HOW INVESTOR REACT TO INFLUENTIAL STOCK RECOMMENDATION CHANGES: EVIDENCE FROM THAI STOCK MARKET.

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Abstract

This study examines investors’ reaction to influential revision in level of stock recommendations and characteristics that lead recommendations to be more impactful. Firstly, we find that in the Stock Exchange of Thailand (SET), upgrade and downgrade recommendations provide abnormal return in event period \([-1,+1]\) day. We also find about only 19% of recommendation changes have significantly impacted to the market. In both short-term and long-term around recommendation dates, stocks react to influential downgrade recommendations more extremely and clearly than upgrade recommendations. In response with influential recommendations, individual investors react in the opposite way, however, mutual funds and foreign investors follow the change of influential recommendations. Moreover, Mutual funds react earlier than other groups to sell underperform stocks in advance. In addition, a recommendation will be more influential if it’s issued by analyst who leads other analysts to follow him in revision their recommendations, and if stocks have large price change in prior period.

Keywords: Analysts’ Recommendations, Abnormal Return, Investors Behavior
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Chapter 1 Introduction

Background and Motivation

Nowadays, analyst recommendations seem to have more impact to the market than the past. The following are examples of informativeness for analyst recommendations. As we can see an international case according to the Wall Street Journal’s description, Kenneth Bruce from Merrill Lynch issued a recommendation downgrade on Countrywide Financial on August 15, 2007 questioning the giant mortgage lender’s ability to cope with a worsening credit crunch. The report sparked a sell-off in Countrywide’s shares, which fell 13% on that day. This case make the clear point of emphasizing of analyst recommendation in the market. This case is one of the best case to explain informativeness of analyst recommendations. However, the next case is from Thai analyst which can be a clear example of uninformativeness of analyst recommendations. In May 2012, an analyst made a recommendation to “Buy” BANPU, a leading Asian energy provider company from Thailand. At that time BANPU price was 538Bht/share and his target price was 677Bht/Share (+25.8% upside). However, that analyst made several revision of recommendations to decrease his target price of BANPU in June and July 2012 while BANPU price had still performed as downtrend and underperform. Finally in the end of July 2012, he downgraded BANPU from “Buy” to “Hold”. At that time BANPU price dropped to 431Bht/Share (Fall 19.89% while the rating is still “Buy”!). There is more interesting point to decrease his reliable on stock recommendations that the analyst made the revision of his recommendation in 18 July saying that downside of BANPU is limit and he still recommended as “Buy”. However 8 days later, he made new revision saying in contrast that BANPU can go down for -24.25% if the market sentiment is so bad. Then we address the questions from these examples that nowadays whether stock recommendations in Thailand are really informative and how revision of stock recommendations in Thailand can impact the market while some of them is such a low quality of stock recommendations and who listen those analyst recommendations and how their reaction are.
There are many financial research documents investigate impact of stock recommendation changes. Firstly, many researches examine that analyst’s stock recommendations are informative and have impact to the market, for instance, Loh and Stulz (2009) imply that there are about 20% of recommendation changes can impact the market. Stickel (1995) shows that recommendation changes of star analysts have more impact. Irvine (2003) provides evidence that the market reacts strongly to initiations stock recommendations. Ivkovic and Jegadeesh (2004) show that the timing of recommendation changes in relation to earnings announcements affects their impact.

There are also another researches argue that analyst recommendations are uninformative. Asquith et al. (2005) provide evidences that impact of recommendation changes is affected by the content of analyst reports. Frankel et al. (2006) examine that firm characteristics affect the impact of earnings forecast revisions but they do not consider analyst characteristics or stock recommendations. Chen et al. (2005) find that in average analyst recommendations or earnings forecasts produce a price impact that is no different from the average stock price movement on non-recommendation days. Most recently, Altinkilic and Hansen (2008) find evidence that in average recommendation revisions do not produce a statistically significant intra-day reaction after removing recommendations that piggyback on firm news such as earnings announcements. Both Altinkilic and Hansen and Chen et al. provide evidence that average recommendation is not influential while their focus are to study which recommendations are influential and what makes them influential. Anup and Mark (2005) document that the market recognizes analyst conflicts and properly discounts analyst opinions as they seen in the three-day stock price and volume reactions to recommendation upgrades. Menendez (2005) also support that there is no possibility of significant abnormal return on the day of recommendation or the following day. Lin et al. (2007) found the evidences from the Taiwanese Stock Exchange that there are insignificant abnormal returns after transaction costs are accounted for.

There are very few researches in Thailand to study the effect of analyst recommendations to the market. Lonkani et al. (2010) study the effect of analysts’ recommendations in the Thai stock market (Stock Exchange of Thailand: SET) and evaluates the value associated with these analysts’ recommendations. The result shows that abnormal returns on the event dates reveal that 'strong buy' portfolio is significant and positive for all windows periods.
To be analyst in Thailand, it requires at least CISA Level I or CFA Level I with 1-3 years as minimum experience, and that person has to pass the test of certification (in both knowledge in Finance and ethics section) before becoming a registered analyst. Moreover, analysts have to refresh their certificate every 2 years.

In addition, there is an organization named “The Investment Analysts Association (IAA)” in Thailand which was found in 1990 with cooperation of the Stock Exchange of Thailand, the Association of Thai Securities Companies and Asia Foundation in order to improve analyst professionalism and to be the center of security analysts in Thailand. The purposes of IAA are to develop and encourage security analysts in the practice of high professionalism and good ethics by developing professional knowledge. IAA also improves investors’ skill especially individual investors in Thailand by publishing useful information such as seminar courses and documents to public. IAA also support for the study of security research in Thailand.

In this paper, firstly we test the impactful of removing analyst stock recommendations that only reveal firms news to abnormal return among upgrade and downgrade recommendations. Next, we examine which stock recommendation changes can be influential by leading investors to follow. Finally, we examine the reaction of investors to influential recommendations in principle. In this paper, there are two definitions of influential. First, influential recommendation changes (recs) are those are when a correct-signed CAR is 1.96 standard deviations greater than expected based on the firm’s prior three-month idiosyncratic volatility of daily returns. Second, influential recs are defined as those whose cumulative abnormal turnover in event windows [-1,+1] are more than 1.96 standard deviations greater than the stock’s abnormal turnover in prior three months. Specifically, we investigate how investors react to influential recommendation changes in term of abnormal return, trading imbalance and overreaction/underreaction while the recommendations announced, and measure in both short-term and long-term around the publication of influential recommendations. Moreover, we study which characteristics of both analyst and firms lead a recommendation to have more impact to the market.

Research Objective:

1. To examine how stock recommendation changes can impact the market in Thailand.
2. To examine how stock recommendation changes can impact the market after removing only reveal-firms’ news recommendations.

3. To examine investors’ reaction toward influential recommendation changes.

4. To examine trading pattern of each investor types toward influential recommendation changes.

5. To imply which characteristics of both analyst and firm lead a stock recommendation change to be more influential.

Expected Outcome

1. For investors, they can apply the result form this study to their investment plan. Finally, they will know how market react to analyst recommendation changes, how each type of investor react to publication of analyst recommendation change announcement, how informativeness of recommendations are, and whether they should follow analyst recommendation changes.

2. For analysts, this study represents as a mirror for analysts to know how market react to their research publication. Why some recommendation changes can have an influence to the market, but others cannot. They can take these results to improve the quality and informativeness of their researches.

3. For regulators, they can know how the market give precedence to analyst recommendation changes. They may use these result to be one of the guideline for issuing a rule or improving analysts’ standard in Thailand.

Scope of study

We obtain analyst’s recommendation data from Institutional Brokers’ Estimate System (I/B/E/S) International File which is the service provided by Thomson Reuter Corporation. This study covers the period of 12 years from January 1999 – December 2011. For the daily securities information such as daily stock adjust closing price, daily sector and SET return, and daily corporate news announcement, we collect from SETSMART database provided by the Stock Exchange of
2014 Capital Market Research Institute, The Stock Exchange of Thailand

Thailand. Another source is net buy/sell volume of each investor type. We obtain from Microstructure dataset provided by Stock Exchange of Thailand.

This paper is organized as follows. Chapter 2 covers the definitions, theoretical frameworks and literature reviews. Chapter 3 presents the hypothesis development. Chapter 4 explains more on the research data sources and our methodologies. Chapter 5 is the empirical research results and Chapter 6 is conclusion.
Chapter 2 Literature Review

Definition

Sell-Side analyst

Sell-side analysts work for brokerage firms and conduct financial researches to estimate the value of companies based on companies’ fundamental factors and their assumptions for future earnings growth, target price and other investment criteria. They usually place recommendations on stocks or other securities, typically phrased as "buy", "sell", or "hold." They are incentivized by offering their recommendations to both institutional investor clients and their retail customers, as well as by seeking investment banking deals with the firms they cover, although the latter is subject to The Securities and Exchange Commission (SEC) regulatory restrictions. A proper title for some sell-side analysts is Equity Research Analyst.

Investor Types

Investors in the Stock Exchange of Thailand (SET) have been classified into 4 groups; Individual Investors, Local Institutions, Foreign Investors, and Proprietary Traders. The largest fraction of investors in Thailand is individual investors which they have made the highest daily trading volume in SET. They are local investors who traded stocks for their own objectives such as for capital gain and dividend. Local Institutions or mutual funds are made up of pool of funds collected from many investors for the purpose of investing in stocks. Mutual funds are operated by money managers or fund managers, who invest the fund's capital and attempt to produce capital gains and income for the fund's unit holders. Foreign Investors in Thailand has included both individual investors and international funds from abroad. Lastly, Proprietary Traders are the traders in brokers. They traded only for short-term capital gain by speculation and arbitrage. In Thailand, this investor type has a special advantage by being charged only regulatory fee and clearing fee in each transaction. Therefore, they have lower cost than others.
Analyst in Thailand

In Thailand, the stock analysis industry performs its function in a similar fashion to those in the developed markets. Stock analysts follow the stocks about which they process expert knowledge, investigate through the due diligence process, and make recommendations to their clients (sell-side analysts). Analyst is only for professional career in the stock market including in the Thai market. For Thailand, analysts have been forced to have a license such as a CFA or CISA. In this sense, we feel that the capability of analysts in the Thai market is controlled, at least to meet a certain standard, and is not much different to other stock markets. Analysis in the Thai stock market may be performed by Thai analysts who work for local brokers or foreign analysts who work for foreign brokers in Hong Kong, Singapore, or Malaysia. What make the stock analysis industry in Thailand different from the foreign industries is that most analysts’ recommendations on the Thai market are publicly used by individual investors who are clients of the local brokers without any fee whereas foreign analysts prepare recommendations and distributed them to their executive clients on a premium basis. Most of the foreign analysts’ executive clients are institutional investors or larger private funds who will contribute their funds to the recommended companies.

Theoretical Framework

Efficient Market Hypothesis (EMH)

The Efficient Market Hypothesis evolved in the 1960s from the Ph.D. dissertation of Eugene Fama. Fama persuasively made the argument that in an active market that includes many well-informed and intelligent investors, securities will be appropriately priced and reflect all available information. If a market is efficient, no information or analysis can be expected to result in outperformance of an appropriate benchmark.

The Efficient Market Hypothesis states that at any given time, security prices fully reflect all available information. The implications of the efficient market hypothesis are truly profound. Most individuals that buy and sell securities (stocks in particular), do so under the assumption that the securities they are buying are worth more than the price that they are paying, while securities that they are selling are worth less than the selling price. But if markets are efficient and current prices
fully reflect all information, then buying and selling securities in an attempt to outperform the market will effectively be a game of chance rather than skill.

The random walk theory asserts that price movements will not follow any patterns or trends and that past price movements cannot be used to predict future price movements. Much of the theory on these subjects can be traced to French mathematician Louis Bachelier whose Ph.D. dissertation titled "The Theory of Speculation" (1900) included some remarkably insights and commentary. Bachelier came to the conclusion that "The mathematical expectation of the speculator is zero" and he described this condition as a "fair game." Unfortunately, his insights were so far ahead of the times that they went largely unnoticed for over 50 years until his paper was rediscovered and eventually translated into English and published in 1964.

There are three levels of the EMH; weak form, semi-strong form and strong form.

Weak form efficient market: Stock prices already reflect all past information such as historical share prices and trading volume. The technical analysis is useless because all past publicly information is already reflected in stock price and the future price movements follow random walk process. Meaning that a price path has no patterns and a future price is unpredictable. In other words, technical analysis is of no use.

Semi-strong form efficient market: In additional to weak form efficient market, share prices adjust to public new information immediately. The information that is related to the prospects of a firm as well recognized by fundamental analysis practices such as announcements of financial statement, annual earnings, stock splits, etc. The fundamental analysis is useless since no excess returns can be earned by trading on such information. In other words, fundamental analysis is of no use.

