGY

This section describes and discusses how I select earnings announcement data and insider transactions. Descriptive statistics of the sample, as well as, methodologies and test variables will be explained in this chapter.

4.1 Data and Sample

All earnings announcements are collected from SETSMART database. In order to capture all possible market activities including its ups and downs, such as the financial turmoil in 2007, the study investigate insiders trading from 2003 to 2012. Insiders trading data 40 days before and 40 days after the earnings announcement are required to fulfill the purpose of this study. And, the availability of insiders trading data which, later, has to be matched with the earnings announcement, is electronically available from January 2003 to March 2013. Therefore, the earnings announcement sample is from April 2003 to September 2012.

Companies listed outside SET market i.e. MAI, are removed. Companies in financial industry are excluded from the sample due to its accounting practice that is different from other types of firms.

In case there are multiple announcements or multiple filings of the same earning quarter (e.g. unaudited, reviewed, revised) the very first announcement will be treated as the announcement date as this is the first inside information released to general public. Even though the earnings figure may be different, they will be in the same direction.Table4.1 shows numbers of earnings announcements used for this study. Before classification, there are 24,509 earnings announcements from 2003 to 2012. Finally, there are 9,864 earnings announcements entitled for this study.

As mentioned in Chapter 2, insiders trading activities are regulated by the SEC of Thailand. From the database of ‘Reporting of Changes in Security Holding

Form (59-2)' obtained from the SEC business development department, Table 4.2 depicts number of insider transactions in Thailand inclusively from January 2003 until December 2012. Insiders trade in a market other than SET or inside a financial industry are eliminated. In addition, transactions of securities other than common stocks (i.e. preferred share, warrant and TDR) are removed. Moreover, insiders' transaction apart from direct purchase or sell of common stocks e.g. conversion of warrant to common stock will be removed. Transaction of stocks that is less than 100 shares per time is also eliminated. Finally, there are 33,866insiders' transactions left for the study.

Table 4.3 shows yearly statistics of number of earnings news announcement and corporate insiders transactions (in terms of amount of share trade, frequency of shares trade and value of shares trade) from year 2003 to 2012. Earnings news announcement are classified into good news and bad news according to the increase or decrease in earnings per share (EPS), respectively, from the past year (year *n*-1) compared to the current year (year *n*). Generally number of good news and bad news announcement are relatively equal in each year. From the total of 9,864 news 48.2%, 47.6% are classified as good news and bad news, respectively. The rest falls under neutral news in which earnings per share in year *n*-1 is the same as earnings per share in year *n*.

Amount of share trades from insiders increases almost 10 times over the study period of 10 years from 1,259 to 11,837 million shares per year. However, frequency of insider transaction per year increases gradually from 3,037 to 3,421 transactions. The transactions in 2006, 2007 and 2008 are relatively higher than in other years possibly due to the global financial turmoil. Over the study period, insiders approximately engage in 11 transactions per firm in each year. In general, the number of buying activities is slightly more than selling activities in each year (approximately 6 buy transactions and 5 sell transactions per firm in one year).

Table 4.1 Earnings announcement news (April 2003 – September 2012).

Number of earnings news announcement	24,509
After elimination of:	
1. Company listed in other market than SET i.e. MAI	22,150
2. Company listed under Financial Industry	18,446
3. Repeated earnings news announcement in the same earning quarter	16,087
4. Announcement before April 2003and announcement after September 2012	15,333
5. News with uncompleted data	9,864
Total remaining number of announcements	9,864

Table 4.2 Corporate insider transactions (2003-2012)

Number of corporate insider transactions	52,458
After elimination of:	
1. Company listed in other market than SET i.e. MAI	47,452
2. Company listed under Financial Industry	42,986
3. Non common-stock (i.e. preferred share, warrant, TDR)	37,250
4. Transaction types are not "Buy" and "Sell" (i.e. transfer, receive, convert from/to NVDR)	34,360
5. Transaction volume less than 100	33,866
Total remaining transactions	33,866

Table 4.3 Yearly numbers of earnings news announcement and insider transaction activities from 2003 to 2012.

Year	2003[1]	2004	2005	2006	2007	2008	2009	2010	2011	2012[2]	Total
No. of firms studied	268	265	278	322	330	322	330	348	342	330	-
No. of earnings announcement [1,2]											
All news	841	820	864	1,055	1,107	1,048	1,121	1,200	1,188	620	9,864
Good news	437	381	357	483	461	536	517	692	558	329	4,751
Bad news	394	426	473	533	598	461	542	444	568	256	4,695
Neutral	10	13	34	39	48	51	62	64	62	35	418
Amount of shares trade (million shares)											
All	1,259	1,119	3,138	3,728	8,628	4,253	4,484	1,0847	11,378	11,837	60,676
Buy	344	476	1,954	1,166	2,133	2,451	2,366	7,323	2,267	3,562	24,045
Sell	915	643	1,183	2,562	6,494	1,802	2,118	3,524	9,111	8,275	36,631
Frequency of shares trade (transactions)											
All	3,037	2,652	3,326	3,684	3,943	4,140	3,007	3,332	3,324	3,421	33,867
Buy	1,035	1,598	1,855	1,687	1,842	3,061	1,831	1,596	1,939	1,769	18,213
Sell	2,002	1,054	1,471	1,997	2,101	1,079	1,176	1,736	1,385	1,652	15,653
Value of shares trade (million baht)											
All	15,732	14,788	22,198	41,685	25,397	12,173	5,722	25,759	22,185	57,372	243,015
Buy	4,452	4,486	4,828	7,074	7,775	6,980	2,631	11,900	7,448	26,771	84,347
Sell	11,280	10,302	17,370	34,611	17,622	5,193	3,091	13,860	14,737	30,601	158,668
Average number of insider transaction per firm											
All	11.33	10.01	11.96	11.44	11.95	12.86	9.11	9.57	9.72	10.37	108.33
Buy	3.86	6.03	6.67	5.24	5.58	9.51	5.55	4.59	5.67	5.36	58.06
Sell	7.47	3.98	5.29	6.20	6.37	3.35	3.56	4.99	4.05	5.01	50.266

Notes: (1) In year 2003, number of earnings announcement news and its related statistical value are taken from April 2003-December2003

(2) In year 2012, number of earnings announcement news and its related statistical value are taken from January2012-September2012

4.2 Study Event Time Line

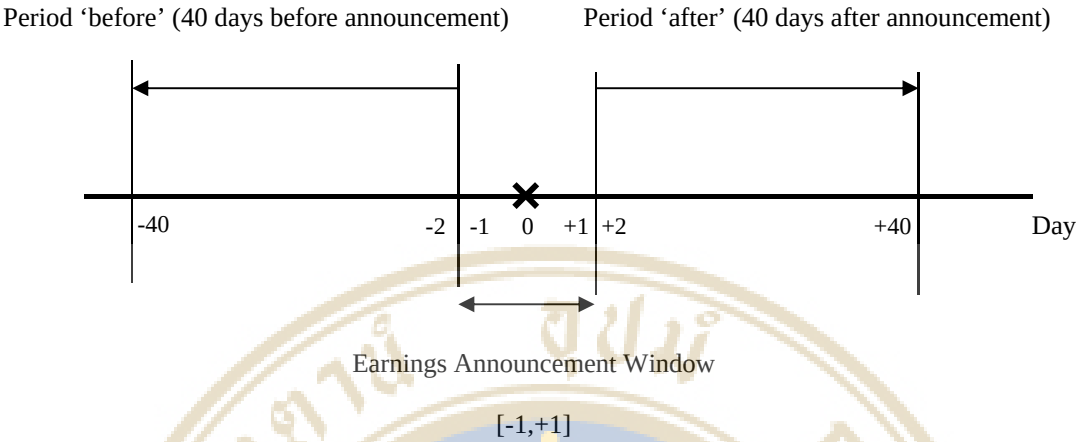

Figure 4.1 The study event time line showing insider trading periods before and after earnings news announcement day (day 0).

This study aims to observe relationships between earnings announcement and insiders trading activities in a defined period before and after the announcement day. The event is the first announcement day of quarterly earnings from each firm. As required by SEC, a publicly traded company shall report quarterly earnings for quarter 1, quarter 2 and quarter 3 and yearly-announcement under the name F45-1, F45-2, F45-3 and F45-9 respectively. The event day is the date that such company submits/announces the above mentioned financial report to SET, which is the same day it is available to individual and other types of investors in the market.

Time frame in this study is divided into three periods. As shown in Fig.4.1, the event window [-1,+1] is one day before the event day until one day after the event day. This time frame captures an immediate effect of earnings announcement represented by stock return and abnormal return as depicted in Morse (1981) and Huddart (2007).

The 'before' period is the 40th day until the 2ndday prior to the earnings announcement day i.e. [-40,-2]. And, the 'after' period is the 2nd day until the 40th day after the earnings announcement day i.e.[+2,+40]. These 2 periods capture insiders trading activities on their firm's stock before and after earnings announcement, respectively. Forty-day trading period is chosen because it is still within the accounting reporting period of each quarter as required by SEC regulations

i.e.within45 days for interim earnings quarters (Q1, Q2 and Q3) and within 60 days for year-end financial closing date. In addition, in Thai capital market, insiders (major shareholders or corporate insiders) tend to limit their trading activities generally 1 month (20 trading days) before earnings announcement. Furthermore, Huddart (2007) find that this 40-day period shows significant relationship of insiders trading using private information in US stock market.

As described in Section III, two distinctive activities i.e. one from insider trading and the other one from earnings release, which mutually occur before and after earnings announcement periods are required. An event will not be valid, thus removed from the study sample, if there is no insider trading activity in a period either before or after the earnings announcement.

4.3 Definition of Test Variables

4.3.1 Measurement of Insider Trade Imbalance

Net insider trading imbalance is used as a proxy to determine whether the insiders trade (buy or sell) in a given time interval is in a net buy or net sell position. Three net insiders trading imbalances are used in this study and are defined as follows.

NETAMOUNT$(p,i)_{fq}$ is the numberof shares of buy transaction less the number shares of sell transaction in period *p*, during time interval *i*, at firm *f* and quarter *q*.

NETFREQ$(p,i)_{fq}$ is the frequency of buy transactions less the number of sell transactions in period p, during time interval *i*, at firm f and quarter *q*.

