



CHANGES OF STOCK PRICES AROUND QUARTERLY
EARNINGS ANNOUNCEMENTS: EVIDENCE FROM THE THAI
STOCK MARKET

By
CHATKAEW KUKIJVATANA

An Independent Study
Submitted in Partial Fulfillment of the Requirements
for the Degree of

MASTER OF SCIENCE IN FINANCIAL ECONOMICS

MARTIN DE TOURS SCHOOL OF MANAGEMENT AND ECONOMICS
Assumption University
Bangkok, Thailand

July 2016

Study

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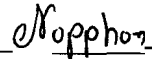
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I, Miss Chatkaew Kukijvatana

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Changes of stock prices around quarterly earnings announcements: evidence from the Thai stock market

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Advisor

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Chatkaew Kukijvatana

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ABSTRACT

The study examines the stock price reactions of 38 companies listed on the SET50 around the quarterly earnings announcements of the Stock Exchange of Thailand (SET) in 2015. The study investigates whether the quarterly earnings announcements, in the form of quarterly financial statements had any effect on stock prices during 2015.

The study employs daily event study methodology to observe the market reactions. To examine the abnormal returns around quarterly earnings announcements, daily stock prices in 2015 are recorded to determine the normal behavior of the stock market. The market model is used to compute expected return and abnormal return. Each earnings announcement is classified by comparing the actual earnings per share (EPS) and the expected earnings per share (EPS). Later, each earnings announcement is categorized into three groups, which are good news, bad news and neutral news. Depending on the available samples, this study concentrates on the research hypotheses related to good news and bad news.

Abnormal returns were found during the event period. Quarterly financial statements have content that affected stock prices in 2015. It is possible that the market does not absorb new information quickly after quarterly earnings announcements. However, abnormal returns persisted for only one day and disappeared both for good news and for bad news. On the day following the earnings announcement, the market reacted stronger to good news than to bad news. The cumulative effects of good news are greater than for bad news during the event period. It was found that the market reacted positively to good news and negatively to bad news around the release of quarterly financial statements. Cumulative abnormal returns for good news gradually start to rise and for bad news start moving downward before the announcement date. These findings suggest that the market learns about the forthcoming announcement.

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CHAPTER I - GENERALITIES OF THE STUDY

1.1 Background of the Study

The influence of earnings announcements on adjustments in the stock price has been the subject of a considerable number of researches in the past decade. According to the efficient markets theory, stock markets react to new information in a timely manner and that information is fully reflected in the prices of traded assets (Fama, 1965a and Louhichi, 2008). However, investors and researchers have disputed the efficient markets hypothesis in terms of its theory and empirical evidences.

A number of papers indicated that investors used interim reports to predict future income and found that price changes were greater during weeks in which the company made quarterly earnings announcements than in weeks with no quarterly earnings announcements. Other researchers are interested in the time the market takes to react to new information. Morse (1981) focused on when the market reacts relative to a quarterly earnings announcement, and whether the market reacts before or after the earnings news release date, which provides additional knowledge as to how investors absorb and use information.

The economy of Thailand is a good example of rapid economic growth. In the 1980s, Thailand was a low-income country. In 2011, Thailand became an upper-middle income economy according to the World Bank 2011. Thailand's average annual economic growth has moderated to less than 4 percent since late 1990s. There are both internal and external factors. The growth rate reflects a combination of decreasing export competitiveness when compared with other emerging economies, a shortage of skilled and knowledgeable labor, political changes and uncertainty, and foreign factors that have affected public and private investment. Thailand's economy expanded at a low level of 0.9 percent in 2014, picked up a little by 2.8 percent in 2015 and is expected to grow slightly in 2016-2017. Economists believe that the Thai government's 5-year infrastructure investment plans will attract investment from the public and private sectors and is a driving force of economic growth. GDP growth is expected at 3.2 percent for 2016 (World Bank, 2015 and Bank of Thailand, 2016).

In 2015, the Stock Exchange of Thailand's (SET) daily average stock trading value was THB 44.3 billion. Domestic retail investors were the major player in trading in 2015, standing at 59.21 percent of trade, while the ratio of foreign investors increased to 22.20 percent of trade. Local institutes accounted for 9.39 percent of daily average trading value (SET, 2016c).

Emerging markets consist of large numbers of investors who are less informed and unsophisticated, low trading liquidity levels and weak legal structures (Osei, 2002). Therefore, it is conjectured that domestic retail investors in emerging markets tend to be less informed, unsophisticated and more speculative.

The Thai capital market has been upgraded to an Advanced Emerging Market from 2012 in the Financial Times Stock Exchange Group, the global index provider. FTSE conducts an annual review of its country classifications and announces the results every September. With great efforts by SET, the Thai capital market was selected due to its improvement in market quality which includes active monitoring by formal stock market regulatory authorities and enhanced brokerage service quality (SET, 2011).

To develop a sustainable capital market, SET continued to enhance the quality of the Thai capital market and Thai investors. SET recognized that domestic retail investors significantly influence market liquidity, contributing 59% of the total market turnover value. Numerous activities were initiated to build up an investment culture among Thai people. SET provided an education source for finance and investment knowledge through communication, business marketing development and education projects to educate and promote financial literacy for domestic retail investors and the general public. With proper and sufficient information, domestic retail investors in Thai market can become more educated, more informed, make use of fundamentals analysis rather than pure speculation, and be able to plan their investment prudently (SET, 2015, 2016d).

Submitting quarterly financial statements are mandated disclosures in the Stock Exchange of Thailand (SET). The financial statements are reviewed by auditors.

Recent studies found that disclosures contained valuable information for shareholders and outside investors (Chari et al, 1988; Cready and Mynatt, 1991, Lakhal, 2008 and Louhichi, 2008). Moreover, they believe that disclosures contain credible information. To enhance the credibility of disclosures, regulated financial reports, standard setters and effective auditors are necessities.

Management communicates firm performance to shareholders and outside investors through financial reporting and disclosures. Corporate financial reports and disclosures are significant tools to operate an efficient capital market. Domestic retail investors play an important role in trading. This group of investors accounts for 59.21 percent of trading in the Thai stock market. The stock market reactions to new information may give some explanations of investor characteristics, such as the degree to which they are informed and sophisticated.

This paper aims to examine the reaction of stock prices to quarterly earnings announcements in published financial statements at the Stock Exchange of Thailand (SET). The study of price changes around quarterly accounting data, in the form of public earnings announcements, may provide some important knowledge about how investors react, the effects on investor decisions and the speed of price adjustments in response to the release of new information. The test result may provide some evidence for or against the efficient markets hypothesis, and some provide positive benefits for investors in planning investment strategies and company managers in making decisions on a firm's disclosure policies.

History of the Thai Capital Market

The modern Thai Capital Market started in the early 1960s. The history of the Thai market can be separated into two stages: (1) "the Bangkok Stock Exchange" which was formed by a private group and (2) "the Securities Exchange of Thailand" which was officially supported by the Thai government.

Firstly, the Bangkok Stock Exchange was established in July 1962 as a limited partnership. Later in 1963, the formal name was changed to the Bangkok Stock Exchange Co., Ltd and it became a limited company. With a lack of support from the

Thai government and limited numbers of investors who understood and had knowledge about the Thai equity market, the Bangkok Stock Exchange performed poorly and was inactive and discontinued operations in the 1970s. Secondly, with the establishment of the Stock Exchange of Thailand in 1961, the Thai government implemented a National Economic and Social Development Plan. The purpose of this development plan was to support the promotion of Thailand's economic growth and stability along with raising the standard of living. The second National Economic and Social Development Plan (1967-1971) initially proposed the formation of Thailand's first officially supported and regulated securities market. The government-supported securities market would help in raising additional capital for Thailand's industrialization and economic development. After an in-depth study of the Thai capital market, the Securities Exchange of Thailand was established in 1974. The market started trading on April 30, 1975. The name was changed to the "Stock Exchange of Thailand" (SET) on January 1, 1991 (SET, 2016a; Chorruck and Worthington, 2009).

The SET's rules and regulations for information disclosure state that information disclosure must be made at least one hour prior to each trading session, or after the close of the trading market. The policy aimed to ensure equitable access to new information for investors. Furthermore, listed firms must transmit data by facsimile and on-line through the SET system at the same time. Reports must be prepared in both Thai and English. Submitting reviewed quarterly financial statements is a mandatory requirement for listed companies in SET. Firms' information disclosures must always be full and accurate, and in a timely manner to ensure market transparency. According to SET's guidelines for periodic information disclosure, listed companies must submit quarterly financial statements within 45 days of the end of each quarter. It is optional for firms to disclose unreviewed and unaudited financial statements within 30 days of the end of an accounting period, and it shall consistently follow the same practice (SET, 2016b).

This paper conducts an event study analysis to examine the relationship between earnings announcements and stock prices in the Thai market. The study will help to

determine the impact of new information in the capital market on stock market performance.

1.2 Statement of the Problem

In a semi-strong efficient market, any announcement of published information has no effect on stock prices and no one would earn, on average, an abnormal return (Fama, 1965b).

In the U.S. market, Morse (1981), Beaver (1968), May (1971), and Ball and Kothari (1991) found the existence of abnormal returns around earnings announcements and concluded that earnings announcements had informative content and material information. In the French market, Lakhal (2008) found significant market reactions and high abnormal volumes around earnings announcement dates. In China, Su (2003) indicated investors can make excess return by trading around the earnings announcement date. In Nigeria, the evidence showed significant abnormal price changes around earnings announcements (Afego, 2013).

Countries have different political, economic, cultural and legal systems. The systems are not independent of each other. The education and skill level of the population and cultural practices vary from country to country. These systems interact and influence each other and affect the way business is conducted in different countries. These systems have impacts on the stage of economic development; therefore countries differ in the level of economic development (which is commonly measured by gross national product) and in many ways (Hill, 2002). Accordingly, some components of the Thai market are different from other countries in terms of investor characteristics, regulation setters, macroeconomic conditions and the investment environment. It is therefore interesting to investigate whether quarterly earnings announcements have any effect on investors' investment decisions as reflected in market price change in the Thai market.

1.3 Research Objectives

The objective of this paper is:

To examine the reaction of the stock price to quarterly earnings announcements, in the form of published Financial Statements submitted to the Stock Exchange of Thailand (SET).

1.4 Research Questions

The research question for this study is: Do quarterly earnings announcements have any effect on stock price during the year 2015?

1.5 Scope of the Research

The sample of firms was taken from those listed on the Stock Exchange of Thailand (SET) and the firms must be included in the SET50 for the year 2015. Daily stock prices in the year 2015 are calculated to determine the normal behavior of the stock market. The study observed market reactions during the 8 days before and after the published financial statements using daily event study methodology. The event study methodology was developed by Fama et al (1969). This study is based on Chari, Jagannathan and Ofer (1988)'s study of security returns around earnings announcements.

This paper uses quarterly earnings announcement dates on the Stock Exchange of Thailand (SET)'s website and SETSMART, an information database system developed by SET. Information including the financial statements, footnotes, management discussion and analysis are available to the public on announcement dates.

1.6 Limitations of the Research

The area in focus is limited to the firms included in the SET50 index. The SET50 index is calculated from the stock prices of the top 50 companies listed on SET. These companies are reviewed and revised every six months. The top 50 companies are selected in terms of large average daily market capitalization and high liquidity, and

by meeting the required criteria regarding the distribution of shares to minor shareholders.

Using only companies included in the SET50 index to estimate expected return restricts the population and ignores companies with medium and small market capitalization.

1.7 Significance of the Study

For academic purposes, this study provides empirical evidence of the association between quarterly earnings announcements, the sign of earnings news and its effect on stock price in the Thai market.

The results of this study could provide insights into the positive benefit of earnings announcements both to investors and to managers. Better and timely information helps in reducing the information leakage risk between informed and uninformed investors, and at the same time helps in improving stock market liquidity. The quarterly earnings announcements and their effect on stock prices may be useful to reduce the effects of information asymmetry; the disclosures may narrow the expectation gap between investors and help investors to decide on their trading and investment strategies around earnings announcements.

1.8 Definition of Terms

Abnormal return is the difference between the actual return and the expected return (Ball and Brown 1968).

Earnings per share (EPS) is the portion of a firm's net income allocated to each share of common stock outstanding. Ball and Brown (1968) defined new information content of an earnings per share number as the difference between the actual and expected EPS.

Expected return assumes a normal relationship between a stock and the market index, the return which would have been expected (Ball and Brown 1968).

Information Asymmetry is the situation where one group of investors has superior information or inside knowledge over another. The companies have inside knowledge or superior information concerning various components of income. Other than macroeconomic variables, investors are expected to rely on the company to disclose accounting information (Su 2003).