Strong form efficient market: In additional to weak form and semi-strong form efficient market, securities prices absorb absolute information even an inside information, i.e. no one can earn abnormal returns through the use of inside information. The direct test of the strong form EMH is to determine whether insiders can outperform the market. In other words, even insider information is of no use.
Securities markets are flooded with thousands of intelligent, well-paid, and well-educated investors seeking under and over-valued securities to buy and sell. The more participants and the faster the dissemination of information, the more efficient a market should be.

Information Asymmetry

Information asymmetry is a situation that one party in a transaction has more information than the others. Such situation induces inefficiency because not all market participants have fair access to information needed to make decision. According to the Efficient Market Hypothesis, investors should not obtain abnormal return if the market is efficient. In the other hand, we can say that market is inefficient if analysts can discover mispriced stock. There are evidences to confirm that the market is inefficient. In prior research, Irvine (2003) find that investors can get abnormal return on analyst initiation coverage and that covered stock has greater the subsequent liquidity improvement. Womack (1996) reports that excess returns last longer for added-to-sell than for added-to-buy recommendations in the post-recommendation period. Kumar et al. (2009) finds that buy recommendations issued by analysts on public domains help the investors generate abnormal returns on the day of the recommendation.

Event studies on analyst stock recommendations

Commonly, the first area that researchers have investigated is how analysts’ recommendations affect the returns and volume of recommended stocks on the event dates (the recommendations dates). In other words, this area of research attempts to find whether investors can benefit from trading using analyst recommendations, or if they pay attention to changes in recommendations. Examples of such research are Womack (1996), Deasai et al. (2000), Barber et al. (2001), Jegadeesh et al. (2003). Most of the research finds that returns on the stocks following the recommendations are correlated with the level of the recommendations, i.e., if analysts recommend ‘buy’, the subsequent abnormal returns are positive. However, amid to this discovery, many papers document some variations to that ‘benefit’. For example, Irvine (2003) showed that the returns on first-coverage stocks are relatively higher than on other covered stocks. In addition to research on the benefit of trading on the ‘level’ of recommendations, some research results also indicate that investors
can benefit from ‘changes’ in recommendations. For example, Womack (1996) indicated that coverage stocks for which analysts adjust their recommendations from low level to high level (for example, the mean unadjusted three-day return for add-to-buy recommendation is +3.3 percent) show a positive performance. In the opposite case, coverage stocks which change from high level to low level show a negative performance (for example, the mean unadjusted three-day returns for add-to-sell recommendations is -4.7 %). Irvine (2003) and Chan et al. (2004) explored the returns following analysts’ initial coverage or stocks that were recommended by analysts for the first time. The results indicated that there were significant differences between returns on initial coverage stocks and returns on other recommended stocks. These results supported the ‘Liquidity hypothesis’ developed by Brennan and Subrahmanyan (1995), who asserted that an increase in analyst coverage and recommendations promoted liquidity to the stock market. In their paper, they captured the important paradigms of price formation by Kyle (1997). According to Kyle, trading by investors who possess superior information imposes significant liquidity costs on other participants due to adverse selection. Brennan and Subrahmanyam (1995) empirically analyzed the relationship between the number of investment analysts following a stock and the estimated adverse selection costs of transacting in the stock, controlling for the effects of trading volume, price level, and return volatility. They found that, other things being equal, an increase in the number of investment analysts tends to be associated with a reduction in the adverse election costs of transaction, as would be predicted.

**Literature review**

The following sections are the review of related literatures on the various view of analyst recommendations.

**Abnormal return from analyst recommendation.**

Regarding to prior literatures in analyst recommendation topic, many researches had been conducted to study whether analyst recommendation changes is informative and it can really help investor to gain abnormal return. There are many evidences support that analysts recommendation is valuable and market react toward these documents with by existing of abnormal return during recommendation disseminated, or pre- and post- recommendation period. This shows that many
security markets are inefficient. Lonkani et al. (2010) brings a support to the research regarding the value of analysts’ recommendations. The study examines analysts’ stock recommendations in the Thai stock market (Stock Exchange of Thailand: SET) and evaluates the ‘value’ associated with these analysts’ recommendations. The recommendation data are from the I/B/E/S database which covers the period from November 1993 to December 2002. Total recommendations are ranked by rating a scale of 1 to 5 on each recommendation, averaging the rating scores by the number of analysts each day and form the 5 consensus portfolios. They test the ‘value’ of recommendations by observing the portfolio abnormal returns surrounding event dates of publishing the recommendations and on the calendar time using the CAPM and the Fama-French Models. The result shows that market adjusted abnormal returns on the event dates reveal that the portfolio that follow strong-buy recommendations is significant and positive for all windows periods i.e., the pre-event, the event and post-event dates.

Revision of recommendation level also has evidences that investors can earn abnormal return by following this type of recommendation. Loh and Stulz (2009) study in recommendation changes issued by US brokerage house during 1993 – 2006. They gather recommendation information from I/B/E/S U.S. Detailed file with screening out the samples that announce closed to firms’ earning announcement day, management guidance announcement day, and multiple recommendations in the same day which they believe that those recommendations only reveal firms’ news. The study examines that recommendation changes are sometimes associated with extremely large abnormal returns and these changes are typically the ones that the press focuses on. The result of the study finds that three days around recommendation announced has abnormal return +0.58% to +1.45% from upward recommendations with various levels of upward and -0.84% to -1.30% from downward recommendations with various levels of downward.

Another prior research that support the informative of analyst recommendation changes is from Womack (1996) which evaluated the value of analysts’ recommendations in the G7 countries. The study implies that a favorable (unfavorable) change in individual analyst recommendations is accompanied by positive (negative) returns at the time of their announcement. Additionally, he found a post-recommendation stock price drift that lasts up to one month for upgrades and six months for downgrades. Beneish (1991) who had studied on the impact of a column in Wall
Street Journal, Heard on the Street, finds positive abnormal returns of buy recommendations and significantly negative abnormal returns for sell recommendations in event period [-2,+1] day. Menendez (2005) also supports the informativeness of stock recommendations with the finding documents that there is cumulative stock return of 1.13% (-2%) during the event period of buy (sell) recommendations for the Spanish stock market. These results seem to provide solid support for which financial analysts generate useful research reports that affect investors' investment decisions.

Not only abnormal return, the market is impacted on both abnormal return and volatility or liquidity. Groth et al. (1979) analyzed the complete set of recommendations by one firm from 1964 to 1970 and found that significant abnormal returns as well as volume behavior associated with analyst recommendations.

However, there are another researches argue that analyst recommendation cannot provide abnormal return to the market or they are uninformative. Gupta and Aggarwal (2006) add a support of the uninformative of analyst recommendation. They conducted a study on Indian stock market which is an emerging market. The finding is that on an average, analysts’ recommendations do not help to earn above normal returns. Menendez (2005) also supports that there is no possibility of significant abnormal return on the day of recommendation or the following day. Logue and Tuttle (1973), who examined the recommendations of six major brokerage firms in 1970 and 1971 using the data available on the The Wall Street Transcript. They found that brokerage house recommendations did not provide any superior investment information to investors to gain abnormal returns. One reason of uninformative of analyst stock recommendations is that the market recognizes analyst conflicts and properly discounts analyst opinions. Anup and Mark (2005) examine that the three-day stock price and volume reactions to recommendation upgrades are significantly negatively and for downgrades, these relations are negative for stock prices and positive for trading volume. Additional reason that make analyst recommendations cannot provide abnormal return to investors is transaction cost. Lin et al. (2007) found that there are significant positive abnormal returns before and on the day of the analyst recommendations on the Taiwanese Stock Exchange. However, when the transaction costs are accounted for, the returns become insignificant. Another reason is that some analyst recommendation is only reveal firms’ news. Altinkilic and Hansen (2008) shows the evidence
that once the impact of other news is removed, analyst recommendation changes do not have an impact.

**Abnormal return in pre- and post- recommendation**

Several studies examine that before analysts announce their recommendation, there are abnormal return existing. This result is same in post-recommendation period. Ryana and Tafflerb (2006) study market impact from analyst recommendation by investigating the economic role of sell-side analysts' stock recommendations in the UK market. They find that share prices are significantly influenced by analysts' recommendation changes, not only at the time of the recommendation change but also in subsequent months after recommendation disseminated. In addition, they find that in the long-term, the recommendation changes of highly experienced analysts outperform those of low-experience ones.

Womack (1996) also support this issue by showing evidence that stock prices of recommended companies continue to drift in the direction recommended by analysts for one to several months after the recommendation change announcement. There is an evidence that market react to sell recommendation more than buy recommendation. Womack (1996) finds that for new buy recommendations, the one - month excess return beginning on the third day after the recommendation is more than 2 percent. Extending the timeframe beyond one month shows that the excess return drift ends after about 6 weeks with the subsequent 6- month period return ranging from −2 to −5 percent. The initial reaction by the market to a new sell recommendation is, on average, large and negative. A stocks given "sell" by analysts is on average a decline 4 to 5% in the three day window around the announcement. Even more significant, however, is the post event decline. The stocks with new sell recommendations declined an additional 5 to 9% on average over the six - month period after the event.

There is an interesting issue that abnormal return on prior period is associated with the announcement of analyst recommendation. This means that analysts announce their recommendation after large price change in pre-recommendation period. Volkan and Yanfeng (2013) show the evidence to support this thing. By following past stock returns decreased abruptly in 2003. The result shows that the likelihood of recommendations following past stock returns is abnormally high for
recommendations issued after negative stock returns, however they cannot find the same result for those issued after positive stock returns. The recommendations are more likely to follow past stock returns are accompanied by earnings forecast revisions that are larger in magnitude and less accurate. This result suggests that analysts with conflicts of interest and limited ability are more likely to base their recommendations on past stock returns. The findings of Conrad et al. (2006) are consistent with Volkan. In responding to firm public news with following large stock price increases, analysts are equally likely to upgrade or downgrade. Following large stock price declines, analysts are more likely only to downgrade. Eurico and Stanley (1999) also support this finding. They study on the market impact of a column, Small Stock Focus, in the Wall Street Journal. Their results show that the column tends to focus on stocks that have very large price changes, with an average absolute value that is more than 9%, on the day prior to the column publication date.

**Overreact or underreact toward recommendation**

There are some studies about how investors overreact or underreact to analyst recommendations. Ryana and Tafflerb (2006) analyze the price performance of the recommendation changes of six leading London-based brokerage houses over the 19-month period December 1993–June 1995. The finding is that in subsequent months, the price reaction to new sell recommendations is greater than the price reaction to new buy recommendations and exhibits post-recommendation drift which is consistent with initial underreaction to bad news. Magnitude of recommendation change is also correlated with investors’ behavior while the recommendation disseminated. Sorescu and Subrahmanym (2006) find that in long-term, recommendation changes of highly experienced analysts outperform those of low-experience ones. In addition, investors appear to overreact to dramatic upgrades of low-ability analysts, and underreact to small upgrades by high-ability analysts. Another factor that correlated to underreaction of investors is unrealized capital gains (losses) in event period. Andrea (2006) reveals that stocks with large unrealized capital gains/losses have higher expected returns as investors initially under-react to news releases generating a predictable price drift. The post-event predictability is most severe when the disposition effect predicts the biggest under-reaction. Post-event drift is bigger when the news and the capital overhang have the same sign and the magnitude of the post earnings announcement drift is directly related to the amount of unrealized
capital gains (losses) experienced by the stock holders at the event date. Stocks with large unrealized
capital gains under-react to and only to positive news while stocks with large unrealized capital losses
under-react to and only to negative news.

There is also a research to study how fund managers react with analyst recommendation. Nerissa et. al. (2014) study the holding data of mutual fund gathered from the Thomson Financial CDA/Spectrum mutual fund holdings data. The interesting finding is that funds (especially funds with poor performance records) overreact in their response. In contrast, we find little price overreaction among stocks traded by herds of winner funds.

**Investors who follow analyst recommendation**

Another interesting issue from studying on investor’s behavior while the analyst recommendation announced is that who follow analyst recommendations and how.

**Individual Investor:** Due to limitation of individual investors which some of them are unskilled investors and have limitation to access corporate news, they have to follow analyst recommendation. Kumar et al. (2009) study on the daily analyst recommendations in Indian which included around 2,000 analyst recommendations for the period January 2007 to October 2008 of 483 companies from 63 industries. They reveal that many investors continue to rely on the analyst recommendations, as they may not have the time or expertise to analyze the available data.