NETVAL$(p,i)_{fq}$ is the value, in Thai baht, of buy transactions less the value of sell transactions in period *p*, during time interval *i*, at firm *f* and quarter *q*.

The insiders transaction activity is consider as Net Buy when net insiders trading imbalance is greater than zero. The insiders transaction activity is consider as Net Sell when net insiders trading imbalance is less than zero. As performed by Del Brio et al. (2002), aggressive intensity of sales and purchase of insiders (measured in term of 'Net Buy' and 'Net Sell') signal abnormal insiders trading activities. Thus any

events that net insider trade imbalance equals to zero, which represents no aggressive trading, is not reported in this study

4.3.2 Measurement of Stock's Abnormal Returns and Returns

To determine market reaction from earnings announcement, abnormal return is used as a proxy. It reflects abnormal intensity of a particular stock trades across the entire market at a particular period of time. Cumulative abnormal return (CAR) and performance evaluation method in general are used as proxies for abnormal return of insider trading performances ((Givoly and Palmon (1985), Sivakumar and Waymire (1994), Jeng (2003) and Betzer and Theissen (2009)).In addition, for short run abnormal returns, values of buy-and-hold abnormal return (BHAR)(supported by Penman (1982) and Huddart (2007)) and CAR provides no significance differences statistically as depicted in Barber and Lyon (1997). Buy-and-hold return (BHR) is also used as a proxy to identify market reaction to the earnings announcement during 3 days period. The reason is that traders may only react from the firm's stock price only, rather than taking into consideration of reaction of the market. Never the less this study adds cumulative abnormal return (CAR) as one of the panels for robustness test.

$BHAR_{fq}$ is a buy-and-hold abnormal return of firm f in quarter q. It is computed as the difference between buy-and-hold return (BHR_{fq}) of a specific firm and buy-and-hold return of value-weighted SET index, from the end of day -1 to the end of day +1. Positive (negative) BHAR implies that the market views the announcement as good (bad) news. This information has incorporated market expectations before the announcement (including effects from analyst forecast) as well as market sentiment at the announcement.

$$BHAR_{f,q} = BHR[-1,+1]_{f,q} - BHR[-1,+1]_{SET,q} \quad \text{(Eq. 4.1)}$$

$$BHR[-1,+1]_{f,q} = P(+1)_{f,q} - P(-1)_{f,q}$$

$$BHR[-1,+1]_{SET,q} = P(+1)_{SET,q} - P(-1)_{SET,q}$$

Where BHAR[-1,+1] is buy-and-hold abnormal return at the announcement period [-1,+1]

BHR is buy-and-hold return at the announcement period [-1,+1]

P is the closing price of stock of firm *f* in quarter *q*

$$CAR[-1,+1]_{fq} = \sum_{t=1}^{N} AR_{fq,t} \quad \text{(Eq. 4.2)}$$

$AR_{fq,t} = R_{fq,t} - R_{SETq,t}$

$R_{fq,t} = P_{fq,t} - P_{fq,t-1}$

$R_{SETq,t} = P_{SET,q,t} - P_{SET,q,t-1}$

Where $CAR[-1,+1]_{fq}$ is cumulative abnormal return of firm *f* in quarter *q*, over day -1 to +1

$AR_{fq,t}$ is the abnormal return of firm *f* in quarter *q* on day *t*

$R_{fq,t}$ is the return of firm *f* in quarter *q* on day *t*

$R_{SETq,t}$ is the return of SET market index in quarter *q* on day *t*

$P_{fq,t}$ is the stock price of firm *f* in quarter *q* on day *t*

$P_{SETq,t}$ is the SET market index in quarter *q* on day *t*

N is the number of firms with insider trading on day t

4.3.3 Measurement of Firm's Size

To measure size of the firm, market capital or market value (MV) is used as a proxy. MV_{fq} denotes market value of firm *f* in quarter *q*. The ln(MV) is used to adjust the sample to normal distribution. Then, firms are segregated into three categories i.e. small, medium and large. However, market value of firms may changes at the end of each earnings quarter during the 10 years study period due to capital increases, share repurchases or movement in stock prices. To capture this ever changing value, size of a firm will not be fixed during the study period; for example, a firm categorized as small in one quarter may be categorized as medium in another quarter. As a result, for each hypothesis after all firms are investigated as a whole, the

sample (same total number of firms) will be ranked according to their market value at the end of each accounting period.

4.3.4 Control Variables

Book-to-market ratio (BM) is used as a proxy to identify a type of a firm. BM_{fq} denotes book value divided by market value of firm f in quarter q. A book value is a book equity value at the end of each earning quarters announced in the earnings announcement of a related quarter. A market value, as described above, is the market capital and is also taken at the end of each quarter. Firms can be separated to two types i.e. value firm or growth firm. A value firm has high BM and a growth firm has low BM. As many studies find a relationship between type of firms and insider trading activity with negative relationship to insiders trading activity, e.g. Rozeff and Zarman (1998) and Piotroski and Roulstone (2005), the BM is introduced as one of the control variables for the multi-variate regression analysis.

4.4 Methodology

4.4.1 Event Study Method

Hypothesis 1 to 6 employs event study methodology. Each hypothesis is a distinctive event which involves both insider trading activities and earnings news announcement. These two events shall simultaneously occur in order to be considered as a studied event.

Table 4.4 shows the summary of these events according to each hypothesis developed earlier. For all the events, earnings announcement of each quarter from Q1 of 2003 until Q2 of 2012 are selected. Then Hypothesis 1, for example, insiders buying activities 40days before the news announcement date is collected until 2 days before the announcement date. For Hypothesis 3, 4, 5 and 6, two insiders trading periods i.e. before and after the announcement are required to fulfill the test conditions. For example, Hypothesis 3 investigates whether insiders buy before bad earnings announcement, hold the security pass the earnings announcement date and then sell after the announcement. Hence, insiders buying activities 40 days before the

announcement date will be included in the studied event as well as the insiders selling activities 40 days after the announcement.

For the statistical test, each earnings news announcement is also classified as good news or bad news using quarterly earnings per share figure (EPS*q,t*). Good news is defined as news that is announced in an earning quarter at which its earnings per share (EPS*q,t*) is greater than the one in the same quarter of the previous year (EPS*q,t-1*). Bad news is defined as news that is announced in an earning quarter at which its earnings per share (EPS*q,t*) is lower than the one in the same quarter of the previous year (EPS*q,t-1*).

Table 4.5 shows expected results of mean of abnormal returns (BHAR and CAR). For Hypothesis 1, as insiders take initiative to react on private information before good news, when net insiders trade imbalance is negative (i.e. Net Sell) the returns shall be negative. While insiders trade imbalance is positive (i.e. Net Buy), the returns shall be positive. These signify that insiders act as active traders selling due to the expectation of stock price decreases from bad news announcement and buying due to the expectation of stock price increase from good news announcement.

Hypothesis 2 observes insiders' passive trading strategy. When insiders expected of good news announcement, they will delay their selling until after the announcement date. Hence, when net insiders trade imbalance is negative (i.e. Net Sell) in the period after the announcement, returns over the good news announcement shall be positive. In contrast, when insiders expected of bad news announcement, they will delay their buying until after the announcement date. Hence, when net insiders trade imbalance is positive (i.e. Net Buy) in the period after the announcement, returns over the bad news announcement shall be negative.

Hypothesis 3 looks at the event where insiders buys before the expected increase in stock price from good news announcement, and subsequently sell after such announcement for active profit trading strategy. Returns over the announcement period shall be positive when net insiders trade imbalance is positive (i.e. Net Buy) before the announcement and net insiders trade imbalance is negative (i.e. Net Sell) after the announcement. Similarly, Hypothesis 4 where insiders sell before the expected decrease in stock price from bad news announcement, and subsequently buy after such announcement for passive profit trading strategy, returns over the

announcement period shall be negative when net insiders trade imbalance is negative (i.e. Net Sell) before the announcement and net insiders trade imbalance is positive (i.e. Net Buy) after the announcement

For Hypothesis 5 and 6, the assumption is towards the uncertainties that insiders know the direction of news (either good or bad) but do not know the intensity of stock price changes. For Hypothesis 5, good news announcement is expected when insider buy before the announcement and also buy after the announcement. Hence, positive returns over the announcement period are expected when net insiders trading imbalance before and after bad news announcement is positive (i.e. Net Buy). While for Hypothesis 6, bad news announcement is expected when insider sell before the announcement and also sell after the announcement. Hence, negative returns over the announcement period are expected when net insiders trading imbalance before and after bad news announcement is negative (i.e. Net Sell).

Table 4.4 Summary of insiders transaction period

	Hypotheses	**Insider's Transaction Period**	**News Announcement Period**
H1	Insiders buy before good news or Insiders sell before bad news	[-40,-2]	[-1,+1]
H2	Insiders buy after good news or Insiders sell after bad news	[+2,+40]	[-1,+1]
H3	Insiders purchase before and sell after good news	[-40,-2] and [+2,+40]	[-1,+1]
H4	Insiders sell before and purchase after bad news	[-40,-2] and [+2,+40]	[-1,+1]
H5	Insiders purchase before and after the announcement	[-40,-2] and [+2,+40]	[-1,+1]
H6	Insiders sell before and after the announcement	[-40,-2] and [+2,+40]	[-1,+1]

Table 4.5 Expected results from event study methodology

	Hypotheses	Expected sign of BHAR and CAR
H1a	Net insider trade imbalance before announcement> 0 Good news	+
H1b	Net insider trade imbalance before announcement<0 Bad news	-
H2a	Net insider trade imbalance after announcement > 0 Bad news	-
H2b	Net insider trade imbalance after announcement < 0 Good news	+
H3	Net insider trade imbalance (before) > 0 and Net insider trade imbalance (after)< 0 Good news	+
H4	Net insider trade imbalance (before) < 0 and Net insider trade imbalance (after)> 0 Bad news	-
H5	Net insider trade imbalance (before) > 0 and Net insider trade imbalance (after)> 0 Good news	+
H6	Net insider trade imbalance (before) < 0 and Net insider trade imbalance (after)< 0 Bad news	-

4.4.2 Regression Analysis

Hypothesis 7 and 8 applies a regression model to test whether insiders trade actively or passively for Hypothesis 1 and 2, respectively.