Quarterly earnings announcement is the announcement of a company's earnings on a quarterly basis. Submitting quarterly financial statements is mandated disclosure to the Stock Exchange of Thailand (SET). Information including financial statements, footnotes, management discussions and analysis are available to the public on the announcement date.

Quarterly earnings announcement date is the date of the first earnings reported by the company after the end of the fiscal period (Chamber and Penman 1984).

The sign of news is classified by the comparison between the actual EPS and the expected EPS. The method uses a model to determine the expected EPS. On the basis of comparison, if the actual EPS is more than the expected EPS, then the EPS report would be good news. If the actual EPS is equal to the expected EPS, then the EPS report is considered to be neutral news. If the actual EPS is less than the expected EPS, then the EPS report would be bad news (Brown and Kennelly 1972).

This paper is organized as follows: Chapter One is the generalities of the study. The review of the literature about the theories and empirical evidence related to stock price changes around earnings announcements is in Chapter two. Chapter Three presents the research hypotheses, the method of data collection and discusses the research methodology. The discussion of the results will be presented in Chapter Four, and the conclusions will be presented in Chapter Five.

CHAPTER II - REVIEW OF RELATED LITERATURE AND STUDIES

This chapter reviews previous studies related to stock price changes around the quarterly earnings announcements.

2.1 Theories Related to Earnings Announcements

There are several theories relevant to the price effect from quarterly earnings announcements. This section reviews the market efficiency theory, the information asymmetry between informed-uninformed investors and the uncertainty resolution hypothesis.

2.1.1 The Efficient Market Theory

The concept of stock market efficiency by Fama (1965a) has played an important role in empirical work on the effect of information on stock price. Fama (1965a) used stocks prices on the New York Stock Exchange to test empirically the random-walk model of stock price behavior. The selected stocks were from the Dow-Jones Industrial Average. The component companies of the Dow-Jones Industrials are large important companies in their fields. In his work, he concluded that the empirical results presented strong support for the random-walk model and mentioned the existence of an "efficient" market for securities. This work marks a watershed in the formation of efficient market theory. His work has also attracted the attention of economists and statisticians in both challenging and supporting this theory.

According to the efficient markets theory, all available information is reflected in stock prices. This theory implies that news release has no effect on stock prices as prices already reflect public information and no one, on average, would earn abnormal returns. It already reflects the effects of events that have already happened and events that are expected to take place in the future (Fama, 1965a; Malkiel, 2003).

Fama, Fisher, Jensen and Roll (1969) investigated the adjustment of stock price to new information. The authors concluded that stock prices adjusted almost immediately after the announcement date of stock splits.

Malkiel (2003) explained that if the flow of information is unobstructed and instantaneously reflected in stock prices, then tomorrow's price change will reflect only tomorrow's news. The price changes tomorrow will be independent of today's price change. News, in his explanation, is unpredictable and that the resulting changes in stock price also must not be able to be predicted. Thus, no one can predict future prices by analyzing historical prices.

Fama (1965b) defined the efficient market as a market where, given the available information, a stock price at any point in time represents a good estimate of its intrinsic value. It is a market which (1) consists of large numbers of rational profit-maximizers. These groups of people are actively competing against each other. They try to forecast future market values of individual securities; and (2) all material current information is almost without restriction available to market participants (Fama 1965b).

Fama (1970) defined three types of market efficiency according to the degree of information available. The three types of efficiency are weak, semi-strong and strong forms. This study concerns semi-strong form efficiency.

Semi-strong form efficiency - securities prices fully reflect information contained in historical prices and publicly available information. Return is predicted based on historical prices, trading volume and news related to firms, the industry and the economy. Examples of news and announcements are earnings releases, dividends, stock splits, mergers and improvements in technology.

2.1.2 Information Asymmetry

Corporate disclosures intend to decrease the expectation gap between investors by decreasing the advantages of informed investors, and therefore reducing information asymmetry (Lakhal, 2008). Diamond and Verrecchia (1991) examined the relationship between disclosure, stock liquidity and the cost of capital. The authors stated that disclosure, which reduced information asymmetry, improved the future liquidity of a firm's securities and reduced the firm's cost of capital. Further, they pointed out that

reducing information asymmetry will increase the current stock price in cases where the initial information asymmetry is large.

Lakhal (2008) examined the French market as to whether voluntary earnings disclosures, in the form of quarterly earnings announcements and earnings forecasts, include valuable information for investors and whether they affect stock market liquidity and information asymmetry. The empirical evidence on volumes and prices showed that news stimulates significant market reactions and generates abnormally high trading volumes. Lakhal (2008) concluded that voluntary earnings disclosure in the French Stock Market included material information and untimely information causing information leakage in the pre-announcement period. The empirical evidence also indicated that earnings disclosures enhance liquidity by shrinking bid-ask spreads which was consistent with Diamond and Verrecchia (1991) in terms of improved liquidity.

Ball and Kothari (1991) assumed that all earnings announcements are routine and defined as a random drawing from a known earnings distribution, at a known date. To resolve uncertainty about a firm's future cash flows, management conveys information through routine earnings announcements to investors who are interested in the firm's news and activities. The increased flow of information increases the variability of returns during the earnings announcement period.

Bamber (1986) stated that price changes reflected changes in the aggregate market's average beliefs and Beaver (1968) explained that volume changes reflected shifts in the expectations of individual investors.

2.2 Empirical Evidence on the Effect of Earnings Announcements.

The hypothesis of market efficiency states that security prices fully reflect all available information. The event study was developed to test the information content of events that affect investment decisions, where the events are earnings announcements.

Many research findings show that the market reacts to news releases very quickly and there are abnormal returns around earnings announcements. Morse (1981), Beaver

(1968), May (1971), Lakhali (2008) and Ball and Kothari (1991) found the existence of abnormal returns around the earnings announcement, and concluded that the earnings announcements had informative content and material information.

Kiger (1972) investigated the volume and price reaction around quarterly earnings announcements in the New York Stock Exchange. Kiger (1972) found that average trading volume was greater during the earnings announcement period than during no announcement period. The evidence suggested that interim reports were used by investors.

Beaver (1968) stated price reactions reflect changes in the expectations of the whole market and prices reflect the expectation of many investors. An earnings announcement has information if it leads to a change in investor expectations, and the changes must be large enough to induce a change in investor behavior. In the study of price and volume reaction during earnings announcements, Beaver (1968) found above normal price changes in the announcement period. The evidence showed that earnings announcements convey information content, and investors respond quickly to new information.

May (1971) attempted to study the influence of quarterly earnings announcements on investors' investment decisions as reflected in market price changes. The results showed that the price reactions in announcement weeks were greater than in non-announcement weeks and that quarterly accounting data affected investors' actual investment decisions.

Morse (1981) examined when the market reacts relatively to quarterly and annual earnings announcements. Changes in price may happen before or after the announcement. Morse (1981) provided various reasons for different possible test results. If a price changes before the public news release, it indicates that the signal about the announcement had been received by some investors. If the price adjusted rapidly following the announcement, there were some changes in beliefs caused by the signal. If the price changed in the days after the news, it is possible that the public announcement did not release all relevant information and further information was released through other sources in the following days. The information was used by

investors and thus resulted in price changes. Moreover, the stock price might already reflect its true value and there is no subsequent change in price. The empirical test showed that large price changes started one day before and on the day of announcement. Morse (1981) explained that there was private usage of information one day before the announcement.

However, other groups of researchers, Ball and Brown (1968) and Brown and Kennelly (1992) found evidence that information content in earnings announcements was reflected in stock prices prior to the release of financial statements.

Ball and Brown (1968) investigated the market's reaction to accounting income and the release of income reports. They compared the firm's actual income and what the market expected the income to be. The difference between these numbers was forecasted error, which the authors assumed to be new information possessed by the current investors. They found that if actual earnings differed from expected earnings, the market reacted in the same direction. There was a positive relationship between the sign of forecasted error and the test statistics. The empirical result suggested that information contained in earnings announcements was reflected in the market price before the earnings reports were released. It indicated that earnings announcements were used by investors, but the announcements were one of the many sources of information publicly available to investors. Further, they pointed out the fact that at the time when the earnings report was released, the period of the earnings report had passed by more than a month.

Brown and Kennelly (1972) followed the previous research of Ball and Brown (1968). They used various methods to predict earnings per share (EPS) including the naïve model. The results were summarized by annual and quarterly announcements. The results were in line with the results of Ball and Brown (1968). Most information in the annual report has been reflected in stock prices prior to the announcement date.

2.2.1 The Type of News

Brown and Kennelly (1972) constructed a model to predict earnings per share (EPS). Earnings per share are a part of a company's income which are assigned to each

outstanding common share. The model predicted that EPS for a specified quarter of this year will be the same for corresponding quarter of last year. The earnings announcements are classified by their nature into three types, which are good news, neutral news and bad news. The actual EPS is the actual number of a specified quarter of this year. The expected EPS is the actual number for a corresponding quarter of last year. The actual EPS and expected EPS are then compared. If the actual EPS is more than the expected EPS, it provides good news. If the actual EPS is less than the last EPS, it provides bad news. If the actual EPS is equal to the last EPS, it provides neutral news.

Chari et al. (1988) examined the behavior of stock returns around quarterly earnings announcement dates in the US market using daily event study methodology. The market model was used to compute expected return. Firms in the sample were grouped based on the market value of all stocks traded in the market. Each group class contained 10 percent of the firms. The excess return for the ten size classes were summarized and statistically tested for significance. Furthermore, Chari et al (1988) classified earnings announcements by the timing of announcements which were early, on-time or late announcements. These three groups were categorized by comparing the actual and expected announcement date. The empirical evidence showed that large firms showed no abnormal return around event dates. They explained that large firms received more attention from the market, and information is made available more continuously. Cumulative excess returns for the early group and the on time group were positive but negative for firms that announced later than expected. The authors suggested that companies tended to announce good news earlier while firms with bad news usually announced after the expected date.

However, Kross and Schroeder (1984) believed that the timing of an earnings news release itself should have no effect on stock return. It is possibly related to other events that are associated with the timeliness of earnings announcements. Kross and Schroeder (1984) explained their belief by giving an example of an event associated with a reporting delay as an event that is usually viewed as bad news. This study applies the model of Brown and Kennelly (1972), and Ball and Brown (1968) to

classify earnings announcements. The announcements are categorized by comparing the actual and expected earnings per share, which is different to Chari et al (1988).

Su (2003) studied the stock price reaction to changes in earnings per share (EPS). There were two types of investor, domestic and international investors. Later, the sample was divided into two groups, positive and non-positive. If the actual EPS was more than the forecasted EPS, an announcement belongs to the positive group. If the actual EPS is equal to or less than the forecasted EPS, an announcement belongs to the non-positive group. The empirical evidence indicated that domestic investors failed to adjust quickly to new EPS announcements. The new EPS information was considered and investors could make excess returns by trading around the EPS announcement. As a result, the Chinese domestic market was not found to be a semi-strong form efficient market. In contrast, the author found that the Chinese international market was a semi-strong form efficient market as the stock price reflected the change in public information. International investors were better at predicting changes in EPS than domestic investors. The test result showed that there was little or no abnormal return in the Chinese international market. Domestic investors had limited access to alternative information other than publicly available accounting reports while international investors were large institutional investors that had the ability to conduct more sophisticated analysis and access alternative information such as more detailed and informative accounting reports.

The study of the intraday adjustment of stock prices to earnings announcements in the Euronext Paris market during the period 2001-2003 by Louhichi (2008) showed that when new information was absorbed into the stock price, the speed of stock price adjustment was very quick. Every earning announcement was classified by its nature into one of three types of news: good news, bad news or no news. This research found that investors responded negatively to bad news and positively to good news. While no-news announcement showed no abnormal return, this type of event did not cause a significant effect on stock prices. The author confirmed that anticipated news does not change overall beliefs about the stock price. Investors used earning news and forecasted data in their trading activities. The result showed that there was a stronger market reaction to good news than to bad news. The author explained that firm

managers tried to reduce the effects of weak firm performance and gave the market confidence by focusing on particular indicators in which the company had good performance. The empirical test offered evidence that Euronext Paris was semi-strong form efficient. It was not possible to realize abnormal return 15 minutes after the announcement. The degree of efficiency was evaluated based on Fama (1970)'s definition.

Lakhal (2008) distinguished earnings announcements between good, neutral and bad news according to the sign of the news. Investors reacted positively to good news and negatively to bad news. Both good news and bad news exhibited significant average abnormal returns on the announcement dates. The results were different from Louhichi (2008).