**Mutual Funds:** For mutual fund, Michael et al. (2013) reveal that mutual funds have followed analyst recommendation. Michael show the results from their study that mutual funds increase their holdings in a stock that receives a favorable recommendation. This influence of analyst recommendation changes on fund herding is stronger for downgrades. There are other researches discuss in mutual fund herding behavior. Nerissa et al. (2014) exhibits that the average stock covered by analysts during 1994 to 2003 exhibits a higher level of herding among mutual funds than during the prior-studied 1975 to 1994 period. Further, consistent with earlier evidence, herding is more pronounced on the sell-side than the buy-side. They also find more evidences while studying patterns of herding behavior more closely that the formation of herds is significantly related to the direction of analyst recommendation changes. That is, mutual funds are more likely to herd on the buy-side
following a consensus analyst upgrade, and (especially) to herd on the sell-side following a
downgrade. Wermers (1999) finds that trading by herds of mutual funds moves stock prices closer to
their fundamental values. This result confirms that institutional investors pay attention to these analyst
revisions.

**Characteristics that make recommendation more influence**

There are many researches that study on characteristics which can lead analyst
recommendation to be influential in event period. They are following.

1. Magnitude of recommendation change

   Magnitude of recommendation change has correlation with the impact of recommendation. This fact has been support by Menendez (2005). The finding reveals that there is the association between the magnitude of stock recommendation level revisions and stock price reactions. Yung and Chia (2008) also support with their finding that the magnitude of stock recommendation revisions, firm age, NYSE listings, and stock price momentum provide significant and positive explanatory power to event-period cumulative market-adjusted return. Scott (1995) implies that short-term price reaction is a function of magnitude of change.

2. Direction of recommendation change

   There are some researches justify that sell-side recommendation has more effect than buy-side recommendation. Ryan (2006) studies the impact of sell side recommendation on the Irish Stock Market and found that the market was significantly impacted by the recommendations. The impact of sell side recommendations were found to be much more than the buy side recommendations. Womack (1996) supports that while the frequency of sell recommendations is low, their value to investors is even greater than for buy recommendations. Sell recommendations provide higher abnormal return in subsequent months than buy recommendation. Another research is from Nerissa et al. (2014). They support that sell-side analyst recommendation changes have stronger impact on fund herding.

3. Analyst experience or reputation

   Scott (1995) shows an evidence that analyst reputation and broker size appear to have temporary price pressure effects. Mikhail, Walther, and Willis (1997) show that analysts improve their
Earnings forecast accuracy with experience. Hence, it is possible that experience could be related to the market impact of stock recommendation changes. Loh and Stulz (2009) also support that the average analyst forecast accuracy quintile of influential recommendation changes is higher than non-influential recommendations. The difference is statistically significant. This means that the market react to analyst with higher accurate forecast more clearly than lower accurate forecast, or analyst reputation is correlated. They also give more evidence that a larger proportion of influential recommendation changes are issued by star analysts\(^1\) and analysts with higher overall experience and relative firm-specific experience.

4. The leader-follower ratio (LFR)

Definition of LFR is the indicator to estimate that whether a recommendation change can lead other analysts to follow and change their recommendations. There are some studies to investigate the correlation between LFR and analyst recommendation. Welch (2000) shows that analysts’ recommendations are influenced by the recommendations of previous analysts. In effect, analysts “herd” on short-lived information in the most recent analysts’ recommendation revisions. Presumably, it is not surprising that in stocks where there might be a 20- to 30- analyst following, that analysts’ opinions would be positively correlated. Loh and Stulz (2009) have studied on the impact of leading analyst recommendation to the market. They show with the evidence that LFR of influential recommendation changes is larger than the LFR of non-influential recommendation changes.

5. Firm Size

Yung and Chia (2008) studied whether firm size is associated with the market reaction. They find that with upward revisions, firm size provide statistically significant negative impact on the three-day event-period CMRs. This support that firm size also has correlation with the market reaction.

6. Institutional Ownership

Loh and Stulz (2009) who studied on analyst recommendations in US show the evidence that influential recommendation changes tend to be issued on firms that have high institutional ownership. Analysts can more easily affect investors’ beliefs about a firm when they are speaking to smaller investor group. However, institutional investors are the main consumers of analyst reports in

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\(^1\) This is an indicator variable that equals one if the analyst is ranked as an All-American (first, second, third, or runner-up teams) in the annual polls in the Institutional Investor Magazine.
US, so that analysts are more likely to have a significant impact if a firm has more institutional ownership.

7. Abnormal return prior to recommendation announcement day

Volkan and Yanfeng (2013), Conrad et al. (2006) and Ferreira (1999), as we shown their finding before, similarly show the evidences that analyst tended to issue a recommendation after the stock price have changed dramatically in prior period.

8. Number of analysts who covered that firm

Loh and Stulz (2009) show the result that recommendation changes that can lead investors to follow tend to be issued on firms which have lower number of analyst’s covered in prior 3-month. This is possible that lower number of analyst following, more possible the recommendation can impact the market.

9. Securities Volatility

Loh and Stulz (2009) who study the different of characteristics between non-influential and influential recommendation changes that can impact more to the market. The evidence shows that changes in idiosyncratic and total volatility are also larger for influential recommendation changes compared with non-influential recommendation changes.
Chapter 3 Hypothesis Development

Based on the previous studies reviews, we set up six main hypotheses about analyst recommendation.

Do revision of stock recommendations are really informative?

Loh and Stulz (2009) and Altinkilic and Hansen (2008) have already studied the importance of removing the recommendations made in response to firm news that if a stock recommendation has an immediate impact on a firm’s stock price. As already discussed, they show evidence that once the impact of other news is removed, analyst recommendation changes do not have an impact or have less impact.

We therefore develop the hypothesis to test whether abnormal return in event period is lower or insignificant once we remove the revision of recommendations that only reveal firms’ news.

H1a: Before removing recommendation respond to firm news, CAR is significant and they are shown in the right way with recommendation.

H1b: After removing recommendation respond to firm news, CAR has lower or becomes insignificant.

Market reaction while influential recommendation announced

By following Loh and Stulz (2009), we defined analyst recommendation changes for two definitions of influential. We consider only rating changes in our analysis and exclude iterations and reiterations. The first definition is a recommendation change being significant based on its abnormal return and the second is being significant based on its abnormal turnover while it’s announced. Influential recommendation changes can significantly lead investor to follow and trade. This study will examine why and how the market has emphasized these security recommendation changes.
Abnormal return before dissemination of influential stock recommendation

In prior research, many papers indicate that before analysts announce their recommendation, there are abnormal return existing. Or we can say in other word that analysts announce their securities recommendation following the dramatically change of stock price. Volkan and Yanfeng (2013) have studied past stock return decreased sample in 2003 and found that the likelihood of recommendations following past stock returns is abnormally high for recommendations issued after negative stock returns.

We therefore develop the hypothesis to test whether abnormal return of stock is existing before both upward and downward analyst recommendations announced.

H2.1a: Abnormal return is significantly existing before the upgrade influential recommendation announced.

H2.1b: Abnormal return is significantly existing before the downgrade influential recommendation announced.

Abnormal return after influential recommendation announced

In prior researches, they found that not only abnormal return is existing when recommendation announced, but they also detected abnormal return in subsequent one to six months. Womack (1996) finds that abnormal return exists for both buy and sell recommendations in several timeframe after recommendation disclosed. However, Menendez (2005) argue that there is no possibility of significant abnormal return on the day of recommendation or the following day. Erdogan et al. (2009) have studied the impact of analyst recommendations in Istanbul stock market and imply that analyst recommendation cannot provide any superior abnormal return in both short-term and long-term.

We therefore develop the hypothesis to test whether abnormal return of stock exists in the following period.

H2.2a: Abnormal return is significantly existing after the upgrade influential recommendation announced.
H2.2b: Abnormal return is significantly existing after the downgrade influential recommendation announced.

**Reaction of each investors group toward influential recommendation**

It’s possible that different investor group has different characteristics and then their behavior reacting to analyst recommendations may be different as well. There are some studies investigate reaction of each investor type toward analyst recommendation.

**Local Investor**

Local Investor is the largest proportion of investors in the Stock Exchange of Thailand. They only traded on their own profit. However, investment skill of them are various. Some of them is skilled investors and another proportion of them is unskilled investors or we can call them as newbie investors. Moreover, they have limitation to access in source of news. There is some evidences in prior researches which they implied individual investors’ behavior rely on analyst recommendations.

We therefore develop the hypothesis whether local investors follow analyst recommendation.

**H2.3.1:** Individual investors’ cumulative net trading volume has significantly positive relation with influential recommendation changes.

**Local Institutions**

Local Institutions or mutual funds in Thailand have been managed by fund managers who have to be certificated with fund manager license. In Thailand there are 27 asset management companies excluding public funds who administrate open-end and close-end mutual funds, private funds and provident fund. Mutual funds are also customers of brokerage house who publish security recommendations. In prior researches, they find that mutual funds herding is correlated in the same way with analyst recommendation changes.

We then develop the hypothesis whether mutual funds follow analyst recommendation.

**H2.3.2:** Mutual Funds’ cumulative net trading volume has significantly positive relation with influential recommendation changes.

**Foreign investor**
Definition of foreign investor in Thailand has included both international institutes and individual investors who traded via international brokers. We cannot find the research that study on trading pattern of foreign investor toward analyst recommendations. However, we expected that their behavior should be as same as local institutions because foreign investors do not have enough information of industries and companies in Thailand. They should follow analysts who provide both economic and business reviews for them.

We therefore develop the hypothesis to test how foreign investors’ react with analyst recommendation in Thailand.

H2.3.3: Foreign Investors’ cumulative net trading volume has significantly positive relation with influential recommendation changes.

Proprietary trader

Proprietary traders are the investors who traded stocks on their broker’s profit. In Thailand, all proprietary traders are skilled investors. Moreover, they have very few limitation in accessing news sources and research department is in all brokers. In addition, their transaction fee in each trading is less than all other investor groups because they are charged only regulatory fee and clearing fee, but no need to pay for brokerage fee because they are a unit in brokerage house.

We cannot find prior researches on proprietary trader reaction toward analyst recommendation. However, we expected that their behavior will not be significant because they are skilled investors and able to access lots of data sources. They can analysis both stock’s fundamental and technical by themselves and have no need to listen analysts.

H2.3.4: Proprietary trader’ cumulative net trading volume has no relation with influential recommendation changes.

Investor reaction toward dissemination of influential stock recommendation change

It’s possible that investors may underreact or overreact while the analyst recommendation changes have been announced. However, in prior researches, Andrea (2004) examines that stocks with large unrealized capital gains under-react to positive news while stocks with large unrealized capital losses under-react to negative news. We expected that investors should underreact with
influential recommendation changes which have either abnormal return or abnormal turnover in event period [-1,+1] day.

In this study, we follow Cohen and Frazzini (2008) to calculate an underreaction coefficient (URC) as a measure of the influential recommendation response to an event as a fraction of the subsequent abnormal return.

Therefore, we develop the hypothesis to examine whether investor underreact with influential recommendation.

H2.4a: The URCs of influential downward recommendation changes is less than 50%.

H2.4b: The URCs of influential upward recommendation changes is less than 50%.

Characteristics of influential recommendation changes

We study which characteristics of both company and analyst who issued recommendation change are the factors that making a recommendation has more impact to the market.

Magnitude of change

In I/B/E/S data, it contains stock recommendation ratings issued by individual analysts. It reports ratings ranging from 1 (strong buy) to 5 (sell). Therefore magnitude of change can lie on -4 to +4.

In prior researches, Menendez (2005) reveal that there is the association between the magnitudes with stock price reactions.

We therefore develop the hypothesis to examine the relationship between magnitude of change and impact of influential recommendation changes in Thailand.

Direction of change

In prior researches, they examine that sell recommendation has more impact to the market, and superior information. It also has more impact on fund herding and provides larger abnormal return in the subsequent months than buy recommendation. Then we expected that downward
recommendation change should have more impact to the market than upward recommendation change.

We therefore develop the hypothesis to examine the relationship between direction of recommendation change and impact of influential recommendation changes in Thailand.

**Analyst experience**

Many of previous studies found that investors follow security recommendations from high-reputation/experienced analysts than low-reputation/experienced analysts. Loh and Stulz (2009) documented that the average analyst forecast accuracy quintile of influential recommendation changes is higher than non-influential recommendations. This means that the market emphasize high-experience analysts.

We expect that revision of recommendations issued by higher analyst experience should have more impact to the market. In the same way for broker experience measured by number of days since the broker has issued its first recommendation in I/B/E/S database, higher broker experience should have more impact to the market. For number of firms that analysts have to conduct the research, we expect that this number is associated with analyst experience. Lower firms analysts have to cover, higher forecast accuracy of that analyst. Because analyst can focus more on the companies he/she has to study and thus can issue more accuracy forecasting which make that analyst reputation better. We expect that lower number of covered firms, higher impact to stock performance.