To determine effects of abnormal return (BHAR) at the announcement period and firm size (MV) to insider trade imbalance (NETAMOUNT, NETFREQ, NETVAL), a multi-variated regression model which follows Huddart (2007) is used. Type of firm, proxied by firm's book-to-market ratio (BM), and contrarian trading strategy, proxied by PRIORRET, are introduced as the control variables. PRIORRETb is the normal return of each firm stock calculated from the closing price 60 days before the announcement and the closing price 120 days before the earnings

announcement (day = 0). PRIORRETa is the normal return of each firm stock calculated from the closing price 40 days before the announcement and the closing price 120 days before the earnings announcement. These periods were chosen following the study from Huddart (2007) which show that there is a significance relationship of contrarian trading strategy proceeding earnings news announcement day.

$$NETAMOUNT_{fq} = \beta 0 + \beta 1 BHAR[-1,+1]_{fq} + \beta 2 lnMV_{fq} + \beta 3 BM_{fq} + \beta 4 PIORRETb_{fq} \quad \text{Eq.(4.3)}$$

$$NETFREQ_{fq} = \beta 0 + \beta 1 BHAR[-1,+1]_{fq} + \beta 2 lnMV_{fq} + \beta 3 BM_{fq} + \beta 4 PIORRETb_{fq} \quad \text{Eq.(4.4)}$$

$$NETVAL_{fq} = \beta 0 + \beta 1 BHAR[-1,+1]_{fq} + \beta 2 lnMV_{fq} + \beta 3 BM_{fq} + \beta 4 PIORRETb_{fq} \quad \text{Eq.(4.5)}$$

$$NETAMOUNT_{fq} = \beta 0 + \beta 1 BHAR[-1,+1]_{fq} + \beta 2 lnMV_{fq} + \beta 3 BM_{fq} + \beta 4 PIORRETa_{fq} \quad \text{Eq.(4.6)}$$

$$NETFREQ_{fq} = \beta 0 + \beta 1 BHAR[-1,+1]_{fq} + \beta 2 lnMV_{fq} + \beta 3 BM_{fq} + \beta 4 PIORRETa_{fq} \quad \text{Eq.(4.7)}$$

$$NETVAL_{fq} = \beta 0 + \beta 1 BHAR[-1,+1]_{fq} + \beta 2 lnMV_{fq} + \beta 3 BM_{fq} + \beta 4 PIORRETa_{fq} \quad \text{Eq.(4.8)}$$

Where f is an individual firm listed in SE

q is earnings quarter for each announcement

From the assumption that insiders trade more in small firm, signs of market value (MV) is expected to be negative. It indicates that smaller firm would engage more in trading activity both before and after the announcement when net insiders purchase imbalance is positive (i.e. Net Buy). On the other hand, insiders trade more in firms with high Book-to-Market ratio (i.e. value firm). This means that signs of BM are expected to be positive in the regression model. There is a positive relationship between net insiders purchase imbalance and firms book-to-market ratio. Lastly, control variables which accounts for contrarian trading strategy of insiders,

denotes PRIORRETa and PRIORRETb, shall show negative relationship with net insiders purchase imbalance. Hence we expect to see negative signs for contrarian trading as results from the models.

CHAPTER V
RESULTS AND ANALYSIS

Results and discussion from the even study associated with insiders trading and earnings announcement will be discussed first. It will be followed by a discussion of results from the regression analysis where the tests of the event study will be confirmed.

5.1 Event Study

5.1.1 Insiders Use Active Return Trading Strategy

This part investigates positive relationship of corporate insiders trading activity 40 days before the earnings announcement day and abnormal returns of firm's stock during the quarterly and yearly earnings announcement. The hypotheses explain that there is a positive relationship between insider trading imbalance and abnormal returns during the announcement period. Results support the hypothesis that corporate insiders in Thailand use active trading return strategy because they react before earnings announcement. They trade their own firm stock before earnings announcement in both directions i.e. they would buy before good news announcement or they would sell before bad news announcement.

In addition, study also shows that insiders would buy before bad news announcement or they would sell before good news announcement. Insider could engage in buying activity leading bad earnings announcement to signal confidence to the market that the firm financial conditions would be sound in order to keep the stock price stable. Then insiders would be able to sell at a relatively higher price once news announcement is announced in negative direction. On the other hand, insiders sell before the good news announcement could be from liquidation purposes and not for short-term profit from using the foreknowledge of earnings information. At last,

insiders do not engage in active return trading strategy associated with yearly earnings announcement.

Table 5.1 and Table 5.2 show the results of abnormal returns when net insiders trading imbalances are positive (i.e. Net Buy) within 40 days before the earnings announcement period. They show the results from using Buy-and-Hold Abnormal Return (BHAR) and Cumulative Abnormal Return (CAR) of the firm during the announcement period, respectively. In general, the results from using CAR are relatively slightly higher (less than 0.1 basis point) in the magnitude of the BHAR. Amount, frequency and value of their own firm stock that corporate insiders trade are used as proxies for net insiders trading imbalances. For both types of the abnormal returns, they show similar results.

When we look at all earnings announcement and when new types are not classified[1], positive abnormal return is achieved with the highest (2.43%) abnormal return when net frequency of insiders purchases is a proxy, whereas the lowest (2.04%) is from net value of insiders purchases. This implies that, for all earnings announcement, insiders buy within 40 days before there is an increase in the return of their own firm stock during at the shortcoming earnings announcement of their own firm. This also holds true when only sample from quarterly earnings are studied. However, results do not show any degrees of significance of abnormal returns among amount, frequency or value proxies when only sample from yearly announcement is considered,

When we look at all earnings and when only good news are considered, results also show significance positive abnormal returns among the three insiders trading imbalances (i.e. NETAMOUNT, NETFREQ, and NETVAL). The highest abnormal return is 1.26% following the positive trading amount. However, when comparing to the previous group which all news are considered, the observed abnormal returns of the good news sample is much larger (greater than 1 b.p.). The lowest (1.22%) is from the trading value. The study of only quarterly announcement also shows significance results in all proxies. And, the abnormal return is even more pronounced (1.53% following the positive trading amount).

[1] Effect from stock split on news type classification is considered negligible. There are 231 stock splits activities whilst there are 9,864 earnings announcements news occur during the study period.

Even the results support the active buying strategy hypothesis, when bad news is considered, insiders also engage in buying before the bad news announcement with the number of cases found reaching almost 50%. Table 5.1 also demonstrates that, once bad news announcement is considered for all earnings quarter, the insiders buy before the drop in stock price during the announcement. The abnormal return (-0.71% to -0.76%), however, is almost two time less than the magnitude found when good news is announced. When earnings fall under quarter 1, 2 or 3, the buying activities before bad news announcement is significant (-0.88% to -0.95%) but it is relatively low comparing to when the good news is considered.

Yearly announcement for bad news shows no significant relationship to the abnormal returns. Hence, insiders do not engage in buying activity before the yearly earnings announcement.

Table 5.3 and Table 5.4 show the results when net insiders trading imbalance before the earnings announcement is negative (i.e. Net Sell). In contrast to insiders' net buy before the announcement, CAR shows lower magnitude than BHAR but still yield the same results. When we look at quarterly announcement and yearly announcement as a whole and when news types are not classified, negative abnormal return is found when insiders sell before the announcements. Results show that insiders achieve the largest negative abnormal returns (-0.31%) under NETVAL. While the smallest (-0.27%) is from NETAMOUNT. Results also show significance negative abnormal returns when earnings are separated into quarterly and yearly announcement. In comparison, abnormal returns under yearly earnings announcement are slightly in a greater magnitude (less than 0.18 b.p.).

When we look at quarterly announcement and yearly announcement as a whole and when only bad news are considered, results also show significance negative abnormal returns. The highest abnormal return is 1.23% for NETVAL. Similar to the group when news types are not classified, insiders engage in net sell activity before quarterly and yearly announcement. The degree of difference of the abnormal returns from quarterly and yearly announcement is as high as 0.5 b.p. which implies that insiders sell before bad earnings in both quarterly and yearly announcements, but with a higher magnitude in the former one.

When good earnings news announcement is considered, the abnormal returns show significant results against insiders net sell prior to the announcement. However, this is valid only when all quarter and interim earning quarters (i.e. quarter 1, 2 and 3) are considered. Insiders do not engage in selling activity before good news announcement of yearly earnings.

5.1.2 Insiders Use Passive Return Trading Strategy

For corporate insiders to be classified for passive return trading strategy, abnormal returns of firm's stock during the earnings announcement period shall have a negative relationship with net insiders trading imbalances 40 days after the announcement period. The hypothesis explains that abnormal return is negative preceding positive net insiders trading imbalance (i.e. Net Buy). And, the abnormal return is positive preceding negative net insiders trading imbalance (i.e. Net Sell).Results support the hypothesis that insiders trade using passive return strategy. They trade their own firm stock after earnings announcement in both directions i.e. they would buy after bad news announcement or they would sell after good news announcement.

Study also shows that insiders would buy after good news announcement or they would sell after bad news announcement (within 5% significance level). Hence, it can be interpreted that insiders may not enter or leave their positions related to a release of earnings announcement. After earnings are announced insiders would act as normal traders and be indifferent from other investors.

Table 5.5 and Table 5.6 show the result of abnormal returns when net insiders trading imbalances are positive (i.e. Net Buy) within 40 days after earnings announcement day. When we look at quarterly announcement and yearly announcement as a whole, results show significantly negative abnormal returns when news are classified as bad news (i.e. when EPS of the interested quarter is lower than the EPS of the same quarter in the previous year). All three trade imbalances show similar results with the highest drop in abnormal return (-0.99%) under NETVAL. The results also hold true when only quarterly or yearly earnings quarter is looked at. Though, results from quarterly earnings shows greater degrees of abnormal return (-1.09% under NETFREQ) and results from yearly earnings shows less degrees of

abnormal return (0.63% under NETAMOUNT). It implies that there is a bad earnings announcement, insiders would engage in buying activities within 40 days after announcement regardless of earnings quarters.

When news is classified as good news, insiders react by buying afterward. There is a positive relationship of net buy's activities after the good earnings announcement when all earnings quarters are considered. However, the abnormal return is as high as 1.36% from a sample group including only quarterly earnings. No relationship is found when insiders purchase after yearly earnings announcement.