2.2.2 Empirical Evidence Around the World

Many studies focus on the US market or other developed markets. Other parts of the world are also an interesting topic for researchers. Su (2003) studied the Chinese market and Osei (2002), Afego (2013) and Kiremu et al (2013) studied Africa while Iqbal and Farooqi (2011) investigated the Pakistan market.

In the Ghana stock market, Osei (2002) analyzed the response to earnings announcements. Earnings announcements were found to convey information content which the market used to revise stock prices. In the case of both good news and bad news, the market learned about the coming earnings news. The market drifted up for good news and down for bad news before the news was released. The market continued to react beyond the announcement week.

In the Kenya stock market, Kiremu et al. (2013) studied stock price and volume reactions to earnings announcements. The results indicated that there are no abnormal returns and abnormal trading volumes at the 5% significance level. The information contained in the earnings announcements was absorbed efficiently in the share prices. The authors defined the Kenya stock market as a semi-strong efficient market, thus it is not possible to earn abnormal returns in the Kenya stock market using public information.

In Nigeria, Afego (2013) suggested earnings reports had value-relevant information as evidence showed significant abnormal price changes around earnings announcements. Significant reactions had started 20 days prior to the news release date. Afego (2013) indicated the changes may be due to private information by insiders.

In Pakistan, Iqbal and Farooqi (2011) found that the market reaction to bad news was stronger than good news if there was the same level of earning surprise. The information contents in earnings reports were reflected in the share price before or on the announcement date.

In Turkey, Odabasi (1998) followed Brown and Kennelly (1972)'s forecast earnings model and classified announcements into good news and bad news. The test result for the full sample including good and bad news indicated abnormal price reactions; average abnormal returns for good news were positive and for bad news were negative. Furthermore, the price reaction for bad news was larger than that for good news.

May (1971) stated that using price changes to study the relative effects of quarterly earnings announcements on investors' expectations was perhaps not a perfect reflection. However, May (1971) believed that price reaction reflected changes in investor expectations or at least the investors' decisions to buy, sell or hold their current position of some securities.

Table 2.1 Empirical Evidence for the Effect of Earnings Announcements

Markets	Studies	periods	Data	Method	Findings
U.S.	Ball and Brown (1968)	1957-1965	monthly	Abnormal Performance Index (API) error	-The market reacted in the same direction as the sign of forecasted error: a positive response to good news and a negative reaction to bad news. -No unusual jumps in the API in the announcement month. -Information was reflected in the market price before the earnings report was released.
U.S.	Beaver (1968)	1961-1965	weekly	Market model	-Earnings announcement generates abnormal price changes and abnormal high trading volume.
U.S.	May (1971)	1966-1968	weekly	Market model	-The price reactions in announcement weeks were greater than in non-announcement weeks and that quarterly accounting data affected investors' actual investment decisions.
U.S.	Brown and Kennelly (1972)	1951-1967	monthly	Abnormal performance index	-Most information contained in annual earnings announcement was reflected in stock price prior to the announcement date.
U.S.	Kiger (1972)	1966-1969	daily	P/E multiplier	-Average trading volume was greater during the earnings announcement period.
U.S.	Morse (1981)	1973-1976	daily	Market model	-There were excess price changes and abnormal high trading volume on the day before and on the announcement date. -Significant private usage of information occurred one day prior to the announcement.
U.S.	Chari et al. (1988)	1976-1984	daily	Market model	-Large firms showed no abnormal return around event dates. -Positive response to Good news and negative reaction to bad news.

Markets	Studies	periods	Data	Method	Findings
France	Louhichi (2008)	2001-2003	intraday	Constant mean return model	<p>-Price reaction to earnings announcement began very quickly.</p> <p>-It was not possible to realize abnormal return 15 minutes after the announcement.</p> <p>-Defined the market efficiency as semi-strong form.</p>
France	Lakhal (2008)	1998-2001	Daily	Bid-ask spread Market model	<p>-Investors reacted positively to good news and negatively to bad news.</p> <p>-Both good news and bad news exhibited significant average abnormal returns on the announcement dates.</p> <p>-Results are similar for the market model, Mean adjusted return model and index model.</p>

Note: The information in Table 2.1 is compiled by the author.

Table 2.2 A Summary of Empirical Evidence from Various Studies Around the World

Markets	Studies	periods	Data	Method	Findings
Turkey	Odabasi (1998)	1992-1995	Daily	Market model	<p>-Classified announcements into good news and bad news. Compared EPS of this period with EPS of previous period</p> <p>-The test result for the full sample including good and bad news indicated abnormal price reaction. Average abnormal return for good news was positive and bad news was negative.</p> <p>-Further, the price reaction for bad news was larger than that of good news.</p>
Ghana	Osei (2002)	1992-1997	Weekly	Market model	<p>-In the case of both good news and bad news, the market learned about the coming earnings news.</p> <p>-The market drifted up for good news and down for bad news before the news release.</p> <p>-The market continued to react beyond the announcement week.</p>
China	Su (2003)	1997-1998	daily	Market model	<p>-Domestic investors did not adjust to news quickly. Excess return can be realized upon the release of news.</p> <p>-International investors as large institutional investors were able to predict changes in EPS better. The test result showed little or no abnormal return around news release date.</p>
Pakistan	Iqbal & Farooqi (2011)	2004-2008	Daily	Market model	<p>-There was no excess abnormal return after the news release. Information reflected in price before or on the announcement date.</p> <p>-Absorb news quickly, market is efficient.</p>
Kenya	Kiremu et al. (2013)	2006-2010	Daily	Market model	<p>-Semi-strong form of efficiency.</p> <p>-AAR, CAAR were not significant. Eliminate chance to earn abnormal return.</p>
Nigeria	Afego (2013)	2005-2008	Daily	Market model	<p>-There were significant abnormal price reactions during the earnings announcement period.</p> <p>-The author suggested that the earnings announcements have information content.</p>

Note: The information in Table 2.2 is compiled by the author.

CHAPTER III - RESEARCH METHODOLOGY

This chapter presents the hypotheses developed for this study, the collection of data and the research methodology.

3.1 Research Hypotheses

This paper is based on the study of security returns around earnings announcements by Chari et al. (1988). The earnings announcements are categorized into three types based on the nature of the news: good news, neutral news, and bad news. According to the nature of the earnings announcements, the following research hypotheses have been developed.

Hypothesis 1:

Ho: There is no abnormal return during the quarterly earnings announcement period **for good news**

Ha: There is abnormal return during the quarterly earnings announcement period **for good news.**

Hypothesis 2:

Ho: There is no abnormal return during the quarterly earnings announcement period **for bad news.**

Ha: There is abnormal return during the quarterly earnings announcement period **for bad news.**

Hypothesis 1 is tested to examine the impact of good news on stock prices, and Hypothesis 2 is tested to examine the impact of bad news on stock prices. Louhichi (2008), Lakhal (2008) and Odabasi (1998) found that price reactions were positive for good news and negative for bad news.

Hypothesis 3:

Ho: There is no abnormal return during the quarterly earnings announcement period **for neutral news.**

Ha: There is abnormal return during the quarterly earnings announcement period **for neutral news.**

Hypothesis 3 was considered according to Louhichi (2008)'s empirical evidence that neutral news did not significantly affect market prices and confirmed that anticipated news does not change overall market beliefs about the stock value.

This study addresses whether quarterly earnings announcements have any effect on investor expectations as reflected in the stock price, and whether price changes take place in periods when quarterly earnings announcements are made. Table 3.1 shows the list of alternative research hypotheses related to this study.

Table 3.1 List of Alternative Research Hypotheses

Hypothesis 1:	Average Abnormal Return	= 0	for good news.
Hypothesis 2:	Average Abnormal Return	= 0	for bad news.
Hypothesis 3:	Average Abnormal Return	= 0	for neutral news.

3.2 Data Collection

The data used in this study are collected from the official website of the Stock Exchange of Thailand (www.set.or.th) and the SETSMART database, an information database system developed by the Stock Exchange of Thailand (SET). The list of stocks in the SET 50 index for the period of 2015 was collected from the SET’s official website. The daily stock closing prices, SET index, quarterly earnings announcement dates and quarterly earnings per share were initially taken from the SETSMART database. All data are collected for the period of 2015.

3.2.1 Data Criteria

The following criteria are meant to provide a relatively consistent pattern of observations.

1. Continuously included in the SET50 index for the whole period of study of 2015.
2. The fiscal year ends on December 31.

This study focuses on companies with large market capitalization and high liquidity (SET50). The component stocks in the SET50 index are reviewed every six months. Each firm must have been continuously included in the SET50 index for the whole study period of 2015. This paper focuses on firms included in the SET50 index to avoid problems such as lack of market data, low trading volume and less liquidity.

The sample excludes two non-calendar-year companies and eight companies that were not included in the SET50 index for the whole study period of 2015.

There are 40 continuous listed companies that meet the data selection criteria and 120 observations in the year 2015. The sample is examined for other announcements occurring within one week before and after the earnings announcement dates. The final sample includes 38 companies and 94 observations. The major items, such as stock splits, merger announcements, divestitures, litigation, stock dividend announcements, changes in dividend policy, liquidation of subsidiaries, acquisition and disposition of assets, announcements of new product and technology, changes in key executives and strike announcements are subjectively deemed potentially confounding events (Bamber, 1986 and McWilliams et al., 1997) and eliminated from the final samples. Table 3.2 presents examples of confounding events.

Confounding events might distort or camouflage the effect of the event of interest on the stock return (Kritzman, 1994). The corresponding observations are discarded from the sample. Even with the adjustments, all effects other than the influence of the earnings announcement are probably not removed (Kiger, 1972). Kiger (1972) assumed that unidentified influences were distributed randomly in time and were not centered on the announcement dates.

Table 3.2 Examples of Confounding Events

<i>Example of confounding events</i>		
Litigation	Changes in key executives	Merger announcements
Stock splits	Announcements of new product and technology	Stock dividend announcements
Strike announcements	Acquisition and disposition of assets	Changes in dividend policy
Divestitures		

3.2.2 Quarterly Earnings Announcement Dates

This paper uses quarterly earnings announcement dates from the Stock Exchange of Thailand (SET)'s website. Information including financial statements, footnotes, management discussions and analysis are available to the public on announcement dates. All announcements are published for the financial statement period ending 31 March, 30 June and 30 September for the year 2015, excluding firms with a fiscal year not ending on 31 December (Ball and Brown 1968).

Some companies voluntarily announced financial statements which were unreviewed/ unaudited by independent auditors approximately one month before the announcement of reviewed/audited financial statements. This paper uses the first announcement as the event date for 16 observations which include 3 observations from the energy & utilities industry and the rest from the banking industry. According to SET's guidelines for periodic information disclosure, it is optional for listed companies to submit unreviewed and unaudited financial statements within 30 days of the end of an accounting period. It shall consistently follow the same practice if a listed company decides to voluntarily disclose (SET, 2016b).

Three reasons are considered:

1. Chamber and Penman (1984) defined the earnings announcement date as the date of the first earnings report by the company after the end of the fiscal period. Thus an unreviewed/unaudited report prior to the final audited report was deemed to be the earnings announcement.
2. If the quantitative information presented in financial statements in the first and second announcement was the same, the second announcement might only confirm the investors' belief which was already reflected in the first announcement period.
3. The changes in financial statements might be relatively small and not influential enough to make the investors change their behaviors.

This paper limits the effect of the second announcement which might contain material information.

3.2.3 Quarterly Earnings per Shares and the Sign of News

Following Ball and Brown (1968) and Brown and Kennelly (1972), the informational content of earnings per share (EPS) numbers are defined by the difference between the actual number and the expected number. This paper applies the classical naïve model used by Ball and Brown (1968), Brown and Kennelly (1972), Patell and Wolfson (1982) and Su (2003). Quarterly earnings per shares of the year 2014 and the year 2015 were initially taken from SETSMART.

Ball and Brown (1968) constructed a model of what the market expected income to be. The expected EPS for a specified quarter of this year will be the same for the

corresponding quarter of last year (Brown and Kennelly, 1972). According to Ball and Brown (1968)'s model, earnings announcements are categorized by their nature into three types, which are good news, neutral news and bad news. The actual EPS was the actual number of a specified quarter of this year. The expected EPS was the actual number for the corresponding quarter of last year. The study compares the EPS of the year 2015 and the EPS of the year 2014, to the corresponding quarters. The EPS of the year 2015 is seen as the actual number, and the EPS of the year 2014 is the last EPS. If the actual EPS is more than the last EPS, it provides good news. If the actual EPS is equal to the last EPS, it provides neutral news. If the actual EPS is less than the last EPS, it provides bad news:

- Good news: $\text{EPS of Quarter 3 2015} > \text{Quarter 3 2014}$
- Neutral news: $\text{EPS of Quarter 3 2015} = \text{Quarter 3 2014}$
- Bad news: $\text{EPS of Quarter 3 2015} < \text{Quarter 3 2014}$

Table 3.3 presents the classification of earnings announcements and types of news with examples from the Advanced Information Service Public Company Limited. The EPSs in each quarterly earnings announcement are classified by their nature in accordance with Ball and Brown (1968)'s model. The final sample is 94 observations which consists of 45 samples for the good news group, 48 samples for the bad news group and 1 sample for the neutral news group (see Table 3.4).