We therefore develop the hypothesis to examine the relationship between analyst experience and impact of influential recommendation changes in Thailand.

**The leader-follower ratio**

LFR is the indicator to estimate whether a recommendation change can lead other analysts to follow and then change their recommendations in the same way. If LFR is higher, this means that the recommendation changes can lead other analyst to follow. In prior research, Loh and Stulz (2009) documented that LFR of influential recommendation changes is larger than the LFR of non-influential recommendation changes.
We therefore develop the hypothesis to examine the relationship between LFR and impact of influential recommendation changes in Thailand.

**Firm Size**

In prior researches, they implied that firm size provide negative impact to the market. This means that smaller firm can have an effect on the market more than larger firm. Loh and Stulz (2009) show evidences that smaller firm size covered by influential recommendation has significantly impact to the market than larger firm size.

We therefore develop the hypothesis to examine the relationship between firm size and impact of influential recommendation changes in Thailand.

**Institutional Ownership**

In this study, percentage of institutional ownership has included all both local and foreign investors who are not individual investors. Moreover, this includes only the ownership of investors who listed as major shareholder in SETSMART database. Moreover, this does not include no. of shares in hand hold by NVDR because NVDR does not enumerate how many no of shares hold by foreign institution.

In prior researches, they document that institutional investors are the main consumers of analyst reports (Loh and Stulz 2009), so that analysts are more likely to have a significant impact if a firm has more institutional ownership. However, proportion of local institution investors is not the largest in Thailand while it's larger in US. Stock market.

We therefore develop the hypothesis to examine the relationship between institutional ownership and impact of influential recommendation changes in Thailand.

**Prior price change**

For prior price change of security, we measured with absolute abnormal return in prior 3-month ([63,2]) of stocks.

In prior researches, there is an interesting issue that analyst tended to issue a recommendation after the stock price have changed dramatically in prior period. Eurico and Stanley...
2014 Capital Market Research Institute, The Stock Exchange of Thailand

(1999) show that analysts tend to focus on stocks that have very large price changes on the day prior to the recommendation publication date.

We therefore develop the hypothesis to examine the relationship between absolute abnormal return in prior price change of security and impact of influential recommendation changes in Thailand.

**Number of recommendations (all horizons)**

Number of recommendations is the number of recommendation changes issued by all analysts for the firm in the prior 3-month ([-63,-2]). In prior researches, Loh and Stulz (2009) found that influential recommendation changes have more average number of forecasts in the last 3 month for the firm than non-influential recommendation changes.

We therefore develop the hypothesis to examine the relationship between number of forecasts in all horizon and impact of influential recommendation changes in Thailand.

**Securities Volatility**

In this study, securities volatility is measured by standard deviation of stock return in prior 3-month (total volatility), average daily turnover in prior 3-month and idiosyncratic volatility of daily return in prior 3-month.

Loh and Stulz (2009) show that influential recommendation changes tend to be issued on firms that have lower turnover, lower total volatility and idiosyncratic volatility. They conclude that analysts can more easily affect investors’ beliefs about a firm when they are speaking in a smaller crowd.

We therefore develop the hypothesis to examine the relationship between securities volatility and impact of influential recommendation changes in Thailand.

**P/BV**

Loh and Stulz (2009) documented that recommendations that issued on lower book-to-market ratio securities have more effect to the market. This means that higher Price-to-book ratio (P/BV) can lead that recommendation to have more impact to the market.
We therefore develop the hypothesis to examine the relationship between P/BV ratio and impact of influential recommendation changes in Thailand.

P/E

Hsu J. (2013) imply that stocks with high forward price-earnings (E/P) ratios approach to outperform stocks with low forward E/P ratios. However, Fluegel (1968) argue that low PE ratio stocks outperformed high PE ratio stocks in terms of return on investment.

In this case, we assume that earning of companies in Thailand are stable and have growth. Increasing of stock price conform to increasing of company earning.

We therefore develop the hypothesis to examine the relationship between trailing P/E ratio and impact of influential recommendation changes in Thailand.

Summary of hypothesis on analyst and firm characteristics

H3a: Magnitude of changes has positive relationship with the impact of influential recommendation changes to the market measured by abnormal return and abnormal turnover in the event period.

H3b: Downgrade influential recommendation has more impact to the market measured by abnormal return and abnormal turnover in the event period than upgrade influential recommendation changes.

H3c: Analyst experience has positive relationship with the impact of influential recommendation changes to the market measured by abnormal return and abnormal turnover in the event period.

H3d: Broker experience has positive relationship with the impact of influential recommendation changes to the market measured by abnormal return and abnormal turnover in the event period.

H3e: Higher number of covered firm by an analyst has negative relationship with the impact of influential recommendation changes to the market measured by abnormal return and abnormal turnover in the event period.
H3f: LFR has positive relationship with the impact of influential recommendation changes to the market measured by abnormal return and abnormal turnover in the event period.

H3g: Firm size has negative relationship with the impact of influential recommendation changes to the market measured by abnormal return and abnormal turnover in the event period.

H3h: Proportion of institutional ownership in major shareholder has positive relationship with the impact of influential recommendation changes to the market measured by abnormal return and abnormal turnover in the event period.

H3i: Absolute abnormal return in prior period has positive relationship with the impact of influential recommendation changes to the market measured by abnormal return and abnormal turnover in the event period.

H3j: Number of recommendations issued by all analysts for the firm in the prior 3-month has positive relationship with the impact of influential recommendation changes to the market measured by abnormal return and abnormal turnover in the event period.

H3k: Total volatility of the stock return in the prior 3-month has negative relationship with the impact of influential recommendation changes to the market measured by abnormal return and abnormal turnover in the event period.

H3l: Daily turnover of the stock in the prior 3-month has negative relationship with the impact of influential recommendation changes to the market measured by abnormal return and abnormal turnover in the event period.

H3m: Idiosyncratic of the stock return in the prior 3-month has negative relationship with the impact of influential recommendation changes to the market measured by abnormal return and abnormal turnover in the event period.

H3n: P/BV ratio has positive relationship with the impact of influential recommendation changes to the market measured by abnormal return and abnormal turnover in the event period.

H3o: P/E ratio has positive relationship with the impact of influential recommendation changes to the market measured by abnormal return and abnormal turnover in the event period.
Chapter 4 Data and Methodology

Data

Several data sources are used in this paper. To maintain the integrity of the dataset, we only include the sample of listed companies on Stock Exchange of Thailand which covers 12 years from January 1999 – December 2011. The data are cleaned up. We can divide the databases that we used in this study into 5 categories; Analyst’s recommendation of securities in the Stock Exchange of Thailand (SET), historical daily data for each stock in SET, historical daily data for each industry in SET, historical news announcement for all stocks in SET, and historical daily trading volume for each Investor Type.

Firstly, Analyst’s recommendation changes of securities in Stock Exchange of Thailand (SET) are obtained from Institutional Brokers’ Estimate System (I/B/E/S) International Data File, which is the service provided by Thomson Reuter Corporation, the world's leading source of intelligent information for businesses and professionals. We select only recommendations that announced to revise their previous recommendation level, so any initial or re-initial recommendations are excluded from our sample.

We also adjusted data with I/B/E/S Stopped Recommendations file. Moreover, unpopular companies which have less than 3 brokerage houses made recommendations and

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2 We focus only on recommendation revisions which are records that has prior rating data in the same stock, same brokerage house and same analyst. If that revision is made more than one year from prior recommendation, we assume that rating is not outstanding and mark that record as re-initiate recommendations.

3 I/B/E/S Stopped Recommendation file is the file includes stops applied to recommendations that are no longer active. This can result from several events, e.g. an estimator places a stock on a restricted list due to an underwriting relationship, an analyst is leaving a firm, or the estimator no longer covers the company. If a recommendation is not updated or confirmed for a total of 180 days, the recommendation is stopped. (Recommendations are updated by a contributing analyst sending a confirmation, revision or drop in coverage.) We mark the next recommendation that was announced after stop recommendation date as re-initial recommendation and also exclude from our sample.
penny stocks that have their adjust closing price less than 1.00 Baht on recommendation announcement day are also excluded from our sample to prevent outlier effect. I/B/E/S system categorized the recommendation into 5 scales, which are ‘1 = strong buy’, ‘2 = buy’, ‘3 = hold’, ‘4 = underperform’, and ‘5 = sell’, please refer to Table 4.1 for more detail.

In table 4.1, breakdown magnitude and direction of recommendation changes are represented in number and percent by year. About third four of recommendations changes in each year fall in -2 to +2 recommended degree changes.

<table>
<thead>
<tr>
<th>Table 1A: Sample description of recommendation changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upgrade</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>1999</td>
</tr>
<tr>
<td>2000</td>
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<tr>
<td>2001</td>
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<td>2002</td>
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<td>2008</td>
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<tr>
<td>2009</td>
</tr>
<tr>
<td>2010</td>
</tr>
<tr>
<td>2011</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

In table 4.2, more information such as coverage of recommendation have been provided by year. It seems that number of stock recommendations, analysts and recommendation coverage firms tended to increase before Subprime Crisis and then abundantly dropped after that. Number of research firms and analysts have been stepped up after the crisis. In contrast, number of stocks’ coverage tends to drop after the crisis. On total year average, the number of stock recommendation changes that analysts made and reported was 51.35% of all stock recommendations. Number of stock recommendations tended to
increase from 1,391 recommendations in 1999 to the peak at 2,766 recommendations in 2007, then it continuously dropped to the lowest number of stock recs at 1,584 rec in 2010 (and then has increased a bit in 2011). Number of recommendation changes and covered firms also have the same pattern. Stock recommendation changes increased from 609 recs in 1999 to the highest at 1570 recs in 2006, then dropped to 661 recs in 2011. Number of coverage firms (first right column) increased from 65 list firms to 155 companies which is the highest number in 2006. Then it tends to decrease to 98 firms in 2011. These may because of Financial Crisis that occurred in US and had taken effect to Asian economy especially in 2008. Mean of recommendation changes is volatile. The average of rec changes was highest in 1999 which is a year of Dot Com bubble and the second place of the highest mean of changes was in 2009 which is the recovery stage a deep financial crisis in 2008. The lowest mean of rec changes was in 2000 which has Dot Com bubble crisis. The volatile of rec changes have tended to decrease since 1999.

Table 1B: Sample description of recommendation changes

<table>
<thead>
<tr>
<th>Year</th>
<th># of recommendations</th>
<th>Descriptive Statistics</th>
<th># of Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All stock rec</td>
<td>Only rec change</td>
<td>% of rec change</td>
</tr>
<tr>
<td>1999</td>
<td>1,391</td>
<td>609</td>
<td>43.78%</td>
</tr>
<tr>
<td>2000</td>
<td>1,181</td>
<td>540</td>
<td>45.72%</td>
</tr>
<tr>
<td>2001</td>
<td>1,153</td>
<td>583</td>
<td>50.56%</td>
</tr>
<tr>
<td>2002</td>
<td>1,846</td>
<td>901</td>
<td>48.81%</td>
</tr>
<tr>
<td>2003</td>
<td>2,389</td>
<td>1,239</td>
<td>51.86%</td>
</tr>
<tr>
<td>2004</td>
<td>2,179</td>
<td>1,093</td>
<td>50.16%</td>
</tr>
<tr>
<td>2005</td>
<td>2,329</td>
<td>1,268</td>
<td>54.44%</td>
</tr>
<tr>
<td>2006</td>
<td>2,766</td>
<td>1,570</td>
<td>56.76%</td>
</tr>
<tr>
<td>2007</td>
<td>2,333</td>
<td>1,322</td>
<td>56.67%</td>
</tr>
<tr>
<td>2008</td>
<td>1,662</td>
<td>935</td>
<td>56.26%</td>
</tr>
<tr>
<td>2009</td>
<td>1,940</td>
<td>1,086</td>
<td>55.98%</td>
</tr>
<tr>
<td>2010</td>
<td>1,584</td>
<td>719</td>
<td>45.39%</td>
</tr>
<tr>
<td>2011</td>
<td>1,642</td>
<td>661</td>
<td>40.26%</td>
</tr>
<tr>
<td>All</td>
<td>24,395</td>
<td>12,526</td>
<td>51.35%</td>
</tr>
</tbody>
</table>

Second, for these following data; historical daily data of each stock in SET, historical daily data of each industry in SET, historical news announcement of all stocks in SET, we
obtain from SETSMART database system provided by SET. At this stage, we have manually match I/B/E/S stock symbol with SETSMART stock id.