Results from Table 5.7 and Table 5.8 also confirm the finding of this hypothesis as insiders sell after good news announcement. For all negative net insiders trading imbalances, positive abnormal returns over the announcement period are significant when all earnings news are grouped together. Comparing within a group of good news, the highest increase of abnormal return (1.40%) occurs under NETAMOUNT (1.1 b.p. greater than when news types are non-classified). In addition, insiders selling occur more profoundly in quarterly earnings announcement (1.53% under NETVAL) comparing to 1.11% drops from yearly earnings announcement under NETAMOUNT.

When bad news is considered, results also show significant relationships. Insiders engage in selling activity following the drop of abnormal return during the announcement period for all announcements and quarterly earnings announcement. However, the magnitude of the abnormal return when news is classified as good news is almost double the one when news is classified as bad news. For example, for all earnings announcements and when NETFREQ is used as a proxy, insiders sell when the abnormal return is as low as 0.75% due to the bad news and when the abnormal return is 1.38% due to the good news. The study from this hypothesis suggested that corporate insiders' trade within 40 days after earnings announcement. They engage in buying and selling activities after either good or bad announcement. They may not use inside information to profiting their trade. Instead they may act indifferently from normal investors.

5.1.3 Insiders Buy Before and Sell After Good Earnings Announcement to Achieve an Active Trading Return

As we found that insiders do act actively and passively in relation to earnings announcement, Hypothesis 3 and 4 aim to investigate a relationship of insiders trading both before and after earnings announcement day. Hypothesis 3 states that insiders would buy before good news and then sell afterwards to achieve an active trading return. Results from Table 5.9 and Table 5.10 confirm this hypothesis. When insiders trading activities are selected from positive insiders trading imbalances (i.e. Net Buy) before the announcement and negative insiders trading imbalances (i.e. Net Sell) after the announcement, it shows significantly positive abnormal return at the announcement period. For good news, the abnormal return is as high as 2.45% under NETFREQ. Though evenly significant, the abnormal return is as low as 0.68% under NETAMOUNT when all types of news are considered.

For quarterly earnings data, results also show significantly positive abnormal returns under good news and all news type. The magnitude is still higher (as much as 1.26b.p.) when comparing BHAR from good news with all news sample. Never the less, when only yearly earnings announcement is considered, results show significantly positive abnormal returns when news type are classified as good news with the highest magnitude of 2.03%.

Results also show that when bad news is expected, insiders do not anticipated in buying before the announcement and selling afterward. All in all, out of all proxies, Frequency of trade results in the highest abnormal returns for both quarterly and yearly announcement. The findings from this hypothesis signifies that corporate insiders in Thailand engage in active trading returns whereby they buy before an increase in firm's stock price and selling afterwards whilst predicting that market will react positively from the good earnings announcement.

5.1.4 Insiders Sell Before and Buy After Bad Earnings News Announcement to Achieve a Passive Trading Return

Results of Hypothesis 4 are shown in Table 5.11 and Table 5.12. When insiders trading activities are selected from negative insiders trading imbalances (i.e. Net Sell) before the announcement and positive insiders trading imbalances (i.e. Net

Buy) after the announcement, it shows significantly negative abnormal return at the announcement period when bad news and all type of news are considered under NETAMOUNT and NETVAL. For all earnings announcements, the highest negative abnormal return is -1.41% under NETFREQ. The difference between bad news and all types of news is as high as 0.87 b.p. Yearly earnings announcement show similar results between bad news classification and all news classification with the highest negative abnormal return (2.11%) under NETFREQ. In contrast, only bad news type show significant negative abnormal return when earnings are from quarter 1, 2 and 3. It can be explained that insiders engage in a passive return trading strategy by selling before and buying after bad news announcement. Insiders would sell before the earnings announcement and return their position to achieve a passive return when bad earnings is announced.

However, as a significant relationship of insiders trading is also found when good earnings is announced but only during quarterly earnings, a supporting reason may be from the fact that insiders may sell before such announcement due to liquidation purpose and buy following the market trend due to an increase in stock price. Insiders may fail to predict the market reaction or they do not use foreknowledge of earnings information for their advantages.

5.1.5 Insiders Are Following-trend Trader. Insiders Buy Before and After Good Earnings Announcement

Table 5.13 and Table 5.14 show abnormal returns when net insiders trading imbalances is positive (i.e. Net Buy) before and after earnings announcement. For all earnings quarters, results show significantly positive abnormal return for all the insiders trading imbalances when good news is considered. However, when bad news are considered, the study also shows significant abnormal returns but with negative relationship. This former finding may signify that insiders act in either way i.e. after they purchase their own firm stock, they may enter into a buying position again regardless of types of news announcement. It can also be interpreted that abnormal returns during earnings announcement due to market anticipation are significant on its own regardless of relationship to insiders trading activities.

The highest market reaction over the announcement period is 1.04% under NETVAL and NETAMOUNT when all earnings are considered. Similar results are found with quarterly earnings group but with 1.34% abnormal return when only bad news is considered. The abnormal return is as high as -0.93% with a similar degree of significance. However, results show no relationship between insiders trading and yearly earnings announcement for all news types. The sample size for yearly earnings is as low as 70 events. Hence the results may be statistically insignificant due to the small sample size rather than the actual trading activities. Results from panel b), using cumulative abnormal return instead of buy-and-hold abnormal return show slightly higher magnitude but with similar degree of significance.

5.1.6 Insiders Are Following-trend Trader. Insiders Sell Before and After Bad Earnings Announcement

Table 5.15 and Table 5.16 depict abnormal returns from negative net insiders trading imbalances (i.e. Net Sell) before and after earnings announcement. When all earnings announcement are considered for bad news, the results show significantly negative abnormal returns. Insiders engage in selling activity before the announcement prior to the drop in firm's stock price and follow its momentum to sell further. Never the less, results also show a significant relationship from the same trading activity when good news is considered. The former results also show higher magnitude of market reaction. For all types of earnings announcement, the abnormal returns are significantly positive. It can be drawn that the significance of the abnormal returns may not have a direct relationship with this trading activity as it may be significant from zero by its own.

5.2 Multi-variate Regression Analysis

5.2.1 Insiders Use Active Return Trading Strategy

Following the event study, a multi-variate regression model is introduced for robustness check to confirm the study from Hypothesis 1a and 1b where insiders trading 40 days prior to the earnings announcement to achieve active returns trading

strategy. Hypothesis 7 states that there is a relationship between net insiders trading imbalances 40 days before the earnings announcement and abnormal return over the earnings announcement period.

Table 5.17 shows the regression results of this hypothesis using BHAR as an independent variable which has incorporated market reaction from the earnings news itself as well as other market sentiment such as analyst forecasts (Huddart et al. 2007). Two control variables are measurements of firm's size (lnMV) and types of firm (BM). A simple return during 120 days until 60 days before the earnings announcement date (PRIORRETb) is a control variable of insiders' contrarian trading behavior. For all earnings announcement, results show that when NETFREQ is used for the insiders purchase imbalance, the coefficient of BHAR is significantly positive (6.45426) at 5% confidence level. This implies that insiders buy before the announcement interpreted by the market as good news or insiders sell before the announcement interpreted as bad news as there is a positive relationship between BHAR and the insider trading imbalance.

The coefficient of firms' market value (lnMV) shows negative relationship with insiders trading imbalance. This is according to the assumption that smaller firms tend to engage more in the trading activity. Whereas, insiders do significantly trade more in value firms (the coefficient of BM is 1.7122).

The contrarian trading assumption also holds true for insiders in Thailand where the coefficient of PRIORRETb is significantly negative (-0.7456). The insiders also trade in quarterly earnings announcement. When the frequency of trade is considered, the degree of relationship is even higher at 7.03046 times per trading frequency.

Results from yearly earnings announcement show insignificant relationship. Insiders trading do not associated with yearly earnings announcement. However, when amount and value of insiders trading imbalances are used, results show no significant relationship of BHAR and the insiders trading activity. The results from the regression analysis in this hypothesis confirms that when frequency of trade

is used as a proxy for the net insider trading imbalance, insiders do engage in active return trading strategy during quarterly earnings.[2]

5.2.2 Insiders Use Passive Trading Return Strategy

Hypothesis 8 investigates a relationship between insiders trading after earnings announcement period. It is expected that insiders will sell after the expected increase in stock price during the announcement or insiders will buy after the expected decreases in stock price. Table 5.18 shows that there is a significant negative relationship between the abnormal return and the frequency of trade when all earnings announcement are considered. The coefficient of BHAR is significantly negative (-6.7490) at 5% level of confidence. This implies that insiders buy after the announcement interpreted by the market as bad news and sell after the announcement interpreted as good news. The magnitude of changes of abnormal return comparing to the trading frequency is similar to the active return trading strategy in hypothesis 7 (coefficient of BHAR is 6.4542). The quarterly earnings announcement provides similar result but with lower degree of relationship (coefficient of BHAR is -4.5973). All other control variables i.e. lnMV, BM and PRIORRETa yield significant relationship to insiders trading frequency as well. Insiders would trade more in smaller firms (low MV) and trade more where firms are considered as value firms (high BM). Never the less, for yearly earnings announcement the regression show significant relationship with high degree of coefficient of the abnormal return at the announcement (-17.4254).

The results from this hypothesis confirm that when frequency of trade is used for net insiders trading imbalance, insiders do engage in passive trading return strategy during quarterly and yearly earnings. Insiders would buy following a negative abnormal return from earnings announcement (i.e. market view the announcement as bad news) and insiders would sell following a positive abnormal return from earnings announcement (i.e. market view the announcement as good news). Similar results are found comparing to hypothesis 7 when amount and value of insider trading imbalances

[2] Similar results are found when NEWSTYPE dummy variable is considered in the regression model.

show no significant relationship with the abnormal return during the earnings announcement period.[3]

[3] Similar results are found when NEWSTYPE dummy variable is considered in the regression model.

Table 5.1 Results of the study of Hypothesis 1a- Insiders use active trading return strategy buying before good earnings announcement – using buy-and-hold abnormal return (BHAR).