Table 3.3 Classification of Earnings Announcements and Types of News

No.	Symbol	Quarter	Year 2015 EPS Actual	Year 2014 EPS Last	Y2015 minus Y2014 (Actual less Last)	Types of news
1	ADVANC	Q ³	2.898	3.010	-0.112	Bad news
2	ADVANC	Q2	3.310	2.850	0.460	Good news
3	ADVANC	Q1	3.330	3.190	0.140	Good news

Remarks: 1.*EPS is earnings per share.
2.Examples from Advanced Information Service Public Company Limited.

Table 3.4 Number of Samples Classified by the Type of News

Types of News	Q1-2015	Q2-2015	Q3-2015	Total
Good	18	18	9	45
Bad	14	12	22	48
Neutral			1	1
Full Sample	32	30	32	94

3.3 Research Methodology

Event study methodology was developed by Fama et al. (1969) in order to examine the stock price adjustment process to new information content in a stock split. They proposed a methodology for evaluating the effects of events and actions on stock prices. Since then, researchers have used this method to examine market behavior around event dates. The event study methodology is used to examine abnormal returns and changes in stock prices around quarterly earnings announcements.

3.3.1 General Procedures for Event Study

General procedures for event study used by researchers (Louhichi 2008, and Fama et al. 1969):

1. To define the event of interest and identify estimation and event windows.
2. To estimate the expected return and variables in the estimation windows.
3. To compute the abnormal return by using actual return in the event window minus the expected return estimated from the estimation window.
4. To test whether the abnormal return is statistically significant.

This paper is based on the study of security returns around earnings announcements by Chari et al. (1988). The estimation period, event window, daily event study methodology and use of market model in computing expected return are in line with Chari et al. (1988).

Calculation methods for abnormal return, the aggregate of the estimated standard deviation of abnormal return and the test value are in accordance with Brown and Warner (1980, 1985). The predicted model for EPS in this study follows Ball and Brown (1968)'s model, which expects EPS for a specified quarter of this year to be the same as the corresponding quarter of last year. Each earnings announcement is classified by comparing the actual number (EPS) and the expected number (EPS). If the actual EPS is larger than the expected EPS, it provides good news. The earnings announcement is considered as bad news if the actual EPS is less than the expected EPS. If the actual EPS is as same as the expected EPS, it provides neutral news.

Around the time of announcement (See Figure 3.1)

Estimation period: The estimation period contains the 56 trading days before the event window. It is used to determine the normal behavior of stock return related to the market index. Daily price data starts from Day 64 to Day 9 before the announcement date ($t = -64, \dots, -9$).

Event window: The event date is the announcement date of quarterly financial statements on the Stock Exchange of Thailand (SET)’s official website ($t = 0$). The event window is 17 days. This paper focuses on 8 days before the event date and 8 days after the event date (Chari et al., 1988). It is used to observe abnormal return using actual return and expected return. It is usually a few days before and after the event date. The reason to choose the -8 to +8 event window is to capture the possible pre-announcement period reaction and the stock response after the release of earnings.

- Pre-announcement period (Event window): It is the period prior to the announcement. The eight trading days prior to the event date ($t = -8, \dots, -1$).
- Event date: The announcement date of quarterly financial statements on the Stock Exchange of Thailand (SET)’s official website ($t = 0$).
- Post-announcement period (Event window): It is the period after the earnings announcement. The eight trading days after the event date ($t = +1, \dots, +8$).

Figure 3.1 Estimation Period and Event Window

Start date for estimation period	End date for estimation period	Start date for event window	Event date	End date for event window
$t = -64$	$t = -9$	$t = -8$	$t = 0$	$t = +8$
ESTIMATION PERIOD Day -64 to day -9 This estimation period is used to determine the normal behavior of the stock market. Use OLS regression $R_{ij} = \alpha + \beta_1 R_{it}$		EVENT WINDOW Day -8 to day +8 Use data from the event window and the regression from the estimation period to determine the effect of earnings announcements.		

3.3.2 Research Model

Several models have been used to calculate the expected return using data from the estimation period. Frequently used methods are the Market Model (used by Chari et al, 1988), the Constant Mean Return Model (used by Louhichi 2008) and the Market-Adjusted Return Model or Index Model.

In Lakhali (2008)'s study, the Market Model, the Mean-Adjusted Return Model and the Market-Adjusted Return Model gave similar results while in the study of Brown and Warner (1985), three methods provided similar results and the Market Model was outperformed under a variety of conditions (such as the event date cluster in calendar time).

Based on the Market Model, the expected return for each announcement date for each stock is estimated from the regression of the stock return and the market return in the estimation period. Abnormal returns, which are the difference between the actual return and the expected return are calculated for all stocks. Next, the abnormal return data are tested for significance by employing the t-test (Brown & Warner, 1985). The level of significance is set at 10%.

1. The daily return of stock i is computed by the continuously compounded return on the stock.

$$R_{it} = \ln \left| \frac{P_{it}}{P_{i,t-1}} \right| \quad (1)$$

where

- R_{it} = the daily actual return of stock i (on day t),
- \ln = the natural logarithm,
- P_{it} = the closing price of stock i on day t ,
- $P_{i,t-1}$ = the closing price of stock i on day t – 1.

2. The daily market return is computed as,

$$R_{mt} = \ln \left(\frac{I_t}{I_{t-1}} \right) \quad (2)$$

where

R_{mt} = the daily actual market return of stock i (on day t),

\ln = the natural logarithm,

I_t = the closing price of SET index on day t ,

$t-1$ = the closing price of SET index on day t – 1.

Any bias that may occur due to an increase in the bid-ask spread around announcement dates would be minimized by the use of a continuous compounded rate of return (Chari et al, 1988).

3. The expected return for stock is predicted by the stock's α_i and market return. The expected returns for stock i on day t are defined as,

$$E(R_{it}) = \alpha_i + \beta_i R_{mt} + \varepsilon_i \quad (3)$$

where

$E(R_{it})$ = the expected daily return of stock i (on day t),

R_{mt} = the actual market return on SET index (on day t),

α_i, β_i = the regression constant and coefficients determined by Ordinary Least Square regression over the estimate window (day -64 to -9),

ε_i = error term.

The parameters of this model are estimated using 56 days of daily returns prior to the earnings announcement dates ($t=-64 \dots -9$) (Chari et al, 1988). The estimates of alpha and beta for each announcement date for each firm are calculated from Ordinary Least Square Regression over R_{it} and R_{mt} for the estimation window $t = -64, \dots, -9$.

Parameter estimates are used to compute the abnormal return for days -8 through +8 ($t = -8, \dots, +8$). The event window is 17 days. The regressions are calculated for every stock in the sample.

4. The Abnormal Return: Event study methodology is used to measure market reaction to quarterly earnings announcements. The impacts are measured by the stock's abnormal return (AR), which is the difference between its daily actual return and the daily expected return predicted from the regression equation [Equation 3]. The abnormal return was computed as,

$$AR = R_{i,t} - E(R_{i,t}), \quad (4)$$

where

AR_{it} = abnormal return of security i on day t,

$R_{i,t}$ = the daily actual return of security i on day t.

5. Calculating the Average Abnormal Return: The abnormal return for days - 8 through + 8 around the announcement date are computed for every stock, calculating the average abnormal return by summing the abnormal return for each day t in the event window (and event date) divided by the number of stocks in the sample on day t.

The average abnormal return for each day t is as follows:-

$$AAR_t = \frac{\text{Sum of abnormal return on day } t}{\text{Number of stocks in sample on day } t}$$

and

$$AAR = \frac{\sum AR_{it}}{N} \quad (5)$$

where

AAR_t = average abnormal return on day t (t = -8,...,+8),

N = number of stocks in sample on day t (good=45, bad=48),

AR_{it} = abnormal return of stock i on day t.

6. Aggregate of estimated standard deviation of abnormal return across all stocks are computed by the standard deviation of each stock's abnormal return estimated during the estimation window (t = - 64,..., - 9) and the number of stocks in the sample (Brown & Warner, 1980). Residuals were transformed to help attain some distributional comparability across firms (Morse, 1981 and Bamber, 1986).

The aggregate of estimated standard deviation of abnormal return across all stocks is calculated as follows:-

$$U_N = \sqrt{\frac{1}{N} \sum_{i=1}^N a_{i,est}^2} \quad (6)$$

and

$$\sigma_{i,est}^2 = \frac{1}{54} \left[\sum_{t=-64}^{-9} AR_t^2 - \frac{\left(\sum_{t=-64}^{-9} AR_t \right)^2}{55} \right]$$

where

- U_N = aggregate of estimated standard deviation of abnormal return across all stocks,
 $\sigma_{i,est}$ = standard deviation of abnormal return (residual) of stock i estimated from estimation window (standard error of regression),
 N = number of stocks in the sample on day t (good=45, bad=48).

7. The t-statistic test: The t-statistic test is applied to test the hypothesis whether the average abnormal returns on the event window, depending on the degree of freedom, differ significantly from zero at the 90 percent confidence level. If the test value was significant on the day of the event window, a reasonable conclusion is that the event does affect security returns, or vice versa. The measure is similar to Brown and Warner (1980).

The t-statistic is computed as follows:-

$$t\text{-statistic} = \frac{\text{Average abnormal return on day } t}{\text{Aggregate of estimated standard deviation of abnormal return across all securities}}$$

Example of day t

$$t\text{-statistic} = \frac{AAR_t}{\sigma_N} \quad (7)$$

where

- AAR_t = average abnormal return,
 σ_N = aggregate of estimated standard deviation of abnormal return across all stocks.

8. The Cumulative Average Abnormal Return (CAAR) is used to measure the stock's overall reaction to the earnings announcement. The accumulated responses are computed from day -8 to day +8 during event window. It shows the total effects of the earnings announcement on the price changes.

The cumulative average abnormal return (CAAR) is calculated by the equation,

$$CAAR_t = \frac{1}{d} \sum_{t=-8}^{t=+8} AAR_t, \quad (8)$$

where

$CAAR_t$ = cumulative average abnormal return during the event window. ($t = -8, \dots, +8$).

9. The t-statistic test for Cumulative Average Abnormal Return (CAAR) is computed as follows:-

$$t - statistic = \frac{CAAR_t}{\sigma_{AAR} / \sqrt{d}} \quad (9)$$

where

d = total number of days that accumulated AAR.

CHAPTER IV - PRESENTATION AND DISCUSSION OF RESULTS

This chapter presents the effect of earnings announcements on stock prices. The results are analyzed and presented as follows.

The final sample is 94 observations, which consist of 45 samples for the good news group, 48 samples for the bad news group and 1 sample for the neutral news group. Depending on the available samples, this study concentrates on the research hypotheses related to good news and bad news.

4.1 Data Description

Table 4.1 below displays the percentage change in earnings per share summarized by the types of news. For good news, there is a 126% average increase in earnings per share from year 2014 to 2015. For bad news, there is a 39% average decrease in earnings per share from year 2014 to 2015. For the **full** sample, there is a 41% average increase in earnings per share from year 2014 to 2015, mainly due to the higher percentage increase in earnings per share of the good news sample group. Earnings per share are used to classify the types of news.

Table 4.1 Percentage Change in Earnings Per Share by the Type of News

Nature of News	Good News	Bad News	Neutral News	Full Sample
% change in EPS	126%	-39%	0%	41%
number of sample	45	48	1	94

In year 2015, market capitalization for all stocks in the SET and the SET50 index were 12,282.75 and 7,740.07 billion Baht, respectively. SET50's market capitalization accounted for 63% of the total SET market. Table 4.2 shows the market capitalizations of observations in the SET50 and SET for the year 2015. Market capitalization for the full sample in this study is 53% of the SET's market capitalization, which is 6,475.44 billion Baht (SET, 2016c).