Lastly, daily order imbalance of each investor type is gathered from SET with authorization. The dataset contains such every matched transaction’s information except shareholder private data. Then we summarize them to daily order imbalance by stock for each investor group.

Methodology

We use standard event study methodology to appraise the impact of analyst recommendation changes. In Thailand, this methodology has been used to examine the behavior of firms’ stock price and volatility around event days as well as to test the market efficiency in many financial researches. The common measurement is to calculate abnormal returns which defined as the difference between the actual return and the benchmark return.

We compute daily returns for each security by taking logarithm to stock adjusted price4 and compute daily market return (SET INDEX) by taking logarithm to market daily index.

Cumulative abnormal return (CAR)

We adopt a three-day event window to make sure that we incorporate the daily return reflecting the recommendation change. To compute the three-trading-day cumulative abnormal return (CAR) around the recommendation change announced for a recommendation change i. The schematic below illustrates the three-day event period.

---

4 In SETSMART database, there is a table named “Daily security trading” which has “R_Adjust_Factor” variable. We used this factor to multiply with daily stock closed price for removing exclude rights and par change effect in stock return.
We calculate cumulative abnormal return by sum of different between security natural log return and market natural log return as below formula.

\[
\text{CAR}_i = \sum_{t=-1}^{1} \left( \ln(R_i) - \ln(R_m) \right)
\]

Where \( \text{CAR}_i \) is cumulative abnormal log return of stock \( i \) between \( t-1 \) and \( t+1 \)

\( R_i \) is log return of stock \( i \) on day \( t \)

\( R_m \) is log return of market on day \( t \)

\( D_o \) is the day that recommendation announced which we have already adjusted time zone of timestamp in I/B/E/S data which is either UTC-4 or UTC-5 depends on daylight period\(^5\) to Thailand local time (UTC+7). If recommendations announcement has been made in non-

\(^5\) Before 2007 under legislation enacted in 1986, Daylight Saving Time in the U.S. began at 2:00 a.m. on the first Sunday of April and ended at 2:00 a.m. on the last Sunday of October. Going from 2007 forward, Daylight Saving Time in the U.S. begins at 2:00 a.m. on the second Sunday of March and ends at 2:00 a.m. on the first Sunday of November.
trading day or after 4.30 PM of trading day which SET is already closed, D₀ will be the next trading day.

**Falsely effect in recommendation announced day**

It’s possible that a stock recommendation has an immediate impact on a firm’s stock price because it reveals information about the firm. To determine whether the analyst recommendation is informative, one should be careful to remove recommendations that only repeat the information contained in firm-specific news releases. As already discussed in analyst recommendation informativeness, Altinkilic and Hansen (2008) argue that once the impact of other news is removed, analyst recommendation changes do not have an impact. This may make the result to be confused that stock return and volatility are high from either company event or issue of analyst recommendation. Following Loh and Stulz (2009), we have below criteria to remove observations that stocks abnormal return and volatility may result from company event such as company earnings announcement.

**Truncate the outlier:** Firstly, we consider the impact of removing outlier observations from our sample. Outliers can have deleterious effects on statistical analyses. First, they generally serve to increase error variance and reduce the power of statistical tests. Second, if non-randomly distributed they can decrease normality (and in multivariate analyses, violate assumptions of sphericity and multivariate normality), altering the odds of making both Type I and Type II errors. Third, they can seriously bias or influence estimates that may be of substantive interest. After reviewing descriptive statistic of our samples (as this will be shown in table 2). We note that some panel are fat tails and have negative skewness. To eliminate the outlier, we use the way to truncate records that have CAR more than percentile 99 or less than percentile 1.

**Remove multi recommendation changes announced in the same day:** Bradley et al. (2007) contend that clustering in recommendation changes usually occur because of firm-specific news. Therefore we also identify days on which multiple analysts issue recommendations for the firm as potential firm-specific news events. Then we remove all
recommendations which announced more than one in a day. If recommendation changes announced in non-trading day, we define the event day of these samples as the next trading day. Then, if there are more than one recommendation changes disseminated in the next trading day, we also remove all of them.

Remove recommendation around quarterly and annual earnings announcement: In prior researches, Malmendier et al. (2007) and Loh (2007) report that 12-13% of stock recommendations occur in the three days around quarterly earnings announcements. Since there are 252 trading days in a year, one would expect only 4.8% of all recommendations to be issued around earnings announcements if the likelihood of a recommendation is uniformly distributed throughout the year. Therefore, not removing such earnings announcements recommendations falsely gives credit to the analyst recommendation for producing the earnings announcement price impact (see also, Frankel et al. 2006). To apply this screening, we obtain quarterly earnings announcement dates of all firms from SETSMART database. Then we remove all recommendations that announced around earnings announcement day [-1,+1].

Identify Influential recommendation changes

This section will describe how we classify which analyst recommendation changes are influential and lead investors to trade on that stock after recommendation announced. Following Roh and Stulz 2009, the first method to classify a recommendation change as an influential recommendation change when its cumulative abnormal return is significant and in the same way as the change in recommendation. If abnormal return of a stock exceed 1.96 times \( \sqrt{3} \) and standard deviation of the firm’s prior three months idiosyncratic return which you can see on below equation.

\[
\text{CAR}_i > 1.96 \times \sqrt{3} \times \sigma_{\varepsilon}
\]

Where \( \sigma_{\varepsilon} \) is the standard deviation of firm residual returns in the prior three months ([t-63,-2] days) from the recommendation change date. We multiply by \( \sqrt{3} \) since the \( \text{CAR}_i \) is a three-day CAR ([t-1,+1] days) while the \( \sigma_{\varepsilon} \) is the standard deviation of residuals from a daily
time-series regression of firm returns against market returns and stock i’s sector return. To avoid any spurious results, the industry return is constructed without stock i; remaining stocks are then value-weighted.

Following Mark H. L. (2012), below is the way that we use to calculate idiosyncratic volatility of stock return. We use prior three months period (D-63, D-2) and then processing this below regression.

\[ R_{i,t} = a_i + \beta_i R_{m,t} + C_i R_{ind,t} + \varepsilon_{i,t} \]

Where \( R_{i,t} \) is the return of stock i in day t, \( R_{m,t} \) and \( R_{ind,t} \) are the contemporaneous returns on the market and stock i’s sector. To avoid any spurious results, the sector return is constructed without stock i; remaining stocks are then value-weighted.

After we get the dataset of all recommendations that has their abnormal return exceed our model, we then remove all recommendations that have wrong sign against direction of changes: eg. It’s upgrade but cumulative abnormal return in event period is negative.

The second approach classifies a recommendation change as influential when the increase in abnormal turnover (abturn) is statistically significant. Turnover ratio is the total value of shares traded during the period divided by the average market capitalization for the period. Average market capitalization is calculated as the average of the end-of-period values for the current period and the previous period. This information is provided in SETSMART. We can find abnormal turnover of stock from this formula.

\[ \text{Abturn}_i = \log(\text{turnover}_i) - \log(\text{turnover}_i) \]

Where \( \text{Abturn}_i \) is abnormal turnover of stock i
\( \log(\text{turnover}_i) \) is log turnover ratio of stock i in day t,
\( \log(\text{turnover}_i) \) is the average of \( \log(\text{turnover}_i) \) in the prior three months period \([-63,-2] \text{ days}\)

If a revision of analyst recommendation has cumulative abnormal turnover \([-1,+1] \text{ days}\) greater than 1.96 multiply by \( \sqrt{3} \) and standard deviation of abnormal turnover in prior period following below equation, we define that recommendation change as influential recommendation based on distribution of past CARs.

\[
\text{Cumulative Abturn}_i > 1.96 \times \sqrt{3} \times \sigma_{\text{abturn}}
\]

Where \( \sigma_{\text{abturn}} \) is the standard deviation of the stock’s abnormal turnover in prior three months \([-63,-2] \text{ days}\)

**Underreact or overreact of investors**

To examine the reaction of investors toward influential stock recommendation changes, we follow Cohen and Frazzini (2008) to calculate an underreaction coefficient (URC) with below equation.

\[
URC = \frac{ER}{(ER + SR)}
\]

Where \( ER \) is the event period abnormal return \([-1,+1 \text{ day}]\)

\( SR \) is the subsequent abnormal return. SR covers the subsequent abnormal return from \([+2,+21] \text{ or 1-month as we define as short-term period and [+2,+126] or 6-month as we define as long-term period after influential recommendation has been announced.}

A URC of less than 1 represents underreaction, and other positive number represents overreaction. Among cases of underreaction, lower underreaction coefficients indicate more severe underreaction.

**Investor reaction to influential recommendations.**
To examine the trading pattern of each investor group toward influential analyst recommendation changes, we calculate order imbalance or cumulative net trading volume on the recommendation date and around recommendation date by using below equation.

\[
\text{Order Imbalance}_{ij} = \sum_{t=a}^{b} \left( \frac{\text{buy vol}_{ij} - \text{sell vol}_{ij}}{\text{No. of Listed Share}_j} \right)
\]

Where \( \text{Order Imbalance}_{ij} \) is cumulative net trading volume of investor i on stock j between time a to time b

- \( \text{buy vol}_{ij} \) is buy volume of investor i on stock j for day t
- \( \text{sell vol}_{ij} \) is sell volume of investor i on stock j for day t
- \( \text{No. of Listed Share}_j \) is number of listed share of stock j in SET

Investor i (local investors, mutual funds, foreign investors or proprietary trader) will have “buy” position if buy volume is greater than sell volume on day t and they will have “sell” position if buy volume is less than sell volume on day t.

**Characteristic of influential recommendation changes.**

In prior chapter, we explain which characteristics we expected they have potential to make the recommendations have more impact to the market. We then explain the method to measure the impact of each characteristics.

In this paper, we analyze the important of each characteristics by using linear regression model. Dummy of influential rec based on abnormal return and abnormal turnover are the dependent variable. These dummies will equal to 1 if a recommendation change becomes influential recommendation as we explain how to define them in previous section. In the other hand these dummies are equal to zero if that recommendation is not an influential recommendation change. We then explain the independent variables and control variables we used in the model as following.
Recommendation characteristics or Independent Variables

Analyst experience – is number of days since analyst made his/her first recommendation in I/B/E/S system.

Broker experience – is the number of days since broker made its first recommendation by any analysts in I/B/E/S system.

Institutional ownership – is the proportion of institutional ownership only in major shareholder list.

Idiosyncratic Volatility – is the idiosyncratic volatility of stock return in prior 3-month.

Total Volatility – is the standard deviation of stock return in prior 3-month.

Daily Turnover – is the average daily turnover which is calculated from net trading volume divided by share outstanding of firms in prior 3-month.

Number of forecasts (all horizon) – is the number of forecasts made by all analysts to the firm in prior 3-month.

Absolute abnormal return in prior period – is the absolute abnormal return in prior 3-month.

LFR – is computed following Cooper, Day, and Lewis (2001) so as to gauge the extent to which the influential recommendation change leads other analysts to change their recommendations. The gaps between the current recommendation and the previous two recommendations from other brokers are computed and summed. The same is done for the next two recommendations. The leader-follower ratio is the gap sum of the prior two recommendations divided by the gap sum of the next two recommendations. Ratios larger than one show that other brokers issue new ratings quickly in response to the current analyst’s recommendation. The schematic below illustrates the LFR of recommendation i: \[ LFR_i = \frac{(80+40)}{(20+10)} = 4, \] which is greater than one and hence the analyst associated with recommendation i is a leader analyst.
Control Variables.

Magnitude of change – is the degree of recommendation change which is lie on -4 to +4.

Direction change – is either upward or downward recommendation change.

P/E ratio – is the stock’s price to earning per share in the event day.

P/BV ratio – is the stock’s price to book value ratio in the event day.

%Yield – is the stock’s dividend yield in the event day.

Free Float – is the proportion of share outstanding held by investors who are not in major shareholder list.

Firm Size – is the market capitalization of the stock in the event day.