Net insiders trading Imbalance	Expected sign	News type	BHAR(-1,+1) All quarters	n	BHAR(-1,+1) Q1, Q2, Q3	n	BHAR(-1,+1) Yearly	n
NETAMOUNT>0	+	All news	0.0022**	1519	0.0026**	1182	0.0011	337
	+	Good news	0.0126***	702	0.0153***	535	0.0041	167
	Not significant	Bad news	-0.0075***	642	-0.0009***	499	-0.0016	143
NETFREQ>0	+	All news	0.0024**	1511	0.0028**	1175	0.0012	336
	+	Good news	0.0125***	701	0.0151***	535	0.0041	166
	Not significant	Bad news	-0.0071***	636	-0.0088***	493	-0.0012	143
NETVAL>0	+	All news	0.0020*	1492	0.0023*	1159	0.0010	333
	+	Good news	0.0122***	690	0.0148***	528	0.0036	162
	Not significant	Bad news	-0.0076***	630	-0.0095***	485	-0.0014	145

Notes: Buy-and-hold abnormal return (BHAR) is used as a proxy of market reaction of earnings announcement day (day 0). The abnormal return of each firm's stock is the closing price one day after the earnings announcement (day 1) minus the closing price of one day before earnings announcement (day -1) using stock exchange of Thailand index as a benchmark. Three variables are used as proxies for insiders' Net Buy during 40 days and 2 days period before earnings announcement. NETAMOUNT is the number of shares that insiders purchase less number of shares that insiders sale in the study period. NETFREQ is the number of transactions that insiders purchase less number of transactions that insiders sell. NETVAL is the net value of stock (number of shares times price per share) that insiders purchase less value of stock that insiders sell. Three groups of earnings announcement are considered i.e. all earnings quarters, interim financial quarters (Q1, Q2 and Q3) and yearly earnings. News type is divided into three categories i.e. all news, good news (when earning per share of the study quarter is greater than earnings per share of the same quarter in the previous year), and bad news (when earning per share of the study quarter is greater than earnings per share of the same quarter in the last year).Number of study event (n) is shown for each study pool. *, ** and *** denote statistical significance at the 10%, 5% and 1% level respectively

Table 5.2 Results of the study of Hypothesis 1a- Insiders use active trading return strategy buying before good earnings announcement – using cumulative abnormal return (CAR).

Net insiders trading imbalance	Expected sign	News type	CAR(-1,+1) All quarters	n	CAR(-1,+1) Q1,Q2,Q3	n	CAR(-1,+1) Yearly	n
NETAMOUNT>0	+	All news	0.0023**	1519	0.0027**	1182	0.0012	337
	+	Good news	0.0127***	702	0.0154***	535	0.0041	167
	Not significant	Bad news	-0.0073***	642	-0.0090***	499	-0.0015	143
NETFREQ>0	+	All news	0.0025**	1511	0.0029**	1175	0.0013	336
	+	Good news	0.0126***	701	0.0152***	535	0.0041	166
	Not significant	Bad news	-0.0069***	636	-0.0086***	493	-0.0012	143
NETVAL>0	+	All news	0.0021**	1492	0.0025*	1159	0.0011	333
	+	Good news	0.0122***	690	0.0148***	528	0.0037	162
	Not significant	Bad news	-0.0075***	630	-0.0093***	485	-0.0013	145

Notes: Cumulative abnormal return (CAR) is used as a proxy of market reaction of earnings announcement day (day 0). The abnormal return of each firm's stock is the closing price one day after the earnings announcement (day 1) minus the closing price of one day before earnings announcement (day -1) using stock exchange of Thailand index as a benchmark. Three variables are used as proxies for insiders' Net Buy during 40 days and 2 days period before earnings announcement. NETAMOUNT is the number of shares that insiders purchase less number of shares that insiders sale in the study period. NETFREQ is the number of transactions that insiders purchase less number of transactions that insiders sell. NETVAL is the net value of stock (number of shares times price per share) that insiders purchase less value of stock that insiders sell. Three groups of earnings announcement are considered i.e. all earnings quarters, interim financial quarters (Q1, Q2 and Q3) and yearly earnings. News type is divided into three categories i.e. all news, good news (when earning per share of the study quarter is greater than earnings per share of the same quarter in the previous year), and bad news (when earning per share of the study quarter is greater than earnings per share of the same quarter in the last year).Number of study event (n) is shown for each study pool. *, ** and *** denote statistical significance at the 10%, 5% and 1% level respectively

Table 5.3 Results of the study of Hypothesis 1b- Insiders use active trading return strategy selling before bad earnings announcement – using buy-and-hold abnormal return (BHAR)

Net insiders trading imbalance	Expected sign	News type	BHAR(-1,+1) All quarters	n	BHAR(-1,+1) Q1,Q2,Q3	n	BHAR(-1,+1) Yearly	n
NETAMOUNT<0	-	All news	-0.0027***	1626	-0.0024**	1271	-0.0037*	355
	Not significant	Good news	0.0071***	742	0.0097***	569	-0.0013	173
	-	Bad news	-0.0117***	747	-0.0128***	591	-0.0074**	156
NETFREQ<0	-	All news	-0.0029***	1685	-0.0025***	1317	-0.0042***	368
	Not significant	Good news	0.0070***	763	0.0096***	583	-0.0015	180
	-	Bad news	-0.0120***	777	-0.0130***	615	-0.0082***	162
NETVAL<0	-	All news	-0.0031***	1537	-0.0029**	1203	-0.0040*	334
	Not significant	Good news	0.0070***	705	0.0095***	536	-0.0011	169
	-	Bad news	-0.0123***	699	-0.0133***	558	-0.0083**	141

Notes: Buy-and-hold abnormal return (BHAR) is used as a proxy of market reaction of earnings announcement day (day 0). The abnormal return of each firm's stock is the closing price one day after the earnings announcement (day 1) minus the closing price of one day before earnings announcement (day -1) using stock exchange of Thailand index as a benchmark. Three variables are used as proxies for insiders' Net Sell during 40 days and 2 days period before earnings announcement. NETAMOUNT is the number of shares that insiders purchase less number of shares that insiders sale in the study period. NETFREQ is the number of transactions that insiders purchase less number of transactions that insiders sell. NETVAL is the net value of stock (number of shares times price per share) that insiders purchase less value of stock that insiders sell. Three groups of earnings announcement are considered i.e. all earnings quarters, interim financial quarters (Q1, Q2 and Q3) and yearly earnings. News type is divided into three categories i.e. all news, good news, and bad news. Number of study event (n) is shown for each study pool.*, ** and *** denote statistical significance at the 10%, 5% and 1% level respectively.

Table 5.4 Results of the study of Hypothesis 1b- Insiders use active trading return strategy selling before bad earnings announcement – using cumulative abnormal return (CAR)

Net insiders trading imbalance	Expected sign	News type	CAR(-1,+1) All quarters	n	CAR(-1,+1) Q1,Q2,Q3	n	CAR(-1,+1) Yearly	n
NETAMOUNT<0	-	All news	-0.0026**	1626	-0.0023**	1271	-0.0036*	355
	Not significant	Good news	0.0072***	742	0.0098***	569	-0.0014	173
	-	Bad news	-0.0116***	747	-0.0128***	591	-0.0071**	156
NETFREQ<0	-	All news	-0.0028***	1685	-0.0024**	1317	-0.0041**	368
	Not significant	Good news	0.0071***	763	0.0098***	583	-0.0016	180
	-	Bad news	-0.0119***	777	-0.0130***	615	-0.0079**	162
NETVAL<0	-	All news	-0.0030***	1537	-0.0028**	1203	-0.0038*	334
	Not significant	Good news	0.0071***	705	0.0097***	536	-0.0012	169
	-	Bad news	-0.0122***	699	-0.0133***	558	-0.0079**	141

Notes: Cumulative abnormal return (CAR) is used as a proxy of market reaction of earnings announcement day (day 0). The abnormal return of each firm's stock is the closing price one day after the earnings announcement (day 1) minus the closing price of one day before earnings announcement (day -1) using stock exchange of Thailand index as a benchmark. Three variables are used as proxies for insiders' Net Sell during 40 days and 2 days period before earnings announcement. NETAMOUNT is the number of shares that insiders purchase less number of shares that insiders sale in the study period. NETFREQ is the number of transactions that insiders purchase less number of transactions that insiders sell. NETVAL is the net value of stock (number of shares times price per share) that insiders purchase less value of stock that insiders sell. Three groups of earnings announcement are considered i.e. all earnings quarters, interim financial quarters (Q1, Q2 and Q3) and yearly earnings. News type is divided into three categories i.e. all news, good news, and bad news. Number of study event (n) is shown for each study pool.*, ** and *** denote statistical significance at the 10%, 5% and 1% level respectively.

Table 5.5 Results of the study of Hypothesis 2a- Insiders use passive trading return strategy buying after bad earnings announcement – using buy-and-hold abnormal return (BHAR)

Net insiders trading imbalance	Expected sign	News type	BHAR(-1,+1) All quarters	n	BHAR(-1,+1) Q1,Q2,Q3	n	BHAR(-1,+1) Yearly	n
NETAMOUNT>0	-	All news	-0.0002	1674	0.0009	1297	-0.0041**	377
	Not significant	Good news	0.0100***	770	0.0136***	590	-0.0016	180
	-	Bad news	-0.0097***	708	-0.0108***	540	-0.0063**	168
NETFREQ>0	-	All news	-0.0003	1672	0.0009	1291	-0.0043**	381
	Not significant	Good news	0.0101***	768	0.0137***	588	-0.0014	180
	-	Bad news	-0.0100***	706	-0.0109***	536	-0.0069***	170
NETVAL>0	-	All news	-0.0003	1674	0.0007	1298	-0.0038**	376
	Not significant	Good news	0.0101***	763	0.0130***	588	0.0002	175
	-	Bad news	-0.0100***	709	-0.0108***	538	-0.0075***	171

Notes: Buy-and-hold abnormal return (BHAR) is used as a proxy of market reaction of earnings announcement day (day 0). The abnormal return of each firm's stock is the closing price one day after the earnings announcement (day 1) minus the closing price of one day before earnings announcement (day -1) using stock exchange of Thailand index as a benchmark. Three variables are used as proxies for insiders' Net Buy during 40 days and 2 days period after earnings announcement. NETAMOUNT is the number of shares that insiders purchase less number of shares that insiders sale in the study period. NETFREQ is the number of transactions that insiders purchase less number of transactions that insiders sell. NETVAL is the net value of stock (number of shares times price per share) that insiders purchase less value of stock that insiders sell. Three groups of earnings announcement are considered i.e. all earnings quarters, interim financial quarters (Q1, Q2 and Q3) and yearly earnings. News type is divided into three categories i.e. all news, good news, and bad news. Number of study event (n) is shown for each study pool. *, ** and *** denote statistical significance at the 10%, 5% and 1% level respectively.