Table 4.2 Market capitalizations of the full sample, **SET50** and SET (values in million Baht)

Types	Market capitalization as of 30/12/2015			
	unit: million Baht	%	unit: million Baht	
SET50				
Full samples included in SET50	6,475,436.73	53%	7,740,071.47	63%
Companies not included in full sample	1,264,634.74	10%		
Non SET50	4,542,683.23	37%	4,542,683.23	37%
SET	12,282,754.70	100%	12,282,754.70	100%

Table 4.3 shows the timing of reporting quarterly financial statements by the nature of news. All earnings announcements are made during no-trading periods either before the morning/afternoon session starts or after the market has closed. A minority of firms in this study submit quarterly financial statements before the morning or afternoon session. Approximately 68% of the earnings news is released after the close of trading for the day or when the market is closed.

Table 4.3 Timing of Reporting on Announcement Date

Timing of announcement	Good News	Bad News	Neutral News	Full Sample
Before morning or afternoon session *	12	18		30
After closing of trading day	33	30	1	64
Total	45	48	1	94
Before morning or afternoon session *	27%	38%		32%
After closing of trading day	73%	63%		68%
Total	100%	100%		100%

Note: SET has two trading sessions:

Morning: Open between 9.55 to 10.00 a.m., randomly. Close at 12.30 p.m.

Afternoon: Open between 2.25 to 2.30 p.m., randomly. Close approximately 4.40 p.m.

*the announcement is made before morning or afternoon session.

4.2 Earnings Announcement Date

For the full sample, there are no abnormal return in the tests of average abnormal return and cumulative abnormal return. These findings are consistent with earlier studies of Chari et al (1988) in which large firms' average excess return and cumulative excess return were not significantly different from zero. Large companies

gain more attention from the market and investors and have more sources of information than that released to the market. Chart et al (1988) further classified earnings announcements based on the timing of announcement, which were early, on-time and late announcements. An earnings announcement was considered as early if it was announced before the expected date and late if it was announced after the expected date. The author further stated that when calculating abnormal return, an adjustment must be considered for the fact that firms released news earlier than expected when they tended to have good news and firms published news later than expected when they tended to have bad news.

Chambers and Penman (1984) found that investors considered late earnings announcements as bad news. Moreover, Kross and Schroeder (1984) believed that the timing of earnings announcements should have no effect on stock return but rather on the information possessed at the release time. This study follows Ball and Brown (1968)'s model to classify earnings announcements as good news, bad news and neutral news. The announcements are categorized by comparing the actual and expected earnings per share, which is different from Chari et al (1988).

Table 4.4 presents the average abnormal returns and test statistics around the announcement date. It is summarized by the nature of news, good news, bad news, neutral news and the total number of samples. On the announcement date, the average abnormal returns are small in all three categories, which are 0.016% and -0.099% for good news and bad news, respectively. The test value of good news and bad news are 0.065 and -0.429, respectively. The test values for both good news and bad news are not significantly different from zero at a 90 percent confidence level on the announcement date.

It is necessary to consider one day following the earnings announcement date due to the timing of reporting. According to SET's regulation on the timing of announcements, information disclosure must be made at least one hour prior to each trading session, or after the close of the trading market (SET, 2016b). The announcements are made after the closing of the day's trading in many cases (Table 4.3). If earnings news is announced after the market closes, investors will respond the

next day, which is day one. Earnings announcements are made during the non-trading period to ensure that market participants have fairness in information access (SET, 2016b). Patell and Wolfson (1982) indicated that announcements made after the close of the trading period give investors time to analyze the data.

Table 4.4 shows that good news exhibits significant abnormal returns on day one, one day after news releases. Bad news shows no abnormal return around the announcement date.

Table 4.4 Average Abnormal Returns Around Earnings Announcements

Day	Good news		Bad news		Neutral news		Full sample		
	AAR (%)	T-stat	AAR (%)	T-stat	AAR (%)	T-stat	AAR (%)	T-stat	
-8	-0.093	-0.384	-0.069	-0.301	-0.521	-0.368	-0.085	-0.516	
-7	0.128	0.528	0.058	0.250	-0.126	-0.089	0.089	0.539	
-6	-0.160	-0.660	-0.270	-1.173	-1.039	-0.733	-0.225	-1.359	
-5	0.278	1.150	-0.010	-0.042	-0.441	-0.311	0.124	0.746	
-4	0.278	1.150	-0.468	-2.037	**	0.570	0.402	-0.100	-0.603
-3	0.367	1.516	0.115	0.501	-1.080	-0.762	0.223	1.346	
-2	-0.147	-0.608	-0.027	-0.119	0.670	0.473	-0.077	-0.466	
-1	0.219	0.906	-0.124	-0.538	-0.978	-0.690	0.031	0.189	
0	0.016	0.065	-0.099	-0.429	-0.131	-0.093	-0.044	-0.267	
1	0.611	2.526	**	-0.383	-1.668	3.223	2.275	0.131	0.792
2	0.198	0.818	-0.240	-1.042	-0.521	-0.368	-0.033	-0.200	
3	-0.073	-0.300	0.122	0.529	-1.603	-1.131	0.010	0.062	
4	0.193	0.799	0.278	1.208	-1.326	-0.936	0.220	1.330	
5	0.304	1.256	-0.351	-1.526	0.501	0.353	-0.028	-0.171	
6	-0.097	-0.402	0.061	0.264	0.505	0.356	-0.010	-0.062	
7	-0.317	-1.311	0.035	0.151	-1.741	-1.229	-0.153	-0.922	
8	0.226	0.934	0.055	0.241	-0.189	-0.133	0.135	0.812	
N	45		48		1		94		

Note:-

1. N= number of observations in sample group.
2. If the absolute value of test statistic is larger than 1.684, then the abnormal return is significant at the 90 percent level.
3. If the absolute value of test statistic is larger than 2.021, then the abnormal return is significant at the 95 percent level.
4. Marked *, the significance is at 10 percent level.
5. Marked **, the significance is at 5 percent level.

As shown in Figure 4.1; the abnormal returns on event date and day one are positive and negative for good news and bad news, respectively. There is a bigger surprise in good news than in bad news. On day one, the market responds to both good and bad news, but the market reaction to good news is stronger. From Table 4.4, the average abnormal returns for good news and bad news on the day following the announcement

are 0.61% and -0.38%, respectively. The abnormal return of good news on day one is the highest abnormal return of good news and even larger than the highest abnormal return of bad news in the event period. The abnormal return of bad news on day one is the second highest abnormal return of bad news during the event period.

The result of good news on the day following the announcement date is statistically significant at the 5% significance level. The test value is 2.526. The test value of average abnormal return for bad news is -1.668 and is not statistically significant. The findings are consistent with Louhichi (2008), in that the earnings announcement of good news showed a stronger market reaction than to bad news. A possible explanation for these reactions might be the effects of firm communication strategies when firm managers must disclose negative earnings news. Company managers tried to enhance market confidence by focusing on certain parts that the company had performed well and camouflaged weak performance (Louhichi, 2008).

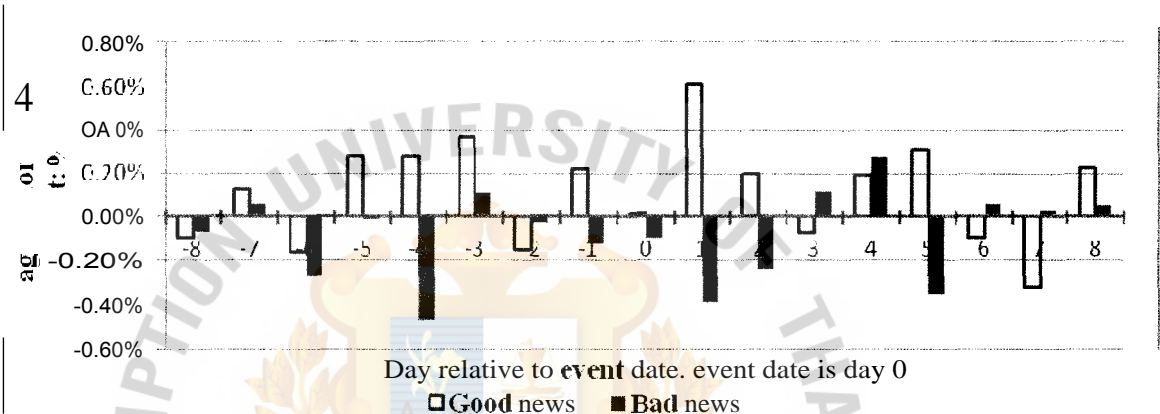
The highest abnormal return of bad news occurs on four days prior to the news release date. From Table 4.4, the test value of bad news is statistically different from zero only on four days prior to the announcement date ($t = -4$). The test value is -2.037 and it is significant at the 95 percent confidence level.

Skinner (1994)'s study may partially explain the market reaction to bad news in the pre-announcement period. Skinner (1994) stated that firm managers had incentives to preempt large negative earnings surprises and voluntarily disclose bad news before the quarterly earnings announcement dates. The example of such incentives was to maintain good relations with investors and market participants. Skinner (1994) further found voluntary disclosures of bad news were more likely to be announced qualitatively instead of point or range estimates of earnings per share (EPS) and quarterly voluntary disclosure tends to convey bad news. However, this study does not investigate firm managers' behaviors. These explanations for stronger market reactions for good news and abnormal return during the pre-announcement period for bad news can be extended in further studies.

The test results show that abnormal returns are found and they are significant on DAY +1 ($t = +1$) for good news and DAY-4 ($t = -4$) for bad news. Except DAY +1 for good

news and DAY -4 for bad news, there are no abnormal returns for other days in the event period. The abnormal returns are found only on one day for good news ($t = +1$) and for bad news ($t = -4$) during the announcement period. It is possible that the market does not absorb new information quickly after the quarterly earnings announcement. However, abnormal returns persist only one day and then disappear.

Figure 4.1 Average Abnormal Returns For Earnings Announcement.



4.3 Around the Earnings Announcement Date

Table 4.5 shows the cumulative abnormal return for good news and bad news around the earnings announcements. The cumulative abnormal returns and average abnormal returns for both the good news group and the bad news group move in a similar direction in that the release of good news causes positive abnormal return and prices fall in response to the announcement of bad news. The results are consistent with previous studies where investors responded positively to good news and negatively to bad news (Louhichi, 2008 and Lakhali, 2008). It also conforms to Ball and Brown (1968)'s findings of a positive relation of the test value and the sign of forecast error in that if actual EPS differed from the expected number, then the market had responded in the same direction.

Morse (1981)'s study showed that information was not reflected in prices promptly and the price adjustment process took several days. Morse (1981) explained that the time spent processing information might differ between investors who rely on

accounting methods or other factors. Several cumulative periods are summarized to examine whether there is any difference from other cumulative periods.

CAAR from DAY -8 to DAY +8 (CAAR -8, +8)

For the whole event window (CAAR -8, +8), good news generates more cumulative abnormal return (CAAR) than bad news. The result of test value for good news is significantly different from zero at the 90 percent confidence level while the test value for bad news is not statistically different from zero. The cumulative effects of good news are greater than bad news during the event period. The market reaction to good news disclosures is larger than the market reaction to bad news disclosure.

CAAR from DAY -1 to DAY +2 (CAAR -1, +2)

Figure 4.1 shows that the average abnormal return for good news tends to be positive and for bad news tends to be negative. There are some negative abnormal returns for the good news group and some positive abnormal returns for the bad news group. These positive abnormal returns for bad news and the negative abnormal returns for good news are not significantly different from zero. However, when it is getting closer to the announcement date, the market reacts positively to good news and negatively to bad news ($t = -1$ to $+2$).

Table 4.4 shows that the abnormal return for good news is positive one day prior ($t = -1$) to the announcement date and is positive for two days after the event date ($t = +2$). Similarly, the abnormal returns for bad news start to fall two days prior ($t = -2$) and continue to be negative until two days after ($t = +2$) the event date. These average abnormal returns are not statistically different from zero except on day one ($t = +1$) for good news.

As shown in Table 4.5, the test values for the cumulative abnormal return from one day before and two days after the news release (CAAR -1, +2) for both good news and bad news are statistically significant at the 95 percent confidence level and 90 percent confidence level, respectively. The test values are statistically significant mostly because of abnormal returns on DAY+1 for both good news and for bad news. The reason to include one day prior to the event date ($t = -1$) is that average abnormal return of good news (bad news) starts to rise (fall) one day prior to the news release

date. Two days after the event date ($t = +2$) is included because average abnormal return of good news becomes negative and average abnormal return of bad news becomes positive three days after the event date ($t = +3$).