Model Specification

In this study, we apply the regression to test the two following models; the empirical models are presented as:

**Dummy of influential rec by abnormal return**

\[
\text{Dummy of influential rec by abnormal return} = \alpha_0 + \alpha_1 \text{ analyst experience} + \alpha_2 \text{ broker experience} + \alpha_3 \text{ magnitude of changes} + \alpha_4 \text{ direction change} + \alpha_5 \text{ Institutional ownership} + \alpha_6 \text{ idiosyncratic volatility} + \alpha_7 \text{ total volatility} + \alpha_8 \text{ daily turnover} + \alpha_9 \text{ # of forecasts in prior 3-month} + \alpha_{10} \text{ absolute abnormal return in prior period} + \alpha_{11} \text{ LFR} + \alpha_{12} \text{ Firm size} + \alpha_{13} \text{ P/BV} + \alpha_{14} \text{ P/E} + \alpha_{15} \%Yield + \alpha_{16} \text{ Free Float} + \varepsilon \quad \ldots \ldots \text{Model 1}
\]
Dummy of influential rec by abnormal turnover

= \alpha_0 + \alpha_1 \text{analyst experience} + \alpha_2 \text{broker experience} + \alpha_3 \text{magnitude of changes} +
\alpha_4 \text{direction change} + \alpha_5 \text{Institutional ownership} + \alpha_6 \text{idiosyncratic volatility} + \alpha_7 \text{total volatility} + \alpha_8 \text{daily turnover} + \alpha_9 \# \text{of forecasts in prior 3-month} + \alpha_{10} \text{absolute abnormal return in prior period} + \alpha_{11} \text{LFR} + \alpha_{12} \text{Firm size} + \alpha_{13} \text{P/BV} + \alpha_{14} \text{P/E} + \alpha_{15} \%\text{Yield} + \alpha_{16} \text{Free Float} + \varepsilon \quad \ldots \ldots \text{Model 2}
Chapter 5 Empirical Results

This study examines the number of revised recommendation changes which dramatically impact to the market in Thailand and why those recommendations can impact the market, which factors lead them to be influential and the reaction of investors toward those researches. This chapter reports empirical results according to our hypotheses based the hypotheses stated in the Chapter III.

Impact of firm news events and influential observations on mean CAR

This result reports how recommendation changes provide cumulative abnormal return (CAR) when recommendations issued together with firm news events are removed and outlier recommendations are also removed. Table 2 show the distribution statistics of recommendation change categories by subsamples sequentially from -4 to +4, and then summarize by direction of rec change.
### Table 2: The impact of various filters on recommendation event percentage CAR

<table>
<thead>
<tr>
<th></th>
<th>Obs</th>
<th>% CAR</th>
<th>Mean</th>
<th>STD</th>
<th>Min</th>
<th>1%</th>
<th>25%</th>
<th>50%</th>
<th>75%</th>
<th>99%</th>
<th>Max</th>
<th>Skew</th>
<th>Kurt</th>
<th>KS Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full</td>
<td>690</td>
<td>40.99%</td>
<td>-1.198***</td>
<td>3.248</td>
<td>-21.924</td>
<td>-17.243</td>
<td>-4.448</td>
<td>-0.710</td>
<td>1.554</td>
<td>2.159</td>
<td>15.954</td>
<td>26.592</td>
<td>0.017</td>
<td>6.222</td>
</tr>
<tr>
<td>Full - Trim 2%</td>
<td>682</td>
<td>41.84%</td>
<td>-0.853***</td>
<td>4.099</td>
<td>-12.493</td>
<td>-11.661</td>
<td>-1.372</td>
<td>-0.046</td>
<td>1.572</td>
<td>3.030</td>
<td>10.330</td>
<td>12.583</td>
<td>0.094</td>
<td>0.558</td>
</tr>
<tr>
<td>Full - Trim 3% - MultiRecs</td>
<td>594</td>
<td>42.59%</td>
<td>-0.878***</td>
<td>4.098</td>
<td>-12.493</td>
<td>-11.725</td>
<td>-1.263</td>
<td>-0.621</td>
<td>1.566</td>
<td>4.143</td>
<td>12.583</td>
<td>0.153</td>
<td>0.653</td>
<td>0.054***</td>
</tr>
<tr>
<td>Full - Trim 3% - MultiRecs - Earning Ann</td>
<td>545</td>
<td>42.12%</td>
<td>-0.954***</td>
<td>4.078</td>
<td>-12.498</td>
<td>-11.725</td>
<td>-1.278</td>
<td>-0.663</td>
<td>1.508</td>
<td>2.958</td>
<td>12.583</td>
<td>0.188</td>
<td>0.660</td>
<td>0.058***</td>
</tr>
</tbody>
</table>

- Table 2
This table begins with the examining downgrades and focus first on the first “up” panel which represents overall picture of upgrade recommendations. Each panel is separated into 4 samples. Sample 1 is the full set of upgrade recs. The second sample set is “Full – Trim 1%” which we trim out 1% from both tails of the sample distribution in the first step. Then in the third sample set is “Full – Trim 1% - MultiRecs” which we remove all days that have multiple recommendation announced from the remaining cases of sample 2. The last sample set in each panel is “Full – Trim 1% - MultiRecs – Earning Ann” which we remove all recommendation changes that closed to company’s earnings announcement day from the remaining cases of sample 3.

As we saw in the table, the distribution of CARs does not appear normal and this is now confirmed with the positive skewness and the large positive kurtosis (tails fatter than predicted by a normal distribution). We also report the Kolmogorov-Smirnov D-statistic as a test of normality with the p-value in parentheses below the D-statistics. The null hypothesis is normality and we see that normality is soundly rejected. Therefore, we first start to filter the outlier out by truncating 1% from both tails of the sample distribution. CAR has dropped from +0.3741% to +0.2739%. The skewness and kurtosis also drops significantly as a result of this filter. Next, we examine the impact of removing recommendations that are adulterated by firm news releases. First, we remove days with multiple recommendations since these days could correspond to firm news releases that led multiple analysts to revise their ratings. The average CAR now becomes +0.2348%. Next, we remove observations that fall in the three-day window around quarterly earnings announcements dates reported by SETSMART. The impact of this removal is to reduce the average CAR to +0.2247%. Although the average CAR is still statistically significant in sample 4, we can see that moving from sample 1 to sample 4, the economic magnitude of the average CAR drops by 39.94% from +0.3741% to +0.2247% or drop by 17.96% after removing outlier. These results confirm that a fraction of the average recommendation CAR should be attributed to contemporaneous firm news releases rather than
to the recommendation itself and this is consistent with the findings in Chen et al. (2005) and Altinkilic and Hansen (2008) that once the impact of other news is removed, analyst recommendation changes do not have an impact.

For downgrade panel, it shows the result in the same way. CAR drops from -0.6294% to -0.5099% (-18.99%) or -6.1% after removing outlier. Another interesting statistic (third column) is the percentage of positive-signed CARs. A positive CAR in this case shows that an upgrade recommendations was associated with a stock price movement in the opposite direction from the rating change. 43.55% of downgrade actually had CARs with the wrong sign.

These results are consistent with our hypothesis (H1a) that before removing recommendation respond to firm news, CAR is significant and they are shown in the right way with recommendation. Moreover, the result is consistent with our hypothesis (H1b) that after removing recommendation respond to firm news, CAR is lower.

Other panels in Table 2 show similar patterns. First, removing all firm-news contaminated recommendations decrease some proportion of the absolute value mean and median CARs. This evidence agree with Chen et al. (2005) and Altinkilic and Hansen (2008) that many recommendations do not add additional value but merely repeat information contained in firm news releases. Second, removing outliers from both tails further reduces the magnitude of the typical recommendation absolute value average CAR. Altogether, the results in this table show that the distributions of CARs are not normal. The CAR distributions are usually skewed and have fat tails, and outliers have an important impact on the mean CAR especially for upgrade recommendations as we can see that mean CAR is quite far than median CAR. Also, controlling for firm-specific news sharply reduces the average impact that a stock recommendation has on a firm’s stock price. However, the impact of company events toward analyst recommendation in Thailand has less effect than the impact of these ones in US securities (Loh and Stulz 2009).
Influential recommendation changes in Thailand

We investigate the impactful of stock recommendation changes to the market in event period using the models we explained in previous sections. In table 3, we found that only 9.93%, 11.61%, 2.49% and 19.04% of all recommendation changes have significantly impacted the market based on CAR, abnormal turnover, both and overall respectively.

Number of downgrade changes has quite higher than upgrade changes which is 10.46% – 9.43% (shown as downgrade - upgrade) based on CAR, 11.69% - 11.53% based on abnormal turnover and 20.38% - 17.81% overall. Only influential based on both CAR and abnormal return that number of upgrade changes has higher than downgrade changes which is 1.77% - 3.16%.

Table 3: Sample description of influential recommendations

<table>
<thead>
<tr>
<th></th>
<th>Total rec changes</th>
<th>No. of influential recommendation changes</th>
<th>Based on CAR only</th>
<th>Based on Turnover only</th>
<th>Based on both</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upgrade</td>
<td>5,576</td>
<td>All 993</td>
<td>526</td>
<td>643</td>
<td>176</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17.81%</td>
<td>9.43%</td>
<td>11.53%</td>
<td>3.16%</td>
</tr>
<tr>
<td>Downgrade</td>
<td>5,133</td>
<td>All 1,046</td>
<td>537</td>
<td>600</td>
<td>91</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20.38%</td>
<td>10.46%</td>
<td>11.69%</td>
<td>1.77%</td>
</tr>
<tr>
<td>Total</td>
<td>10,709</td>
<td>All 2,039</td>
<td>1,063</td>
<td>1,243</td>
<td>267</td>
</tr>
<tr>
<td></td>
<td></td>
<td>19.04%</td>
<td>9.93%</td>
<td>11.61%</td>
<td>2.49%</td>
</tr>
</tbody>
</table>

Different between non-influential and influential recommendations.

We study the different of characteristics between the set of non-influential recommendations compared with influential recommendations. The total samples of analyst recommendations in Thailand after screening out by the conditions we already explained is 10,709 samples. There are two definitions of influential. First, influential recs are those are when a correct-signed CAR is 1.96 standard deviations greater than expected based on the firm’s prior three-month idiosyncratic volatility of daily returns. Second, influential recs are defined as those are when their cumulative abnormal turnover is 1.96 standard deviation greater than expected based on the variation in prior 3-month of average abnormal turnover.
The result shows in Table 4 the mean of each characteristics compared between non-influential and influential recommendations. This study has divided into 3 panel for examine the different between those two groups. Panel A represent the variables about analyst experience. Panel B represent the attributes on firm’s characteristics. Panel C show the characteristics of change in firm environment around recommendation announcement.

### Table 4: Comparing analyst and firm characteristics of influential versus non-influential recommendation changes

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Not Influ</th>
<th>Influential</th>
<th>Difference</th>
<th>t-stat</th>
<th>p-val</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observations</td>
<td>9646</td>
<td>1063</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Panel A: Analyst and recommendation characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># of stock recommendations (-3mth)</td>
<td>3.1896</td>
<td>3.2248</td>
<td>0.0352</td>
<td>0.47</td>
<td>3.2133</td>
</tr>
<tr>
<td>Institutional ownership</td>
<td>60.0178</td>
<td>60.8922</td>
<td>0.8743</td>
<td>1.16</td>
<td>60.1188</td>
</tr>
<tr>
<td>Total volatility (-3mth)</td>
<td>2.6148</td>
<td>2.7007</td>
<td>0.0860</td>
<td>4.76 ***</td>
<td>2.6458</td>
</tr>
<tr>
<td>Daily turnover (-3mth)</td>
<td>0.4856</td>
<td>0.5275</td>
<td>0.0419</td>
<td>3.07 **</td>
<td>0.4953</td>
</tr>
<tr>
<td>Idiosyncratic volatility (-3mth)</td>
<td>1.8791</td>
<td>1.9253</td>
<td>0.0462</td>
<td>21.60 ***</td>
<td>1.8185</td>
</tr>
<tr>
<td>P/BV ratio</td>
<td>2.1634</td>
<td>2.4648</td>
<td>0.3014</td>
<td>5.43 ***</td>
<td>2.2005</td>
</tr>
<tr>
<td>P/E ratio</td>
<td>13.6265</td>
<td>15.1241</td>
<td>1.4978</td>
<td>3.75 ***</td>
<td>15.5972</td>
</tr>
<tr>
<td>Size (M)</td>
<td>424527.78</td>
<td>42926.08</td>
<td>483.40</td>
<td>0.21</td>
<td>42920.58</td>
</tr>
<tr>
<td>%Yield</td>
<td>8.9055</td>
<td>8.9782</td>
<td>0.0727</td>
<td>2.96 ***</td>
<td>8.7591</td>
</tr>
<tr>
<td>Absolute CAR (-3mth)</td>
<td>19.5441</td>
<td>23.7155</td>
<td>4.1719</td>
<td>7.96 ***</td>
<td>19.5131</td>
</tr>
<tr>
<td><strong>Panel B: Firm characteristics prior to recommendation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># of covered firms</td>
<td>11.2417</td>
<td>10.4848</td>
<td>-0.7572</td>
<td>-3.55 **</td>
<td>11.1787</td>
</tr>
<tr>
<td><strong>Panel C: Change in firm environment around recommendation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LFR</td>
<td>1.7919</td>
<td>2.0269</td>
<td>0.2350</td>
<td>2.41 **</td>
<td>1.7589</td>
</tr>
<tr>
<td>Δ Total Volatility x100 (-3mth, +3mth)</td>
<td>0.0788</td>
<td>-0.0328</td>
<td>-0.1116</td>
<td>-3.34 ***</td>
<td>0.0058</td>
</tr>
<tr>
<td>Δ Daily turnover (-3mth, +3mth)</td>
<td>-0.0266</td>
<td>0.0274</td>
<td>0.0540</td>
<td>3.92 ***</td>
<td>-0.0566</td>
</tr>
<tr>
<td>Δ # of stock rec (-3mth, +3mth)</td>
<td>-0.2893</td>
<td>-0.5146</td>
<td>-0.2253</td>
<td>-2.32 **</td>
<td>-0.2576</td>
</tr>
</tbody>
</table>