Table 5.6 Results of the study of Hypothesis 2a- Insiders use passive trading return strategy buying after bad earnings announcement – using cumulative abnormal return (CAR)

Net insiders trading imbalance	Expected sign	News type	CAR(-1,+1) All quarters	n	CAR(-1,+1) Q1,Q2,Q3	n	CAR(-1,+1) Yearly	n
NETAMOUNT>0	-	All news	-0.00009	1674	0.0009	1296	-0.0035*	378
	Not significant	Good news	-0.0093***	769	0.0134***	589	-0.0015	180
	-	Bad news	-0.0093***	709	-0.0106***	540	-0.0051*	169
NETFREQ>0	-	All news	-0.0002	1672	0.0009	1290	-0.0037**	382
	Not significant	Good news	0.0100***	767	00135	587	-0.0013	180
	-	Bad news	-0.0095***	707	-0.0107152***	536	-0.0058**	171
NETVAL>0	-	All news	-0.0001	1675	0.0008	1298	-0.0032*	377
	Not significant	Good news	0.0101***	763	0.0130***	588	0.0004	175
	-	Bad news	-0.0095***	710	-0.0105***	538	-0.0064**	172

Notes: Cumulative abnormal return (CAR) is used as a proxy of market reaction of earnings announcement day (day 0). The abnormal return of each firm's stock is the closing price one day after the earnings announcement (day 1) minus the closing price of one day before earnings announcement (day -1) using stock exchange of Thailand index as a benchmark. Three variables are used as proxies for insiders' Net Buy during 40 days and 2 days period after earnings announcement. NETAMOUNT is the number of shares that insiders purchase less number of shares that insiders sale in the study period. NETFREQ is the number of transactions that insiders purchase less number of transactions that insiders sell. NETVAL is the net value of stock (number of shares times price per share) that insiders purchase less value of stock that insiders sell. Three groups of earnings announcement are considered i.e. all earnings quarters, interim financial quarters (Q1, Q2 and Q3) and yearly earnings. News type is divided into three categories i.e. all news, good news, and bad news. Number of study event (n) is shown for each study pool. *, ** and *** denote statistical significance at the 10%, 5% and 1% level respectively.

Table 5.7 Results of the study of Hypothesis 2b- Insiders use passive trading return strategy selling after good earnings announcement – using buy-and-hold abnormal return (BHAR)

Net insiders trading imbalance	Expected sign	News type	BHAR(-1,+1) All quarters	n	BHAR(-1,+1) Q1,Q2,Q3	n	BHAR(-1,+1) Yearly	n
NETAMOUNT<0	+	All news	0.0030***	1737	0.0029*	1350	0.0034*	357
	+	Good news	0.0137***	809	0.0145***	623	0.0112***	186
	Not significant	Bad news	-0.0074***	766	-0.0084***	595	-0.0041	171
NETFREQ<0	+	All news	0.0031***	1787	0.0031***	1398	0.0033*	389
	+	Good news	0.0138***	831	0.0146***	644	0.0110***	9
	Not significant	Bad news	-0.0075***	785	-0.0085***	613	-0.0039	172
NETVAL<0	+	All news	0.0032***	1641	0.0032***	1281	0.00334	360
	+	Good news	0.0140***	766	0.0153***	590	0.0096***	176
	Not significant	Bad news	-0.0077***	722	-0.0088***	565	-0.0035	157

Notes: Buy-and-hold abnormal return (BHAR) is used as a proxy of market reaction of earnings announcement day (day 0). The abnormal return of each firm's stock is the closing price one day after the earnings announcement (day 1) minus the closing price of one day before earnings announcement (day -1) using stock exchange of Thailand index as a benchmark. Three variables are used as proxies for insiders' Net Sell during 40 days and 2 days period after earnings announcement. NETAMOUNT is the number of shares that insiders purchase less number of shares that insiders sale in the study period. NETFREQ is the number of transactions that insiders purchase less number of transactions that insiders sell. NETVAL is the net value of stock (number of shares times price per share) that insiders purchase less value of stock that insiders sell. Three groups of earnings announcement are considered i.e. all earnings quarters, interim financial quarters (Q1, Q2 and Q3) and yearly earnings. News type is divided into three categories i.e. all news, good, and bad news. Number of study event (n) is shown for each study pool. *, ** and *** denote statistical significance at the 10%, 5% and 1% level respectively.

Table 5.8 Results of the study of Hypothesis 2b- Insiders use passive trading return strategy selling after good earnings announcement – using cumulative abnormal return (CAR)

Net insiders trading imbalance	Expected sign	News type	CAR(-1,+1) All quarters	n	CAR(-1,+1) Q1,Q2,Q3	n	CAR(-1,+1) Yearly	n
NETAMOUNT<0	+	All news	0.0031***	1737	0.0029**	1350	0.0034*	387
	+	Good news	0.0138***	809	0.0147***	623	0.0111***	186
	Not significant	Bad news	-0.0074***	766	-0.0084***	595	-00039	171
NETFREQ<0	+	All news	0.0032***	1787	0.0032***	1398	0.0034*	389
	+	Good news	0.0139***	831	0.0148***	644	0.0110***	187
	Not significant	Bad news	-0.0074***	785	-0.0084***	613	-0.0038	172
NETVAL<0	+	All news	0.0033***	1641	0.0032***	1281	0.0034	360
	+	Good news	0.0141***	766	0.0155***	590	0.0095***	176
	Not significant	Bad news	-0.0077***	722	-0.0089***	565	-0.0033	157

Notes: Cumulative abnormal return (CAR) is used as a proxy of market reaction of earnings announcement day (day 0). The abnormal return of each firm's stock is the closing price one day after the earnings announcement (day 1) minus the closing price of one day before earnings announcement (day -1) using stock exchange of Thailand index as a benchmark. Three variables are used as proxies for insiders' Net Sell during 40 days and 2 days period after earnings announcement. NETAMOUNT is the number of shares that insiders purchase less number of shares that insiders sale in the study period. NETFREQ is the number of transactions that insiders purchase less number of transactions that insiders sell. NETVAL is the net value of stock (number of shares times price per share) that insiders purchase less value of stock that insiders sell. Three groups of earnings announcement are considered i.e. all earnings quarters, interim financial quarters (Q1, Q2 and Q3) and yearly earnings. News type is divided into three categories i.e. all news, good, and bad news. Number of study event (n) is shown for each study pool. *, ** and *** denote statistical significance at the 10%, 5% and 1% level respectively.

Table 5.9 Results of the study of Hypothesis 3- Insiders buy before and sell after good earnings announcement – using buy-and-hold abnormal return (BHAR)

Net insiders trading imbalance	Expected sign	News type	BHAR (-1,+1) All quarters	n	BHAR (-1,+1) Q1,Q2,Q3	n	BHAR (-1,+1) Yearly	n
NETAMOUNT>0 before announcement and	+	All news	0.0068***	306	0.0065**	248	0.0078	58
NETAMOUNT<0 after announcement	+	Good news	0.0164***	151	0.0163***	122	0.0166**	29
	Not significant	Bad news	-0.0034	125	-0.0040	101	-0.0010	24
NETFREQ>0 before announcement and	+	All news	0.0119***	249	0.0127***	202	0.0085	47
NETFREQ<0 after announcement	+	Good news	0.0245***	122	0.0253***	101	0.0203**	21
	Not significant	Bad news	-0.0011	100	0.0011	80	-0.0013	20
NETVAL>0 before announcement and NETVAL<0	+	All news	0.0075***	316	0.0075***	256	0.0078	60
after announcement	+	Good news	0.0156***	155	0.0152***	125	0.0173**	30
	Not significant	Bad news	-0.0011	128	-0.0008	103	-0.0019	25

Notes: Buy-and-hold abnormal return (BHAR) is used as a proxy of market reaction of earnings announcement day (day 0). The abnormal return of each firm's stock is the closing price one day after the earnings announcement (day 1) minus the closing price of one day before earnings announcement (day -1) using stock exchange of Thailand index as a benchmark. Three variables are used as proxies for insiders' Net Buy (during 40 days and 2 days period before earnings announcement) and Net Sell (during 40days and 2 days period after earnings announcement). NETAMOUNT is the number of shares that insiders purchase less number of shares that insiders sale in the study period. NETFREQ is the number of transactions that insiders purchase less number of transactions that insiders sell. NETVAL is the net value of stock (number of shares times price per share) that insiders purchase less value of stock that insiders sell. Three groups of earnings announcement are considered i.e. all earnings quarters, interim financial quarters (Q1, Q2 and Q3) and yearly earnings. News type is divided into three categories i.e. all news, good news, and bad news. Number of study event (n) is shown for each study pool. *, ** and *** denote statistical significance at the 10%, 5% and 1% level respectively.