CAAR from DAY -1 to DAY +3 (CAAR -1, +3)

The cumulative abnormal return from one day before and three days after the news release (CAAR -1, +3) is observed and compared with the cumulative abnormal return from one day before and two days after the news release (CAAR -1, +2). The latter does not include abnormal return on DAY+3 ($t = +3$). It is found that cumulative abnormal return for the good news group decreased and for bad news increased. The findings are in the same direction as the average abnormal returns of good news becomes negative and the average abnormal return of bad news becomes positive three days after the event date ($t = +3$). The test value for good news is significantly different from zero at the 90 percent level of confidence while the test value for bad news is not statistically significant.

The cumulative abnormal return from the announcement date to one day after the news release date (CAAR 0, +1), the cumulative abnormal return from DAY 0 (event date) to DAY +4 (CAAR 0, +4) and the cumulative abnormal return from Day 0 to DAY +8 (CAAR 0, +8) are examined for effects after the quarterly earnings announcements to determine whether there is any difference from the cumulative abnormal return for the whole event period (CAAR -8, +8). Only the test values of (CAAR 0, +1) and (CAAR 0, +4) for the good news group are significantly different from zero at the 90 percent confidence level. In these three periods, the cumulative abnormal returns for good news are larger than the cumulative abnormal returns for bad news. The results are in the same direction as the average abnormal turns for good news and for bad news as the market reacts stronger to good news than to bad news.

These reactions might be explained by the idea that large firms are closely followed by market participants and receive more attention (Chari et al, 1988). Earnings announcements which are classified as bad news might not be so surprising for the market while earnings announcements which are classified as good news might

confirm and reassure the market's confidence and lead to stronger market reactions compared with market reactions to bad news.

Table 4.5 Cumulative Average Abnormal Returns Around Earnings Announcements

Day relative to event date	Good news		Bad news		Neutral news		Full sample	
	CAAR (%)	T-stat	CAAR (%)	T-stat	CAAR (%)	T-stat	CAAR (%)	T-stat
-8	-0.093%	-0.384	-0.069%	-0.301	-0.521%	-0.368	-0.085%	-0.516
-7	0.035%	0.101	-0.012%	-0.036	-0.646%	-0.323	0.004%	0.016
-6	-0.125%	-0.298	-0.281%	-0.706	-1.685%	-0.687	-0.221%	-0.772
-5	0.153%	0.317	-0.291%	-0.633	-2.126%	-0.750	-0.098%	-0.295
-4	0.432%	0.797	-0.759%	-1.477	-1.556%	-0.491	-0.198%	-0.534
-3	0.798%	1.347	-0.644%	-1.144	-2.635%	-0.759	0.025%	0.062
-2	0.651%	1.017	-0.671%	-1.104	-1.965%	-0.524	-0.052%	-0.118
-1	0.870%	1.272	-0.795%	-1.223	-2.942%	-0.734	-0.021%	-0.044
0	0.886%	1.221	-0.894%	-1.296	-3.074%	-0.723	-0.065%	-0.130
1	1.498%	1.957 *	-1.277%	-1.757 *	0.149%	0.033	0.066%	0.127
2	1.695%	2.112 **	-1.517%	-1.989 *	-0.371%	-0.079	0.033%	0.060
3	1.623%	1.936	-1.395%	-1.752 *	-1.974%	-0.402	0.044%	0.076
4	1.816%	2.082 **	-1.118%	-1.348	-3.301%	-0.646	0.264%	0.442
5	2.120%	2.342 **	-1.468%	-1.707 *	-2.800%	-0.528	0.235%	0.380
6	2.023%	2.158 **	-1.408%	-1.581	-2.296%	-0.418	0.225%	0.351
7	1.706%	1.762 *	-1.373%	-1.493	-4.037%	-0.712	0.073%	0.110
8	1.932%	1.936 *	-1.317%	-1.390	-4.226%	-0.723	0.207%	0.303
CAAR -8, +8	1.932%	1.936 *	-1.317%	-1.390			0.207%	0.303
CAAR -1, +2	1.044%	2.157	-0.846%	-1.747 *			0.085%	0.176
CAAR -1, +3	0.972%	1.796 *	-0.724%	-1.338			0.095%	0.176
CAAR 0, +1	0.627%	1.833 *	-0.482%	-1.483			0.087%	0.371
CAAR 0, +4	0.946%	1.748 *	-0.322%	-0.627			0.284%	0.768
CAAR 0, +8	1.061%	1.462	-0.522%	-0.757			0.228%	0.458
Numbers of observation in sample groups (Good news, Bad news, neutral news and total)								
N=	45		48		1		94	
Note:								
1. If the absolute value is larger than 1.684, then the abnormal return is significant at the 90 percent level.								
2. If the absolute value is larger than 2.021, then the abnormal return is significant at the 95 percent level.								
3. Marked *, the significant is at 10 percent level.								
4. Marked **, the significant is at 5 percent level.								

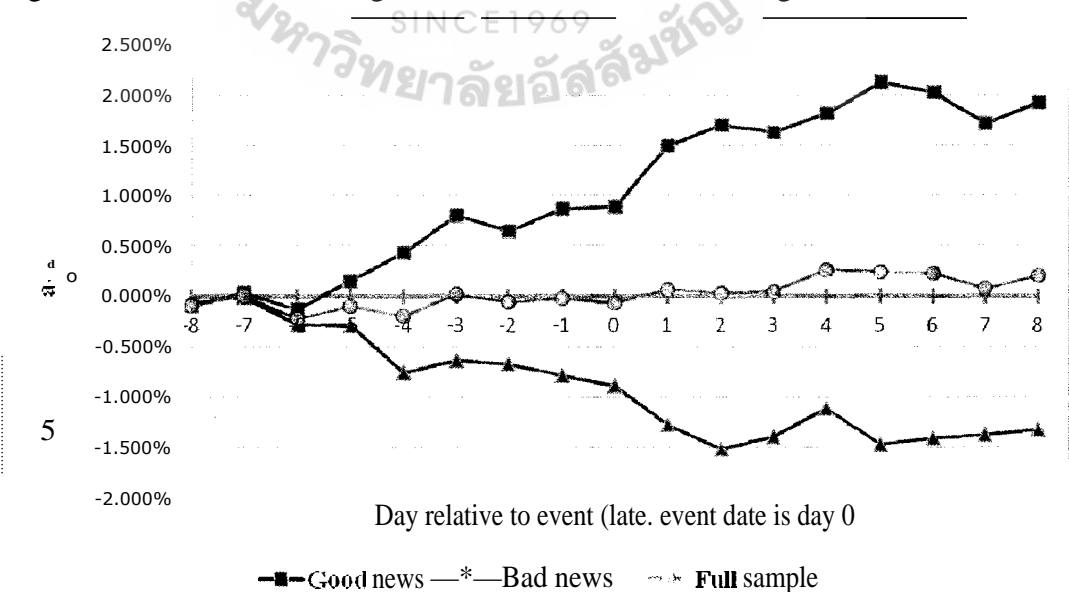
4.4 Overall Effects of Earnings Announcements

In a semi-strong efficient market, since market stock prices already reflect changes in firm's earnings, quarterly earnings announcements have no effect on stock prices (Fama, 1965b and Osei 2002). Abnormal returns are found on DAY+1 for good news and DAY-4 for bad news. Quarterly earnings announcements have information

content and have effects on stock prices in the Thai market in 2015. It is possible that the market does not absorb earnings information quickly. However, the abnormal returns of each group, good news and bad news, are found only one day during the event period and abnormal returns persist for only one day and then disappear.

Su (2003) suggested that the market will accurately predict the income changes before the publicly announcements. Plots of cumulative average abnormal return (CAAR) of the Thai market to quarterly earnings announcements are shown in Figure 4.2. Figure 4.2 shows that cumulative abnormal return for good news gradually starts rising before the earnings announcement date. This is consistent with Iqbal and Farooqi (2011)'s findings. MacKinlay (1997) stated that the market learns about the forthcoming announcement. The cumulative abnormal returns of good news companies drift up before the event date and tend to slightly increase on the day following the earnings news release date. Two days after the event date, the cumulative abnormal returns of good news slightly drops but still shows an upward trend. The cumulative abnormal return of bad news generally starts moving downward before the release of earnings news. It starts to fall rapidly from the announcement date to two days after the announcement date and then gradually moves upward.

Figure 4.2 Cumulative Average Abnormal Returns for Earnings Announcements



CHAPTER V - SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This last chapter presents a summary of the results and conclusions. The implications and the recommendations for further study are also discussed in this chapter.

5.1 Summary of Results and Conclusions

This study attempts to answer the research question as to whether the quarterly earnings announcements have any effect on stock price during the year 2015.

The results of the full sample are in line with Chari et al (1988)'s findings. Abnormal returns for large firms are not significantly different from zero. Large companies gain more attention from the market and investors and have more sources of information about the market. The amount of pre-disclosure information about a company's financial report is increased by a firm's market capitalization. When the amount of pre-disclosure information to the market is great, quarterly earnings announcements have less information content or surprise elements (Atiase, 1985 and Chari et al, 1988).

Chari et al (1988) classified observations by the timing of announcements which were early, on time and late announcements group. The authors compared actual announcement date with the date that market expected announcements to be made. This study follows Ball and Brown (1968)'s model to identify the nature of announcements which is different from Chari et al (1988)'s method. This study compared the actual and expected earnings to identify the nature of the earnings announcements. Earnings announcements provide good news if the actual EPS is more than the expected EPS. If the actual EPS is less than the expected EPS, it provides bad news. Earnings announcements provide neutral news if the actual EPS is equal to the expected EPS.

For earnings announcements which are classified as good news for investors, there is abnormal return on the day following the announcements. These day one effects can

be explained by the SET's information disclosure policy in that the earnings announcements are generally made after the close of the trading market. On the announcement date, the companies disclosed quarterly earnings announcements after the close of the market, so the effects and the market reaction will be captured on stock price on day one. Except on day one, there are no significant price reactions in the rest of the event window. Market responds positively to good news.

For earnings announcements which are classified as bad news for investors, abnormal return on the day following the announcements is not significantly different from zero and there are no significant price reactions after the announcement date. However, abnormal return is found on four days prior to the event date. During the announcement period, the market responds negatively to bad news.

The fact that the market reacts stronger to good news than to bad news can be partially explained by Skinner (1994)'s findings that firms voluntarily disclose bad news before the quarterly earnings announcement dates and firm managers have incentives to preempt large negative earnings surprises. Another possible explanation might be the effects of firms' communication strategies when firm managers must disclose negative earnings news. In general, company managers tried to enhance market confidence by focusing on certain parts in which the company had performed well and camouflaged weak performance (Louhichi, 2008). However, this study does not test firm managers' behaviors. These explanations for stronger market reactions for good news and abnormal return during the pre-announcement period for bad news can be extended in further studies.

The cumulative abnormal return of good news disclosure is larger than the cumulative abnormal return of bad news. Good news disclosure has a larger average abnormal return on the day following the announcement date and for the whole event period than bad news disclosure. A possible explanation is that large companies gain more attention from the market and investors have more sources of information about large companies (Chari et al, 1988). Bad news disclosure thus contains less information and the news might not be that surprising for the market while good news disclosure might confirm the investors' expectations and lead to changes in the market's beliefs as a whole.

The cumulative abnormal return of good news companies tends to move upward while the cumulative abnormal return of bad news companies tends to move downward before the release of earnings news. This is consistent with MacKinlay (1997)'s notion that the market learns about the forthcoming announcement. For the cumulative abnormal return from one day before and two days after the event date for both good news and bad news, the test values are statistically different from zero.

Abnormal returns are found both for good news and for bad news. Quarterly earnings announcements have information contents and had effects on stock prices in the Thai market in 2015. It is possible that the market does not absorb new information quickly. However, abnormal returns are found and persist for only one day and then disappear both for good news and for bad news.

5.2 Implications

This study examines the effects of quarterly earnings announcements. Each quarterly earnings announcement is classified by the nature of news as good news or bad news. This study provides academic evidence not only about the effects of quarterly earnings announcements, but also the effects of good news and the effects of bad news on stock prices in the Thai stock market in 2015.

The release of quarterly financial statements has information content and effects on stock prices in 2015. The observed price reaction reflects some changes in investor expectations, the market's overall beliefs and trading strategies around earnings announcements. There is evidence that investors use quarterly financial statements in investment decisions.

This study shows how accounting numbers and financial reports play a role in investors' return analysis and trading strategies. The findings can help investors and shareholders in making decisions to buy, sell or hold current positions of some stocks around the announcement date.

Investors can earn excess return and avoid negative return around the release of quarterly earnings news. News related to the companies' suppliers, competitors,

customers, the industry and the economy are useful information sources to forecast companies' future performance. Export competitiveness, the government core infrastructure investment plan, Baht depreciation/appreciation, and decreases/increases in raw materials prices are also factors that affect companies' performance, revenues, sales costs and gross profit margins.