We firstly start to interpret on influential rec bases on stock’s abnormal turnover. The first one we study about analyst attribute which has three characteristics in this panel. The result in Panel A shows that there are no significant between non-influential and influential based on abnormal turnover recommendations in all characteristics of analyst experience. In panel B, the result shows that the market emphasize on the recommendations that have average number of analyst recommendations (all horizon) in prior 3-month lower than non-influential recommendation set (3.21 vs 3.04 at 5% sig-level ordered by non-influential then
influential rec). Moreover, they also focus on the firms that have lower volatility in prior 3-month; lower average daily turnover (0.50 vs 0.45 at 1% sig-level) and low standard deviation of stock return (2.65 vs 2.52 at 1% sig-level). Furthermore, they emphasize on bigger market cap (43.02 vs 47.16 billion baht at 10% sig-level) and higher P/E (13.6 vs 15.13 at 1% sig-level) stock. In addition, influential recommendations have usually been announced by following large price change (high absolute abnormal return) in prior 3-month (19.51% vs 21.8% at 1% sig-level). In panel C, after the influential recs have announced, other analysts tended to revise their recommendation follow the influential analyst as we can see that influential rec has LFR higher than non-influential rec (1.77 vs 2.17 at 1% sig-level). Additionally, the stock price have strong trend after influential rec has been announced or we can say in other word that total volatility of post period is lower than pre period (0.1% vs -0.15% at 1% sig-level). The stocks also have higher liquidity or daily turnover is higher in post-period (-0.06 vs +0.25 at 1% sig-level) and analysts tend to slow down to revise their stock recs (-0.26 vs -0.72 at 1% sig-level).

For the second definition of influential recommendations, the results show that the influential recs are usually issued by higher broker experience (2533.89 vs 2687.41 days at 1% sig-level). In addition, analysts who have to make recommendations in less number of firms tend to issue more influential stock recs (11.24 vs 10.49 firms at 5% sig-level) as the results show in panel A. Moreover, panel B shows that stocks with higher in return volatility (2.61 vs 2.78 at 1% sig-level), higher in daily turnover (0.49 vs 0.53 at 5% sig-level), lower in idiosyncratic volatility (1.88 vs 1.25 at 1% sig-level), higher P/BV (2.16 vs 2.46 at 1% sig-level), higher P/E ratio (13.63 vs 15.12 at 1% sig-level), and lower yield (3.81% vs 3.48% at 1% sig-level) tend to make those stock recommendations more influential. The finding shows in panel C as same as the results of influential rec based on CAR, analysts usually follow large stock price change in prior 3-month (19.34% vs 23.72% at 1% sig-level). After the influential recs have announced, other analysts tended to revise their recommendation follow the influential analyst as shown in LFR (1.79 vs 2.03 at 5% sig-level). In the same way, the price perform in stronger trend after influential recs have been announced as we see in \[ \Delta \text{Total Volatility} \times 100 \]
(+0.08% vs -0.03% at 1% sig-level). The liquidity of stocks also increase as shown in $\Delta$ Daily Turnover (-0.03 vs +0.03 at 1% sig-level) and all analysts announce the revision of stock recommendations in less frequency.

This evidences show that there are no different in institutional ownership, and analyst experience between non-influential and influential recommendation changes.

**Price change around publication of influential recommendations.**

Table 5 presents the result explained how securities price change before and after influential recommendations announced in both short-term (1-month) and long-term (6-month).

![Table 5: Cumulative abnormal return around recommendation date](image)

At the time of announcement of influential recommendations, there are large and significant abnormal return in both upgrade and downgrade recommendations. As the table 4 shows, influential upgrade recommendations impact the market with +3.7347% at sig-level 1% abnormal return and influential downgrade recommendations impact with -2.4667% at sig-level 1%.

There is no significant in abnormal return before and after influential upgrade recommendations announcement in both short-term and long-term. These results are inconsistent with our hypothesis (H2.1a, H2.2a). We think in Thailand, investors focus and react only on downward recommendations, and analysts do not follow stock price change before announce upgrade recommendations.
As we can see that influential downgrade recommendations provide significantly positive abnormal return in the short-run of pre-recommendation (+1.2424% at sig-level 1%) and in the long-run (-4.7837% at sig-level 1%) which is consistent with our hypothesis (H2.1b). These results are consistent only in sell-side influential recommendation to Womack (1996). They documented that abnormal return exists for both buy and sell recommendations in several timeframe after recommendation disclosed, and especially in sell recommendations have been impacted by the market larger and negative from 5 to 9% on average over the six-month period after the event. This result also consistent with Conrad et al. (2006). They imply that following large stock price declines, analysts are more likely only to downgrade. Our result suggest that analysts follow down trend of stock performance and prepare to announce downgrade recommendations if stock price has rebounded in the short-term. We believe this can make them have more potential to announce the right recommendations. We can see after that stock price continue to decrease by -1.4626% (sig-level 1%) in short-term and up to 5% in subsequent 6 months which is consistent with our hypothesis (H2.2b).

**Investors reaction to influential recommendations.**

Table 6 presents the result explained how investors react to influential recommendations announcement. We study the reaction of investors with Underreaction Coefficient (URC) following Cohen and Frazzini (2008). We show the result in two period, 1-month and 6-month after the influential recommendation has announced.
We start to interpret the result in Downgrade recommendation changes panel first. The result shows that after the influential rec has announced, there are eminently negative abnormal return in both 1-month and 6-month (left column in each period). Moreover, negative abnormal return in 6-month post-period ($-4.74\%$ at sig-level 1%) is significantly larger than 1-month post-period ($-1.44\%$ at sig-level 1%). Consistently, URC of 6-month post-recommendation (14.44%) is lower than 1-month post-recommendation (31.55%). Lower in URC, more underreaction with stock price in post-period. These evidences support that investors underreact to downward influential recommendation. This finding is consistent regard to Andrea (2006) which they examine that stocks with unrealized capital losses under-react to negative news and this also consistent with our hypothesis (H2.4a). Then we move to interpret in upgrade recommendation changes panel. The result shows that the market react to influential upward stock rec more vaguely than influential downward stock rec because abnormal return of both 1-month and 6-month of post-period is insignificant which represented with small t-stat value. However, URC of 6-month post-recommendation (18.33%) is smaller than 1-month post-recommendation (33.84%). This evidence shows that investors react to upward influential stock rec in the same way as downward and this is consistent with our hypothesis (H2.4b). These finding also support the study of Paul and Richard (2006) that the price reaction to unfavorable recommendations is greater than the price reaction to favorable recommendations in both event period and subsequent months. Our study add a support that in
Thailand stock price react to unfavorable recommendation change more evidently than favorable recommendation change.

**Investor behavior toward influential stock recommendation announcement.**

Table 7 presents net trading volume separated by each investor type in pre-period, event-period and post period for 1-month timeframe and 6-month timeframe.

### Table 7: Each investor type behavior toward influential recommendation changes

<table>
<thead>
<tr>
<th>Individual Investor</th>
<th>Pre-event CAR</th>
<th>[-1,+1] day CAR</th>
<th>Post-event CAR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6-Month</td>
<td>1-Month</td>
<td>Event Period</td>
</tr>
<tr>
<td>Upgrade Rec</td>
<td>(-0.0006)</td>
<td>+0.0007</td>
<td>(-0.0018)***</td>
</tr>
<tr>
<td>Obs = 993</td>
<td>(-0.51)</td>
<td>+1.38</td>
<td>(-2.69)***</td>
</tr>
<tr>
<td>Downgrade Rec</td>
<td>+0.0027***</td>
<td>+0.0000</td>
<td>+0.0013***</td>
</tr>
<tr>
<td>Obs = 1046</td>
<td>+2.01</td>
<td>+0.04</td>
<td>+3.76</td>
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<table>
<thead>
<tr>
<th>Mutual Fund</th>
<th>Pre-event CAR</th>
<th>[-1,+1] day CAR</th>
<th>Post-event CAR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6-Month</td>
<td>1-Month</td>
<td>Event Period</td>
</tr>
<tr>
<td>Upgrade Rec</td>
<td>(-0.0019)***</td>
<td>(-0.0001)</td>
<td>+0.0004***</td>
</tr>
<tr>
<td>Obs = 993</td>
<td>(-2.69)</td>
<td>(-6.44)</td>
<td>(+3.19)</td>
</tr>
<tr>
<td>Downgrade Rec</td>
<td>(-0.0027)***</td>
<td>(-0.0009)***</td>
<td>(-0.0008)***</td>
</tr>
<tr>
<td>Obs = 1046</td>
<td>(-4.03)</td>
<td>(-3.86)</td>
<td>(-6.38)</td>
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<table>
<thead>
<tr>
<th>Foreign Investor</th>
<th>Pre-event CAR</th>
<th>[-1,+1] day CAR</th>
<th>Post-event CAR</th>
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<tr>
<td></td>
<td>6-Month</td>
<td>1-Month</td>
<td>Event Period</td>
</tr>
<tr>
<td>Upgrade Rec</td>
<td>+0.0028**</td>
<td>(-0.0007)</td>
<td>+0.0013***</td>
</tr>
<tr>
<td>Obs = 993</td>
<td>+2.16</td>
<td>(-1.42)</td>
<td>+5.92</td>
</tr>
<tr>
<td>Downgrade Rec</td>
<td>+0.0004</td>
<td>+0.0009*</td>
<td>(-0.0005)***</td>
</tr>
<tr>
<td>Obs = 1046</td>
<td>+0.31</td>
<td>+1.80</td>
<td>(-2.75)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Proprietary trader</th>
<th>Pre-event CAR</th>
<th>[-1,+1] day CAR</th>
<th>Post-event CAR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6-Month</td>
<td>1-Month</td>
<td>Event Period</td>
</tr>
<tr>
<td>Upgrade Rec</td>
<td>(-0.0002)</td>
<td>+0.0001**</td>
<td>(+0.0000)</td>
</tr>
<tr>
<td>Obs = 993</td>
<td>(-1.40)</td>
<td>+2.08</td>
<td>(+0.02)</td>
</tr>
<tr>
<td>Downgrade Rec</td>
<td>(-0.0004)**</td>
<td>(-0.0001)</td>
<td>(-0.0000)</td>
</tr>
<tr>
<td>Obs = 1046</td>
<td>(-2.38)</td>
<td>(-1.40)</td>
<td>(-0.54)</td>
</tr>
</tbody>
</table>

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We start to explain the results in event-period first. Among 3 investor types, there are distinctly behavior while influential stock recommendations are publishing. Foreign investors and mutual funds have followed analyst recommendations as they have net buy trading volume (+0.0004 for mutual funds and +0.0013 for foreign investors at the significant level 1%) toward influential favorable recommendations and have net sell trading volume (-0.0008 for mutual funds and -0.0006 for foreign investors at the significant level 1%) toward influential unfavorable recommendations. These evidences are consistent with our hypothesis (H2.3.2 and H2.3.3). In the other hand, local investors do in the opposite way against what analyst saying. We can see that they have net sell trading volume (-0.0018 at the significant level 1%) against favorable recommendations, and have net buy trading volume (+0.0013 at the significant level 1%) against unfavorable recommendations. This is insignificant with our hypothesis (H2.3.1) that individual investors’ behavior rely on analyst recommendations. This may because individual investors usually play a role as short-term speculators which can gain during short-run trading intervals as they can sell stock at the price higher than buy price (KEE-HONG et al. 2008). There are positive abnormal return from upward recommendations and negative abnormal return from downward recommendations as we shown in table 2, so it is possible that individual investors may take short-term profit. For Proprietary trader, there is no significant result in event period. This is consistent with our hypothesis (H2.3.4).

Next, in pre-recommendation and post-recommendation, we show in 2 timeframes. For 1-month around recommendation we defined it as short-run timeframe and for 6-month around recommendation we defined it as long-run timeframe.