Table 5.10 Results of the study of Hypothesis 3 - Insiders buy before and sell after good earnings announcement – using cumulative abnormal return (CAR)

Net insiders trading imbalance	Expected sign	News type	CAR(-1,+1) All quarters	n	CAR(-1,+1) Q1,Q2,Q3	n	CAR(-1,+1) Yearly	n
NETAMOUNT>0 before announcement and	+	All news	0.0067***	306	0.0064**	248	0.0080	58
NETAMOUNT<0 after announcement	+	Good news	0.0163***	151	0.0163***	122	0.0167**	29
	Not significant	Bad news	-0.0035	125	0.0042	101	-0.0007	24
NETFREQ>0 before announcement and	+	All news	0.0119***	249	0.0126***	202	0.0086	47
NETFREQ<0 after announcement	+	Good news	0.0244***	122	0.0252***	101	0.0202**	21
	Not significant	Bad news	-0.0011	100	-0.0011	80	-0.0009	20
NETVAL>0 before announcement and NETVAL<0	+	All news	0.0076***	316	0.0075***	256	0.0079*	60
after announcement	+	Good news	0.0157***	155	0.0153***	125	0.0173**	30
	Not significant	Bad news	-0.0011	128	-0.0009	103	-0.0017	25

Notes: Cumulative abnormal return (CAR) is used as a proxy of market reaction of earnings announcement day (day 0). The abnormal return of each firm's stock is the closing price one day after the earnings announcement (day 1) minus the closing price of one day before earnings announcement (day -1) using stock exchange of Thailand index as a benchmark. Three variables are used as proxies for insiders' Net Buy (during 40 days and 2 days period before earnings announcement) and Net Sell (during 40days and 2 days period after earnings announcement). NETAMOUNT is the number of shares that insiders purchase less number of shares that insiders sale in the study period. NETFREQ is the number of transactions that insiders purchase less number of transactions that insiders sell. NETVAL is the net value of stock (number of shares times price per share) that insiders purchase less value of stock that insiders sell. Three groups of earnings announcement are considered i.e. all earnings quarters, interim financial quarters (Q1, Q2 and Q3) and yearly earnings. News type is divided into three categories i.e. all news, good news, and bad news. Number of study event (n) is shown for each study pool. *, ** and *** denote statistical significance at the 10%, 5% and 1% level respectively.

Table 5.11 Results of the study of Hypothesis 4- Insiders sell before and buy after bad earnings announcement – using buy-and-hold abnormal return (BHAR)

Net insiders trading imbalance	Expected sign	News type	BHAR (-1,+1) All quarters	n	BHAR (-1,+1) Q1,Q2,Q3	n	BHAR (-1,+1) Yearly	n
NETAMOUNT<0 before announcement and	-	All news	-0.0042**	302	-0.0025	249	-0.0121***	53
NETAMOUNT>0 after announcement	Not significant	Good news	0.0051*	150	0.0084**	123	-0.0099	27
	-	Bad news	-0.0128***	121	-0.0126623***	100	-0.0140**	21
NETFREQ<0 before announcement and	-	All news	-0.0037	262	-0.0018	211	-0.0117**	51
NETFREQ>0 after announcement	Not significant	Good news	0.0069	131	0.0101***	104	-0.0056	27
	-	Bad news	-0.0140***	101	-0.0126***	84	-0.0211**	17
NETVAL<0 before announcement and NETVAL>0	-	All news	-0.0049**	321	-0.0030	262	-0.0135***	59
after announcement	Not significant	Good news	0.0035	155	0.0064*	126	-0.0094	29
	-	Bad news	-0.0136***	131	-0.0126***	106	-0.0176***	25

Notes: Buy-and-hold abnormal return (BHAR) is used as a proxy of market reaction of earnings announcement day (day 0). The abnormal return of each firm's stock is the closing price one day after the earnings announcement (day 1) minus the closing price of one day before earnings announcement (day -1) using stock exchange of Thailand index as a benchmark. Three variables are used as proxies for insiders' NetSell (during 40 days and 2 days period before earnings announcement) and NetBuy (during 40days and 2 days period after earnings announcement). NETAMOUNT is the number of shares that insiders purchase less number of shares that insiders sale in the study period. NETFREQ is the number of transactions that insiders purchase less number of transactions that insiders sell. NETVAL is the net value of stock (number of shares times price per share) that insiders purchase less value of stock that insiders sell. Three groups of earnings announcement are considered i.e. all earnings quarters, interim financial quarters (Q1, Q2 and Q3) and yearly earnings. News type is divided into three categories i.e. all news, good news, and bad news. Number of study event (n) is shown for each study pool. *, ** and *** denote statistical significance at the 10%, 5% and 1% level respectively.

Table 5.12 Results of the study of Hypothesis 4- Insiders sell before and buy after bad earnings announcement – using cumulative abnormal return (CAR)

Net insiders trading imbalance	**Expected sign**	**News type**	**CAR(-1,+1) All quarters**	**n**	**CAR(-1,+1) Q1,Q2,Q3**	**n**	**CAR(-1,+1) Yearly**	**n**
NETAMOUNT<0 before announcement and NETAMOUNT>0 after announcement	-	All news	-0.0042**	302	-0.0019	248	-0.0146***	54
	Not significant	Good news	0.0042	151	0.0084**	123	-0.0143*	28
	-	Bad news	-0.0128***	121	-0.0126***	100	-0.0140**	21
NETFREQ<0 before announcement and NETFREQ>0 after announcement	-	All news	-0.0037	262	-0.0018	211	-0.0119**	51
	Not significant	Good news	0.0069**	131	0.0101***	104	-0.0058	27
	-	Bad news	-0.0140***	101	-0.0125***	84	-0.0212**	17
NETVAL<0 before announcement and NETVAL>0 after announcement	-	All news	-0.0049**	321	-0.0024	261	-0.0155***	60
	Not significant	Good news	0.0026	156	0.0065**	126	-0.0136**	30
	-	Bad news	-0.0135***	131	-0.0126***	106	-0.0176***	25

Notes: Cumulative abnormal return (CAR) is used as a proxy of market reaction of earnings announcement day (day 0). The abnormal return of each firm's stock is the closing price one day after the earnings announcement (day 1) minus the closing price of one day before earnings announcement (day -1) using stock exchange of Thailand index as a benchmark. Three variables are used as proxies for insiders' NetSell (during 40 days and 2 days period before earnings announcement) and NetBuy (during 40days and 2 days period after earnings announcement). NETAMOUNT is the number of shares that insiders purchase less number of shares that insiders sale in the study period. NETFREQ is the number of transactions that insiders purchase less number of transactions that insiders sell. NETVAL is the net value of stock (number of shares times price per share) that insiders purchase less value of stock that insiders sell. Three groups of earnings announcement are considered i.e. all earnings quarters, interim financial quarters (Q1, Q2 and Q3) and yearly earnings. News type is divided into three categories i.e. all news, good news, and bad news. Number of study event (n) is shown for each study pool. *, ** and *** denote statistical significance at the 10%, 5% and 1% level respectively.

Table 5.13 Results of the study of Hypothesis 5- Insiders buy before and buy after good earnings announcement – using buy-and-hold abnormal return (BHAR)

Net insiders trading imbalance	Expected sign	News type	BHAR (-1,+1) All quarters	n	BHAR (-1,+1) Q1,Q2,Q3	n	BHAR (-1,+1) Yearly	n
NETAMOUNT>0 before announcement and	+	All news	0.0012	693	0.0018	535	-0.0004	158
NETAMOUNT>0 after announcement	+	Good news	0.0104***	310	0.0134***	234	0.0015	76
	Not significant	Bad news	-0.0068***	299	-0.0085***	229	-0.0015	70
NETFREQ>0 before announcement and	+	All news	-0.0001	707	0.0002	547	-0.0015	160
NETFREQ>0 after announcement	+	Good news	0.0083***	314	0.0108***	239	0.0002	75
	Not significant	Bad news	-0.0077***	305	-0.0093***	231	-0.0028	74
NETVAL>0 before announcement and NETVAL>0	+	All news	0.0013	686	0.0019	529	-0.0007	157
after announcement	+	Good news	0.0104***	307	0.0134***	233	0.0010	74
	Not significant	Bad news	-0.0068***	294	-0.0083***	224	-0.0015	70

Notes: Buy-and-hold abnormal return (BHAR) is used as a proxy of market reaction of earnings announcement day (day 0). The abnormal return of each firm's stock is the closing price one day after the earnings announcement (day 1) minus the closing price of one day before earnings announcement (day -1) using stock exchange of Thailand index as a benchmark. Three variables are used as proxies for insiders' NetBuy during 40 days and 2 days period before and after earnings announcement. NETAMOUNT is the number of shares that insiders purchase less number of shares that insiders sale in the study period. NETFREQ is the number of transactions that insiders purchase less number of transactions that insiders sell. NETVAL is the net value of stock (number of shares times price per share) that insiders purchase less value of stock that insiders sell. Three groups of earnings announcement are considered i.e. all earnings quarters, interim financial quarters (Q1, Q2 and Q3) and yearly earnings. News type is divided into three categories i.e. all news, good news, and bad. Number of study event (n) is shown for each study pool. *, ** and *** denote statistical significance at the 10%, 5% and 1% level respectively.

Table 5.14 Results of the study of Hypothesis 5- Insiders buy before and buy after good earnings announcement – using cumulative abnormal return (CAR)

Net insiders trading imbalance	Expected sign	News type	CAR(-1,+1) All quarters	n	CAR(-1,+1) Q1,Q2,Q3	n	CAR(-1,+1) Yearly	n
NETAMOUNT>0 before announcement and NETAMOUNT>0 after announcement	+	All news	0.0013	693	0.0018	535	-0.0004	158
	+	Good news	0.0110***	311	0.0141***	235	0.0015	76
	Not significant	Bad news	-0.0074***	298	-0.0091***	228	-0.0016	70
NETFREQ>0 before announcement and NETFREQ>0 after announcement	+	All news	-0.0001	707	0.0002	547	-0.0014	160
	+	Good news	0.0084***	314	0.0109***	239	0.0003	75
	Not significant	Bad news	-0.0077***	305	-0.0092***	231	-0.0028	74
NETVAL>0 before announcement and NETVAL>0 after announcement	+	All news	0.0013	686	0.0019	529	-0.0007	157
	+	Good news	0.0109***	308	0.0141***	234	0.0010	74
	Not significant	Bad news	-0.0073***	293	-0.0091***	223	-0.0016	70

Notes: Cumulative abnormal return (CAR) is used as a proxy of market reaction of earnings announcement day (day 0). The abnormal return of each firm's stock is the closing price one day after the earnings announcement (day 1) minus the closing price of one day before earnings announcement (day -1) using stock exchange of Thailand index as a benchmark. Three variables are used as proxies for insiders' NetBuy during 40 days and 2 days period before and after earnings announcement. NETAMOUNT is the number of shares that insiders purchase less number of shares that insiders sale in the study period. NETFREQ is the number of transactions that insiders purchase less number of transactions that insiders sell. NETVAL is the net value of stock (number of shares times price per share) that insiders purchase less value of stock that insiders sell. Three groups of earnings announcement are considered i.e. all earnings quarters, interim financial quarters (Q1, Q2 and Q3) and yearly earnings. News type is divided into three categories i.e. all news, good news, and bad. Number of study event (n) is shown for each study pool. *, ** and *** denote statistical significance at the 10%, 5% and 1% level respectively.