There is abnormal price reaction one day following good news disclosures. The date and time of quarterly earnings announcements are random. Investors do not have information about the exact dates and times. Information disclosure policy makes it possible that news is released after the market closes. It is difficult for investors to gain excess returns around the earnings announcement date. However, for active and sophisticated investors who have interest in and closely follow company news and activities, there are chances to obtain abnormal returns one day following the earnings announcements even when the announcements are made after the close of the trading day. Stock prices change as the market opens for trading again after earnings announcements.

Since investors use accounting reports when considering trading strategies, firm managers can strategically decide the timing, the quality and the information content of financial disclosures and the formation of firm's disclosure policies to inform the market about the firm's performance. Creditable, accurate and adequate financial reports which are disclosed in a timely manner enhance market transparency and integrity.

Quarterly earnings announcements are routine and useful tools for management to help resolve uncertainty about firms' future performance. Firm managers reduce information asymmetry between investors by disclosing quarterly earnings reports and also by reducing the advantage of informed investors (Lakhal, 2008). Diamond and Verrecchia (1991) stated that disclosure, which reduced information asymmetry, improved the future liquidity of a firm's securities and reduced the firm's cost of capital. Further, they pointed out that reducing information asymmetry will increase the current stock price in cases where the initial information asymmetry is large.

5.3 Further Study

The efficiency of stock markets varies over time as a result of economic conditions and the investment environment. Future study can examine different periods of time to investigate whether earnings announcements in the form of quarterly financial statements have any effects on investors' investment decisions as reflected in market price changes.

This paper focuses on large market capitalization firms and ignores medium and small market capitalization firms. Atiase (1985) stated that smaller firms' earnings releases are more surprising than those of larger firms. Future study can be expanded by investigating the relationship between firm size and market reaction.

Price changes reflect changes in the aggregate market's average beliefs and trading volume reflects shifts in individual investors' activity (Bamber, 1986; 1987). Further study on the association between price reaction, trading volume and earnings announcements could provide knowledge about investors' activity in the stock market.

Additionally, this study shows evidence that there is a stronger market reaction to good news disclosure and abnormal return during the pre-announcement period than for bad news. Further studies can seek to explain these phenomena which involve investors' trading behavior, their financial decisions and firm managers' behavior when firm managers must disclose negative earnings news.

The study of the impacts of quarterly earnings announcements can be extended by observing intraday and overnight price reactions when news is announced outside trading sessions or when the market is closed in order to see the opportunity to exploit earnings announcements to earn abnormal returns.

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APPENDICES

Appendix A. List of 38 Continued Listed Companies in **SET50** Index During 2015
(Source: Database of the Stock Exchange of Thailand (www.set.or.th))

No.	Symbol	Name	Sector	Market Cap (MB.) As of 30/12/2015
1	PTT	Ptt Plc.	Energy & Utilities	696,937.11
2	ADVANC	Advanced Info Service Plc.	Information & Communication Technology	451,910.49
3	SCC	The Siam Cement Plc.	Construction Materials	552,000.00
4	SCB	The Siam Commercial Bank Plc.	Banking	405,641.42
5	CPALL	Cp All Plc.	Commerce	352,586.73
6	KBANK	Kasikorn Bank Plc.	Banking	360,185.66
7	BBL	Bangkok Bank Plc.	Banking	291,098.54
8	BDMS	Bangkok Dusit Medical Services	Health Care Services	345,448.33
9	PTTGC	Ptt Global Chemical Plc.	Petrochemicals & Chemicals	225,442.46
10	TRUE	True Corporation Plc.	Information & Communication Technology	164,873.12
11	KTB	Krung Thai Bank Plc.	Banking	233,400.22
12	INTUCH	Intouch Holdings Plc.	Information & Communication Technology	166,733.86
13	CPN	Central Pattana Plc.	Property Development	210,936.00
14	CPF	Charoen Pokphand Foods Plc.	Food and Beverage	141,695.84
15	BH	Bumrungrad Hospital Plc.	Health Care Services	153,739.99
16	DTAC	Total Access Communication Plc.	Information & Communication Technology	71,626.28
17	MINT	Minor International Plc.	Food and Beverage	159,583.80
18	GLOW	Glow Energy Plc.	Energy & Utilities	108,252.01
19	DELTA	Delta Electronics (Thailand) Plc.	Electronic Components	95,424.69
20	TOP	Thai Oil Plc.	Energy & Utilities	134,641.84
21	TMB	Tmb Bank Plc.	Banking	105,873.79
22	LH	Land And Houses Plc.	Property Development	110,848.83
23	HMPRO	Home Product Center Plc.	Commerce	89,428.15
24	TU	Thai Union Frozen Products Plc	Food and Beverage	82,075.23
25	EGCO	Electricity Generating Plc.	Energy & Utilities	79,759.45
26	RATCH	Ratchaburi Electricity Generating Holding Plc.	Energy & Utilities	68,875.00
27	IRPC	Irpc Plc.	Energy & Utilities	87,868.00

No.	Symbol	Name	Sector	Market Cap (MB.) As of 30/1 ² / ₂ 015	
28	PS	Pruksa Real Estate Plc.	Property Development	59,123.38	
29	BEC	Bec World Plc.	Media & Publishing	61,000.00	
30	M	Mk Restaurant Group Plc.	Food and Beverage	52,794.47	
31	BANPU	Banpu Plc.	Energy & Utilities	41,310.06	
32	CENTEL	Central Plaza Hotel Plc.	Tourism & Leisure	59,400.00	
33	BCP	The Bangchak Petroleum Plc.	Energy & Utilities	45,438.46	
34	CK	Ch. Karnchang Plc.	Construction Services	49,123.01	
35	TTW	Ttw Plc.	Energy & Utilities	42,294.00	
36	ROBINS	Robinson Department Store Plc.	Commerce	48,313.76	
37	TCAP	Thanachart Capital Plc.	Banking	46,640.30	
38	JAS	Jasmine International Plc.	Information & Communication Technology	23,112.45	
Total market capitalization for Full samples				6,475,436.73	
Types		(percentage)	Market Cap (MB.) As of 30/12/2015	(percentage)	Market Cap (MB.) As of 30/12/2015
SET50	Full sample	53%	6,475,436.73	63%	7,740,071.47
SET50	excluded from full sample	10%	1,264,634.74		
Non SET50		37%	4,542,683.23	37%	4,542,683.23
SET		100%	12,282,754.70	100%	12,282,754.70

Appendix B. Bad News Group, Abnormal Returns by Company on Day -4 (Four Days before the Earnings Announcement Date)

Symbol	Sector	Announcement date	AR	T stat
DELTA	Electronic Components	26/10/2015	-5.54%	-2.321
LH	Property Development	12/5/2015	-3.53%	-2.653
PS	Property Development	14/5/2015	-3.36%	-1.649
MINT	Food and Beverage	13/8/2015	-3.32%	-2.010
TRUE	Information & Communication Technology	13/5/2015	-3.29%	-2.243
PS	Property Development	12/11/2015	-3.20%	-2.000
PTTGC	Petrochemicals & Chemicals	9/11/2015	-1.55%	-0.795
GLOW	Energy & Utilities	30/4/2015	-1.50%	-1.058
RATCH	Energy & Utilities	12/11/2015	-1.34%	-1.294
TOP	Energy & Utilities	10/11/2015	-1.34%	-0.782
BBL	Banking	21/7/2015	-1.24%	-1.394
BANPU	Energy & Utilities	10/11/2015	-1.15%	-0.558
KBANK	Banking	20/10/2015	-0.97%	-0.901
DTAC	Information & Communication Technology	20/7/2015	-0.88%	-0.611
TTW	Energy & Utilities	12/11/2015	-0.86%	-0.891
BANPU	Energy & Utilities	11/5/2015	-0.76%	-0.391
TTW	Energy & Utilities	10/8/2015	-0.71%	-0.939
BEC	Media & Publishing	12/11/2015	-0.66%	-0.264
KTB	Banking	21/4/2015	-0.65%	-0.908
BCP	Energy & Utilities	13/5/2015	-0.64%	-0.410
CPF	Food and Beverage	12/11/2015	-0.63%	-0.301
SCB	Banking	19/10/2015	-0.53%	-0.407
TU	Food and Beverage	11/11/2015	-0.19%	-0.083
EGCO	Energy & Utilities	10/11/2015	-0.19%	-0.257
TMB	Banking	17/7/2015	-0.19%	-0.109
EGCO	Energy & Utilities	11/8/2015	-0.16%	-0.199
LH	Property Development	9/11/2015	-0.07%	-0.042
M	Food and Beverage	11/11/2015	-0.06%	-0.069
EGCO	Energy & Utilities	14/5/2015	0.05%	0.039
HMPRO	Commerce	27/7/2015	0.09%	0.069
ROBINS	Commerce	14/8/2015	0.12%	0.080
DTAC	Information & Communication Technology	24/4/2015	0.15%	0.108
GLOW	Energy & Utilities	29/7/2015	0.30%	0.155
PTTGC	Petrochemicals & Chemicals	8/5/2015	0.33%	0.201
KTB	Banking	21/10/2015	0.40%	0.290
BBL	Banking	20/10/2015	0.40%	0.460
BEC	Media & Publishing	1 ⁴ / ₅ /2015	0.52%	0.260
RATCH	Energy & Utilities	13/5/2015	0.59%	0.511
BANPU	Energy & Utilities	13/8/2015	0.61%	0.346
CK	Construction Services	13/11/2015	0.61%	0.403
PTT	Energy & Utilities	12/11/2015	0.68%	0.400
INTUCH	Information & Communication Technology	13/11/2015	0.76%	0.754
CPF	Food and Beverage	11/8/2015	1.06%	0.713
PTT	Energy & Utilities	13/5/2015	1.17%	0.726
CPN	Property Development	10/11/2015	1.31%	0.885
GLOW	Energy & Utilities	30/10/2015	2.21%	0.764
KBANK	Banking	17/7/2015	2.27%	1.634
TU	Food and Beverage	15/5/2015	2.40%	1.419

Appendix C. Bad News Group, Abnormal Returns by Company from Day -1 to Day +2.

		Bad news							
Day relative to event		Day -1		Day 0		Day 1		Day 2	
Symbol	Announcement date	AAR (%)	T-stat	AAR (%)	T-stat	AAR (%)	T-stat	AAR (%)	T-stat
BANPU	10/11/2015	0.823%	0.399	-0.502%	-0.243	-1.550%	-0.751	1.642%	0.795
BANPU	13/8/2015	0.218%	0.125	-0.357%	-0.204	-0.978%	-0.558	-0.727%	-0.415
BANPU	11/5/2015	-1.390%	-0.711	-0.577%	-0.295	-0.956%	-0.489	-5.769%	-2.950 **
BBL	20/10/2015	0.399%	0.454	-0.622%	-0.708	2.237%	2.545 **	0.325%	0.370
BBL	21/7/2015	0.631%	0.707	0.618%	0.693	-0.762%	-0.854	-1.213%	-1.360
BCP	13/5/2015	1.817%	1.162	-1.625%	-1.039	0.528%	0.338	-0.479%	-0.306
BEC	12/11/2015	0.924%	0.369	3.160%	1.263	-2.856%	-1.142	0.554%	0.221
BEC	1 ⁴ / ₅ /2015	1.222%	0.613	-0.383%	-0.192	-4.102%	-2.058 **	-3.004%	-1.507
CK	13/11/2015	0.198%	0.131	-0.985%	-0.652	0.271%	0.180	-0.314%	-0.208
CPF	12/11/2015	-0.514%	-0.247	-1.697%	-0.817	3.597%	1.731 *	2.473%	1.190
CPF	11/8/2015	-0.073%	-0.049	0.742%	0.499	1.428%	0.959	-1.978%	-1.328
CPN	10/11/2015	0.223%	0.150	0.754%	0.509	0.504%	0.340	0.873%	0.590
DELTA	26/10/2015	-3.438%	-1.441	-3.385%	-1.418	-2.704%	-1.133	-3.456%	-1.448
DTAC	20/7/2015	-0.875%	-0.607	-0.487%	-0.338	-3.464%	-2.404 **	-1.729%	-1.200
DTAC	2 ⁴ / ₄ /2015	0.172%	0.124	-0.388%	-0.279	6.990%	5.023 **	0.223%	0.160
EGCO	10/11/2015	-0.149%	-0.200	-1.264%	-1.701 *	-0.547%	-0.735	1.404%	1.889 *
EGCO	11/8/2015	0.147%	0.180	-0.099%	-0.121	0.040%	0.049	0.346%	0.426
EGCO	14/5/2015	-0.878%	-0.716	-0.264%	-0.215	-0.038%	-0.031	-1.154%	-0.941
GLOW	30/10/2015	0.189%	0.065	-0.827%	-0.286	1.257%	0.434	-0.814%	-0.281
GLOW	29/7/2015	5.573%	2.875 **	-2.006%	-1.035	-0.112%	-0.058	0.502%	0.259
GLOW	30/4/2015	-4.062%	-2.862 **	-0.514%	-0.362	4.904%	3.455 **	-1.111%	-0.782
HMPRO	27/7/2015	-0.926%	-0.681	-0.269%	-0.198	1.360%	1.000	0.237%	0.175
INTUCH	13/11/2015	-5.878%	-5.836 **	0.585%	0.580	0.869%	0.863	0.752%	0.747
KBANK	20/10/2015	0.903%	0.844	-1.219%	-1.138	-1.120%	-1.046	0.227%	0.212
KBANK	17/7/2015	0.283%	0.204	0.521%	0.376	0.872%	0.629	-1.547%	-1.115
KTB	21/10/2015	-1.400%	-1.021	-0.460%	-0.336	-1.303%	-0.950	-0.805%	-0.587
KTB	21/4/2015	0.738%	1.038	-3.174%	-4.460 **	-5.369%	-7.546 **	-3.923%	-5.513 **
LH	9/11/2015	1.444%	0.910	0.343%	0.217	-1.465%	-0.924	1.158%	0.731
LH	12/5/2015	-0.766%	-0.575	2.363%	1.774 *	-2.985%	-2.241 **	1.393%	1.046
M	11/11/2015	0.213%	0.246	0.337%	0.388	0.266%	0.306	-1.231%	-1.419
MINT	13/8/2015	-0.076%	-0.046	1.246%	0.755	-4.449%	-2.696 **	-1.556%	-0.943
PS	12/11/2015	-0.405%	-0.253	0.291%	0.182	-1.053%	-0.658	0.949%	0.593
PS	14/5/2015	0.905%	0.445	2.153%	1.057	-4.951%	-2.431 **	0.346%	0.170
PTT	12/1 ¹ / ₂ /2015	1.225%	0.726	2.708%	1.604	-2.097%	-1.242	-1.348%	-0.799
PTT	13/5/2015	-1.148%	-0.710	1.411%	0.873	-0.848%	-0.524	0.916%	0.566
PTTGC	9/11/2015	-0.561%	-0.287	-0.807%	-0.414	1.173%	0.601	-0.032%	-0.016
PTTGC	8/5/2015	-0.046%	-0.027	-2.155%	-1.297	0.743%	0.447	-2.434%	-1.466
RATCH	12/11/2015	-0.239%	-0.231	-0.768%	-0.741	-0.862%	-0.832	2.318%	2.238 **
RATCH	13/5/2015	0.840%	0.727	-0.352%	-0.304	-0.933%	-0.807	2.439%	2.111 **
ROBINS	14/8/2015	-0.333%	-0.232	2.355%	1.644	-1.478%	-1.032	-3.710%	-2.591 **
SCB	19/10/2015	0.608%	0.468	-0.931%	-0.716	-1.588%	-1.221	0.579%	0.445
TMB	17/7/2015	-1.602%	-0.938	2.274%	1.332	-0.905%	-0.530	0.599%	0.351
TOP	10/11/2015	-1.332%	-0.779	1.062%	0.621	3.240%	1.895 *	2.935%	1.717 *
TTW	12/11/2015	0.329%	0.339	-0.669%	-0.691	0.143%	0.148	0.840%	0.867
TTW	10/8/2015	-0.892%	-1.180	-0.730%	-0.966	-0.658%	-0.871	0.900%	1.191
TU	11/11/2015	-1.043%	-0.448	0.276%	0.119	0.167%	0.072	1.108%	0.475
TU	15/5/2015	-0.978%	-0.578	2.723%	1.610	-2.241%	-1.325	-0.664%	-0.392
TRUE	13/5/2015	3.037%	2.069 **	-3.144%	-2.141 **	3.377%	2.300 **	1.459%	0.994
Number of companies which are significant different from zero.		4		4		12		7	
Number of companies which are not significant different from zero.		44		44		36		41	
Number of observations in sample group		48		48		48		48	

Appendix D. Good News Group, Abnormal Returns by Company from Day -1 to Day +2.

		Good news							
Day relative to event		Day -1		Day 0		Day 1		Day 2	
Symbol	Announcement date	AAR (%)	T-stat	AAR (%)	T-stat	AAR (%)	T-stat	AAR (%)	T-stat
ADVANC	3/8/2015	0.026%	0.028	-1.348%	-1.458	-1.003%	-1.084	-0.211%	-0.228
ADVANC	8/5/2015	-0.964%	-0.713	-0.132%	-0.098	0.512%	0.378	1.254%	0.928
BBL	21/4/2015	0.567%	0.629	0.167%	0.185	-0.032%	-0.036	0.598%	0.662
BCP	9/11/2015	-0.254%	-0.170	1.109%	0.744	-1.102%	-0.739	2.154%	1.444
BCP	5/8/2015	-1.086%	-0.853	0.459%	0.361	0.192%	0.151	-1.477%	-1.161
BDMS	13/11/2015	0.404%	0.366	0.668%	0.605	0.153%	0.139	0.961%	0.870
BDMS	13/8/2015	0.657%	0.635	0.187%	0.181	0.849%	0.822	-2.309%	-2.234 **
BDMS	14/5/2015	0.483%	0.347	-0.835%	-0.601	0.124%	0.089	0.404%	0.290
BH	30/10/2015	0.452%	0.197	0.253%	0.110	-3.008%	-1.312	-0.088%	-0.038
BH	6/5/2015	0.679%	0.412	5.063%	3.076 **	6.446%	3.916 **	5.767%	3.504 **
CENTEL	13/11/2015	-0.637%	-0.308	2.005%	0.969	-0.106%	-0.051	3.945%	1.907 *
CENTEL	14/8/2015	0.065%	0.028	-2.723%	-1.170	2.852%	1.225	-10.043%	-4.315 **
CENTEL	15/5/2015	6.708%	3.984 **	-0.310%	-0.184	2.247%	1.334	0.333%	0.198
CK	14/8/2015	0.324%	0.246	0.550%	0.418	-0.537%	-0.408	2.199%	1.672
CK	15/5/2015	0.721%	0.482	-0.609%	-0.407	-0.089%	-0.060	3.623%	2.422 **
CPALL	10/11/2015	-1.006%	-0.826	0.134%	0.110	1.853%	1.520	0.720%	0.591
CPALL	10/8/2015	-1.180%	-1.068	0.427%	0.386	3.759%	3.403 **	1.552%	1.405
CPALL	12/5/2015	0.889%	0.598	-0.548%	-0.368	3.956%	2.658 **	0.348%	0.234
CPF	15/5/2015	1.692%	1.037	-1.494%	-0.915	3.172%	1.944 *	2.134%	1.307
CPN	10/8/2015	-1.838%	-1.198	2.079%	1.355	0.186%	0.121	1.116%	0.727
CPN	15/5/2015	1.228%	1.102	1.772%	1.590	4.256%	3.818 **	0.460%	0.413
DELTA	27/7/2015	4.124%	1.923 *	-0.179%	-0.084	-1.002%	-0.467	1.177%	0.549
DELTA	27/4/2015	-2.342%	-1.010	2.889%	1.246	-2.150%	-0.927	-1.213%	-0.523
INTUCH	13/8/2015	-0.071%	-0.109	-0.319%	-0.486	0.163%	0.249	1.566%	2.390 **
INTUCH	11/5/2015	-0.834%	-0.731	0.854%	0.748	0.521%	0.456	-0.744%	-0.652
IRPC	4/8/2015	0.619%	0.439	0.277%	0.196	0.317%	0.225	0.214%	0.152
JAS	27/7/2015	-1.545%	-0.600	-0.990%	-0.385	1.904%	0.740	-0.595%	-0.231
JAS	29/4/2015	-0.618%	-0.154	1.414%	0.352	0.329%	0.082	-0.598%	-0.149
KBANK	20/4/2015	0.154%	0.147	-0.076%	-0.073	-0.986%	-0.939	-1.635%	-1.557
KTB	21/7/2015	0.925%	0.624	0.857%	0.578	4.021%	2.714 **	-0.364%	-0.246
M	14/5/2015	-0.628%	-0.543	0.302%	0.261	0.432%	0.373	-1.266%	-1.094
MINT	13/11/2015	0.263%	0.146	-2.369%	-1.319	2.247%	1.251	1.100%	0.613
PS	13/8/2015	1.142%	0.624	-0.604%	-0.330	0.582%	0.318	1.534%	0.838
PTTGC	7/8/2015	0.797%	0.549	0.111%	0.077	-1.448%	-0.998	-0.422%	-0.291
ROBINS	13/11/2015	-0.086%	-0.055	-1.697%	-1.081	0.748%	0.477	3.572%	2.276 **
ROBINS	15/5/2015	-1.903%	-1.059	2.956%	1.645	2.660%	1.480	0.080%	0.044
SCC	29/7/2015	1.054%	1.219	0.517%	0.598	0.410%	0.474	-0.918%	-1.061
SCC	29/4/2015	0.757%	0.502	-1.932%	-1.282	-0.129%	-0.086	0.894%	0.593
TCAP	19/10/2015	0.269%	0.213	0.081%	0.064	0.725%	0.574	-1.387%	-1.097
TCAP	20/7/2015	0.110%	0.093	0.489%	0.411	0.733%	0.617	-0.740%	-0.623
TMB	19/10/2015	-0.474%	-0.362	1.388%	1.061	-0.369%	-0.282	-0.778%	-0.595
TMB	17/4/2015	-0.191%	-0.186	-6.654%	-6.482 **	-2.637%	-2.568 **	-0.373%	-0.363
TOP	10/8/2015	0.278%	0.215	-0.938%	-0.724	1.025%	0.792	1.113%	0.860
TOP	11/5/2015	0.146%	0.079	-1.980%	-1.069	-2.754%	-1.487	-2.397%	-1.295
TRUE	11/8/2015	-0.014%	-0.010	-0.562%	-0.394	-2.511%	-1.761 *	-2.358%	-1.653
Number of companies which are significant different from zero.		2		2		8		7	
Number of companies which are not significant different from zero.		46		46		40		41	
Number of observations in sample group		48		48		48		48	

Appendix E. Cumulative Abnormal Returns by Type of News.

CAAR -1, +2						
Day relative to event	Good news		Bad news		Full sample	
	CAAR (%)	T-stat	CAAR (%)	T-stat	CAAR (%)	T-stat
-1	0.219%	0.906	-0.124%	-0.538	0.031%	0.189
0	0.235%	0.686	-0.223%	-0.684	-0.013%	-0.055
1	0.846%	2.019 *	-0.606%	-1.522	0.118%	0.412
2	1.044%	2.157 **	-0.846%	-1.839 *	0.085%	0.257
CAAR -1, +3						
Day relative to event	Good news		Bad news		Full sample	
	CAAR (%)	T-stat	CAAR (%)	T-stat	CAAR (%)	T-stat
-1	0.219%	0.906	-0.124%	-0.538	0.031%	0.189
0	0.235%	0.686	-0.223%	-0.684	-0.013%	-0.055
1	0.846%	2.019 *	-0.606%	-1.522	0.118%	0.412
2	1.044%	2.157 **	-0.846%	-1.839 *	0.085%	0.257
3	0.972%	1.796 *	-0.724%	-1.408	0.095%	0.258
CAAR 0, +8						
Day relative to event	Good news		Bad news		Full sample	
	CAAR (%)	T-stat	CAAR (%)	T-stat	CAAR (%)	T-stat
0	0.016%	0.065	-0.099%	-0.429	-0.044%	-0.267
1	0.627%	1.833 *	-0.482%	-1.483	0.087%	0.371
2	0.825%	1.968 *	-0.722%	-1.813 *	0.054%	0.187
3	0.753%	1.555	-0.600%	-1.305	0.064%	0.193
4	0.946%	1.748 *	-0.322%	-0.627	0.284%	0.768
5	1.250%	2.108 **	-0.673%	-1.196	0.256%	0.631
6	1.153%	1.800 *	-0.612%	-1.007	0.246%	0.561
7	0.835%	1.220	-0.578%	-0.889	0.093%	0.199
8	1.061%	1.462	-0.522%	-0.757	0.228%	0.458
Note:-						
Marked *, the significant is at 10 percent level and Marked **, the significant is at 5 percent level.						