Table 5.15 Results of the study of Hypothesis 6- Insiders sell before and sell after bad earnings announcement – using buy-and-hold abnormal return (BHAR)

Net insiders trading imbalance	Expected sign	News type	BHAR (-1,+1) All quarters	n	BHAR(-1,+1) Q1,Q2,Q3	n	BHAR (-1,+1) Yearly	n
NETAMOUNT<0 before announcement and	-	All news	0.0039***	721	0.0034**	550	0.0053**	171
NETAMOUNT<0 after announcement	Not significant	Good news	0.0136***	334	0.0159***	250	0.0070**	84
	-	Bad news	-0.0042**	329	-0.0064***	255	0.0030	74
NETFREQ<0 before announcement and	-	All news	0.0030**	665	0.0030*	512	0.0032	153
NETFREQ<0 after announcement	Not significant	Good news	0.0124***	311	0.0156***	230	0.0033	81
	-	Bad news	-0.0048**	303	-0.0066***	240	0.0020	63
NETVAL<0 before announcement and NETVAL<0	-	All news	0.0039***	756	0.0038**	579	0.0042*	177
after announcement	Not significant	Good news	0.0139***	350	0.0164***	264	0.0064*	86
	-	Bad news	-0.0043**	345	-0.0062***	268	0.0020	77

Notes: Buy-and-hold abnormal return (BHAR) is used as a proxy of market reaction of earnings announcement day (day 0). The abnormal return of each firm's stock is the closing price one day after the earnings announcement (day 1) minus the closing price of one day before earnings announcement (day -1) using stock exchange of Thailand index as a benchmark. Three variables are used as proxies for insiders' NetSell during 40 days and 2 days period before and after earnings announcement. NETAMOUNT is the number of shares that insiders purchase less number of shares that insiders sale in the study period. NETFREQ is the number of transactions that insiders purchase less number of transactions that insiders sell. NETVAL is the net value of stock (number of shares times price per share) that insiders purchase less value of stock that insiders sell. Three groups of earnings announcement are considered i.e. all earnings quarters, interim financial quarters (Q1, Q2 and Q3) and yearly earnings. News type is divided into three categories i.e. all news, good news, and bad news. Number of study event (n) is shown for each study pool. *, ** and *** denote statistical significance at the 10%, 5% and 1% level respectively.

Table 5.16 Results of the study of Hypothesis 6- Insiders sell before and sell after bad earnings announcement – using cumulative abnormal return (CAR)

Net insiders trading imbalance	Expected sign	News type	CAR(-1,+1) All quarters	n	CAR(-1,+1) Q1,Q2,Q3	n	CAR(-1,+1) Yearly	n
NETAMOUNT<0 before announcement and NETAMOUNT<0 after announcement	-	All news	0.0039***	721	0.0035**	550	0.0053**	171
	Not significant	Good news	0.0137***	334	0.0160***	250	0.0069**	84
	-	Bad news	-0.0042**	329	-0.0063***	255	0.0030	74
NETFREQ<0 before announcement and NETFREQ<0 after announcement	-	All news	0.0030**	665	0.0030*	512	0.0031	153
	Not significant	Good news	0.0124***	311	0.0157***	230	0.0032	81
	-	Bad news	-0.0048**	303	-0.0066***	240	0.0019	63
NETVAL<0 before announcement and NETVAL<0 after announcement	-	All news	0.0040***	756	0.0039**	579	0.0042*	177
	Not significant	Good news	0.0140***	350	0.0165***	264	0.0063**	86
	-	Bad news	-0.0043**	345	-0.0061***	268	0.0019	77

Notes: Cumulative abnormal return (BHAR) is used as a proxy of market reaction of earnings announcement day (day 0). The abnormal return of each firm's stock is the closing price one day after the earnings announcement (day 1) minus the closing price of one day before earnings announcement (day -1) using stock exchange of Thailand index as a benchmark. Three variables are used as proxies for insiders' NetSell during 40 days and 2 days period before and after earnings announcement. NETAMOUNT is the number of shares that insiders purchase less number of shares that insiders sale in the study period. NETFREQ is the number of transactions that insiders purchase less number of transactions that insiders sell. NETVAL is the net value of stock (number of shares times price per share) that insiders purchase less value of stock that insiders sell. Three groups of earnings announcement are considered i.e. all earnings quarters, interim financial quarters (Q1, Q2 and Q3) and yearly earnings. News type is divided into three categories i.e. all news, good news, and bad news. Number of study event (n) is shown for each study pool. *, ** and *** denote statistical significance at the 10%, 5% and 1% level respectively.

Table 5.17 Results of regression model to investigate insiders active trading return strategy from a regression model

Dependent Variables	Expected sign	Coefficient All quarters	Coefficient Q1,Q2,Q3	Coefficient Yearly
NETAMOUNT (million shares)				
BHAR	+	25.3964	27.7035	12.6676
lnMV		0.3928	0.8541	-0.9819
BM		3.7504	5.4205	-0.6599
PRIORRETb		2.1974	2.0326	1.2888
R^2		0.0009	0.0013	0.0033
NETFREQ (transactions)				
BHAR	+	6.4542**	7.0304**	4.22314
lnMV		-0.2502***	-0.2466***	-0.25454
BM		1.7122***	1.8320***	1.4467***
PRIORRETb		-0.7465**	-0.8866***	-0.1149
R^2		0.0514	0.0534	0.0471
NETVAL (million Baht)				
BHAR	+	78.0485	43.4247	215.3396
lnMV		-11.6506**	-3.1861	-40.0163**
BM		3.2947	11.4459	-17.5653
PRIORRETb		4.7949	-1.8135	31.2311
R^2		0.0023	0.0023	0.0063

Notes: Control variables are firm size (proxy by market value, lnMV), type of firm whether it is a value firm (high book-to-market ratio) or growth firm (low book-to-market ratio), and returns over the duration of 120 days and 60 days before the earnings announcement day (PRIORRETb) to control for contrarian trading strategy. Three groups of earnings announcement are considered i.e. all earnings quarters, interim financial quarters (Q1, Q2 and Q3) and yearly earnings.*, ** and *** denote statistical significance at the 10%, 5% and 1% level respectively.

Table 5.18 Results of regression model to investigate insiders passive trading return strategy from a regression model

Dependent Variables	Expected sign	Coefficient All quarters	Coefficient Q1,Q2,Q3	Coefficient Yearly
NETAMOUNT (million shares)				
BHAR	-	37.0612	11.9266	164.0075
lnMV		1.9703	0.3326	7.9980*
BM		5.1560	2.3656	18.6895*
PRIORRETa		1.5845	0.5196	14.0241
R^2		0.0013	0.0003	0.0080
NETFREQ (transactions)				
BHAR	-	-6.7490**	-4.5973**	-17.4254**
lnMV		-0.2452***	-0.3159**	0.0105
BM		1.3744***	1.3089**	1.7394***
PRIORRETa		-0.4596*	-0.5379**	0.2298
R^2		0.0328	0.0329	0.0422
NETVAL (million Baht)				
BHAR	-	-20.1633	-42.4500	89.6810
lnMV		-0.1150	-0.7044	2.0326
BM		11.2374*	9.9834	17.9009*
PRIORRETa		0.3830	-0.7325	12.3004
R^2		0.0012	0.0010	0.0052

Notes: Control variables are firm size (proxy by market value, lnMV), type of firm whether it is a value firm (high book-to-market ratio) or growth firm (low book-to-market ratio), and returns over the duration of 120 days and 40 days before the earnings announcement day (PRIORRETa) to control for contrarian trading strategy. Three groups of earnings announcement are considered i.e. all earnings quarters, interim financial quarters (Q1, Q2 and Q3) and yearly earnings.*, ** and *** denote statistical significance at the 10%, 5% and 1% level respectively.

CHAPTER VI
CONCLUSION

This paper investigates relationships between earnings news announcement of firms listed under the Stock Exchange of Thailand (SET) market and corporate insiders' trading of their own firm stock using insider filing date. The study investigates 33,866 insiders transactions between 2003-2012 and 15,333 earnings news announcement between April 2003 until September 2012. While concentrating on insiders trading period of 40 days before and after the earnings announcement day, the conclusion can be drawn as follows.

Asymmetric information on earnings announcement may not be a factor for insiders to enter or exit their one-time trading position. A single trading activity from corporate insiders either before or after the earnings announcement may occur due to their long term trading strategy. Corporate insiders may liquidate their holding position foreseeing the drop in long term earnings prospect or buy their firm stock anticipating good long term earnings prospect regardless of an upcoming earnings announcement to public. Hence, insiders may not trade on the foreknowledge of earnings information to achieve a short-term abnormal trading profit for their advantage. The study also finds that insiders may use earnings information to achieve short-term active trading returns by engaging in buying activity before the announcement and selling activity after the announcement, or to achieve passive trading returns by engaging in selling activity before the announcement and buying activity after the announcement.

As this study concentrated on the firm level, further study may classify corporate insiders into different level/positions inside the company. There may be levels of asymmetric information within the corporate insiders of each firm. In addition, this study treats individual insiders of each company as a whole i.e. insider buying before the announcement and selling after the announcement may be the same

person or a different one, hence further study may investigate corporate insiders down to personal level to strengthen the results found in this study.

Corporate insiders, though knowing the prior earnings information, may use or not use this information to take advantages on profit making. Some groups of corporate insiders may use earnings announcement to achieve short term abnormal trading returns. Other groups may use other types of news announcement which may result in a higher trading profit for their advantages.

All in all, this study finds that there are significant relationships of insiders trading activities both before and after the earnings announcement period. This research can be the basis for further studies for both regulators and investors as it is the first empirical evidence that shows that corporate insiders in Thai firms act on foreknowledge of earnings information. The study did not attempt to investigate any abnormal profits that insiders would make from such activities. In addition, several other periods of insiders trading activity may be used e.g. separation of bull and bear market cycle. Hence, laws and regulations can be imposed effectively to avoid illegal insider trading in certain period. Or, they can be used to regulate insiders trading activities in view of enhancing the market efficiency.

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