In short-run timeframe for post-event, individual investors tend to sell against upgrade recommendations in the short-run (-0.0014 at sig-level 1%), however their sell are not significant in the long-run. They tend to buy against downgrade recommendations in both short-run (+0.0016 at sig-level 1%) and long-run (+0.0048 at sig-level 1%). These evidences attest that individual investors in Thailand react in the opposite way against analyst recommendations and also stock price trend as we show that there is negative abnormal return in subsequent
months in table 4. Mutual funds continue their herd out of stock with analyst downgrade in both short-term (-0.0010 at sig-level 1%) and long-term (-0.0017 at sig-level 1%). Their herding are ambiguous toward upgrade recommendations as the result shows as insignificant. This evidence supports that the influence of analyst recommendation changes on fund herding is stronger for downgrades (Nerissa et al. 2014). Foreign Investors tend to follow upgrade recommendations only in the short-run (+0.0015 at sig-level 1%). They tend to eminently sell following downgrade recommendations in the long-run (-0.0029 at sig-level 5%). These evidences show that foreign investors in Thailand follow analyst recommendation in both upgrade and downgrade recommendations. Proprietary traders tend to have net sell trading volume after influential sell-recommendation announced in both short-term (-0.0001 at sig-level 10%) and long-term (-0.002 at sig-level 10%). These evidences shows that influential downgrade recommendation has impact to proprietary traders in subsequent months.

In pre-event, individual investors have net buy trading volume to downgrade recommendations (+0.0027 at sig-level 5%) in long-term, however the behavior is hazy because there is no significant in the short-term. We have an interesting evidence implies that mutual funds in Thailand tend to herd out of stock with downgrade recommendations in 6 months before the publication of downgrade recommendations and in subsequent months after that. They have “sell” position in both short-term (-0.0009 at sig-level 1%) and long-term (-0.0027 at sig-level 1%) in pre-recommendation. This may because they have correctly analysis that the stock will be underperform. Behavior of foreign investors is ambiguous in pre-recommendation, so we cannot conclude their action. Proprietary trader tend to buy stock in the short-term (0.0001 at sig-level 5%) before influential upgrade recommendations announced.

**Predicting which recommendation changes will be influential**

Table 8 presents the results of regression analysis, explaining the linkage between analyst / firm characteristics and likelihood to be influential recommendation.
Section 5.3 has provided evidence that influential recommendation changes are associated with specific attributes of both analyst and firm attributes. Since many of them are correlated, we use in this section a probit regression to assess the impact of those on the likelihood that a recommendation will be influential. To make our approach predictive, we require the attributes to be known at the time of the recommendation change. All the variables used in the previous section are already based on past information except for the LFR. To make this variable rely on past information, the LFR is now the average of the analyst’s prior LFRs for the past 12 months. The definitions of the other attributes are the same as before. We also add controls for the level of the recommendation, the absolute value of the recommendation change, an upgrade indicator variable, P/E, P/BV, %Yield, free float, and firm size.

The dependent variable of the probit regression is equal to one if a recommendation change is influential as we explained its definition in the previous section. The results confirm
the conclusions reached in the previous section. A recommendation change is more likely to be influential (based on both two definitions) if it has unusually changed on the price in prior 3-month, and high P/E. This implies that a change around +0.13 to +0.17% of absolute abnormal return in prior 3-month and +0.0003 to +0.0006 of PE lead to a change in probability to be influential rec by 1 percent. This result is consistent with Eurico and Stanley (1999) that analysts tends to focus on stocks that have very large price changes and this is consistent with our hypothesis (H3i). More than that, in Thailand stock market, P/E ratio has significantly impacted to the market if analysts issued their recommendations on high P/E securities. This is consistent with our hypothesis (H3n) that P/E ratio has positive relation with the impact of stock rec to the market. This evidence supports Hsu J. (2013) that stocks with high forward price-earnings (E/P) ratios approach to outperform stocks with low forward E/P ratios.

In addition, influential stock rec based on prior idiosyncratic volatility tended to be more influential if it can lead other analysts to follow by revising their recommendation which is consistent with our hypothesis (H3f). Moreover, low liquidity and volatility on a security has negative relation with the impact of analyst recommendation to the market which is consistent with our hypothesis (H3k and H3l respectively). Furthermore, less number of analysts who published their recommendations on that firm in prior 3-month makes the recommendation to have more effect to the market. Lastly, larger firm size is one of the factor that make the stock rec to be more influent. The last two factors that make stock rec to be influential based on Volatility are inconsistent with our hypothesis (H3g and H3j respectively). We think these are the specific characteristics in Thailand stock market.

Influential stock rec based on distribution of past CARs tended to be more influential if it issued by high broker experience (consistent with our hypothesis - H3d), has low idiosyncratic volatility (consistent with our hypothesis – H3m), high stock return volatility (This is in contrast with influential based on abnormal return), and high P/BV security (inconsistent with our hypothesis – H3o), high LFR (consistent with our hypothesis – H3f), smaller in firm size
(consistent with our hypothesis – H3g) and higher in institutional ownership (consistent with our hypothesis – H3h).

In the other way, magnitude of changes, direction of changes, analyst experience, and number of covered firms that analysts make their recommendations have no significantly relationship with the volatility of stock price and return in the event period. These are inconsistent with our hypothesis (H3a, H3b, H3c and H3e). These evidences confirm that those attributes do not increase any impact of stock recommendation changes.

**Impactful of leader analyst.**

Table 9 shows the impactful of recommendations issued by leader analysts following Loh and Stulz (2009). This table presents comparison of descriptive statistic and impact of recommendations which have LFR equal or less than 0 which we defined as recommendation from follower analyst, and more than 0 which we defined as recommendation from leader analyst.

![Table 9: Impactful of leader analyst](image-url)

<table>
<thead>
<tr>
<th>Panel A</th>
<th>Non-Influential recs</th>
<th>Influential recs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Total recs</td>
</tr>
<tr>
<td>Upgrade</td>
<td>2.24</td>
<td>4,583</td>
</tr>
<tr>
<td>Downgrade</td>
<td>2.00</td>
<td>4,087</td>
</tr>
<tr>
<td>Total</td>
<td>2.11</td>
<td>8,670</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Panel B</th>
<th>LFR ≤ 1 follower analyst</th>
<th>LFR &gt; 1 leader analyst</th>
<th>Difference</th>
<th>t-stat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observations</td>
<td>6,057</td>
<td>4,052</td>
<td></td>
<td></td>
</tr>
<tr>
<td>abs(ab_ret)</td>
<td>2.8025</td>
<td>2.9086</td>
<td>0.0462</td>
<td>-0.93</td>
</tr>
<tr>
<td>Δ Daily turnover</td>
<td>-0.0412</td>
<td>0.0047</td>
<td>0.0460</td>
<td>5.53</td>
</tr>
<tr>
<td>Δ Total Volatility</td>
<td>0.0011</td>
<td>0.0001</td>
<td>-0.0011</td>
<td>-5.31</td>
</tr>
<tr>
<td>Δ # of stock rec</td>
<td>0.5797</td>
<td>-1.4084</td>
<td>-2.9881</td>
<td>-57.13</td>
</tr>
</tbody>
</table>
In panel A, the result shows that number of recommendation changes that have LFR more than 0 (recommendation from leader analyst) is not different with the group of recommendation changes that have LFR equal or less than 0 (recommendation from follower analyst) in both upgrade and downgrade recommendations. In the group of recommendation from leader analyst (LFR > 0), the percentage is 42.26% vs 45.02% (Non-influential vs Influential respectively) in upgrade, 43.41% vs 47.23% in downgrade and 42.80% vs 46.15% in overall. Then in the group of recommendation from follower analyst (LFR £ 0), the percentage is 57.74% vs 54.98% in upgrade, 56.59% vs 52.77% in downgrade and 57.20% vs 53.85% in overall.

However, mean of LFR of influential recommendations are quite higher than LFR of non-influential recommendations. Average LFR is 2.24 vs 2.63 in upgrade, 2.00 vs 2.75 in downgrade and 2.11 vs 2.69 in overall. These evidences imply that influential recommendations both upgrade and downgrade usually be issued by leader analyst who can make extremely high LFR.

In panel B, the result shows how leader (and follower) recommendations can impact the change in stock environment. The evidences indicate that leader recommendations cannot provide more abnormal return. (Absolute abnormal return is not different – 2.86% vs 2.91% - non-influential vs influential respectively). However, leader recommendations can make the change of stock environment in turnover, total volatility and issuance of analyst recommendation on that firm. After leader analysts have issued leader stock recommendations, turnover of that stock is higher in subsequent 3-month (-0.0412 vs +0.0047 at sig-level 1%). Moreover, Total volatility or standard deviation of stock return is lower (+0.0011 vs +0.0001 at sig-level 1%). This means that stock price have been the stronger trend after leader recommendations have been announced. In addition, follower analysts slow down the issuance of stock recommendation on that firm in subsequent 3-month (+0.5767 vs -1.4684 at sig-level 1%). This means that follower analysts agree with the revision recommendation of leader.
analyst, so they have no need to issue more frequent stock recommendations on that firm in subsequent 3-month.
Chapter 6 Discussion and Conclusion

The purposes of this study are to examine firstly the impact of analyst recommendations after removing firms’ news effect from analyst recommendations to abnormal return. Secondly, to study the reaction of investors toward influential recommendation changes announcement on one day around the announcement in short-term and long-term before and after announcement day. Lastly, to investigate which are characteristics leading a recommendation changes to be influential in the market. This study aims to study with the datasets in Thailand following Loh and Stulz (2009) methodologies.

The empirical results show the existing of abnormal return in both upgrade and downgrade while the publication of analyst recommendations. However after removing the recommendations that only respond with firms’ news disclosure, abnormal return of both downgrade and upgrade recommendations have dropped but still significant. This result suggest that some recommendations in Thailand are only to reveal in firms’ event and analysts use this way to make their recommendation changes impact the market.

The results indicate that with influential downgrade recommendation, analysts follow stock’s downtrend of stock price in the long-term and waiting for the rebound of stock price in short-term to stress the company is underperform by their publication of downgrade recommendations. Then the stock continues to drop and provides negative abnormal return up to 4.78% in subsequent 6 months. We cannot find the similar result in influential upgrade recommendation changes. This may because the market react to downgrade recommendations more obviously than upgrade recommendations.

Moreover, the empirical results also show that investors react as underreaction toward influential downgrade recommendation changes in both short-term and long-term as shown in URC indicator. URC in long-term is smaller than in short-term and this is consistent
with lower CAR in the short-term as well. These evidences suggest that investors react to downgrade recommendation changes more extremely than to upgrade recommendation changes. We can say in other word that downgrade recommendation changes have more impact to the market and more superior information than upgrade recommendations. There is no significant in abnormal return in prior or later period for upgrade recommendations. This result agree with previous studies documented that sell or downgrade recommendation has more impact to the market.

By looking in detail of trading pattern of each investor groups, we found that individual investors or local investors vaguely react in the opposite way to analyst recommendations. They buy when analysts downgrade, and they sell when analysts upgrade. This action is also same in post-recommendation especially to downgrade changes. Reaction of mutual funds and foreign investors are rely on analyst recommendations. We found an interesting point that mutual funds tend to sell stocks that underperform the market. Mutual funds herd to sell stocks since 6 months or earlier before that stock has been downgraded by analysts, and they also continue their sell in subsequent 6 months. This action is not clearly in upgrade recommendations. This results suggest that mutual funds can know or react earlier than any other investor groups on underperform stocks. We found nothing clearly in proprietary traders' behavior.

The empirical results show that in Thailand, characteristics leading recommendation changes to be more influential based on significant large abnormal return in event period are issued from higher experience broker, less idiosyncratic volatility, high standard deviation on average daily return, high P/BV and P/E stock. In addition, characteristics leading recommendation changes to be more influential based on significant large liquidity in event period are issued by influential analysts that can lead other analysts to follow them, less in stock price volatility, less in liquidity and less in number of recommendations for that company in prior period, large firm size and high P/E. Influential recommendation changes based on both abnormal return and turnover usually announce following large price change of high P/E.
securities in prior period. Although mutual funds rely on analyst recommendations, there is no relationship between institutional ownership and the impact to the market in event period like in US (Loh and Stulz 2009). We think this is because local institute is the smallest fraction of investor in Thailand. Moreover, level of change, direction change and analyst experience have no relationship with the impact to the market in Thailand.

In summary, this study provides the empirical implications for analysts, investors and regulators. Investors may consider how the market react to analyst recommendations and how informative of stock recommendations in Thailand. They now can know investors reaction to recommendation changes among all four types of investors, and abnormal return that stock recommendations provided in several periods. Analysts may consider the characteristics of influential recommendations, low impact of upgrade recommendation to the market and number of impactful recommendations in the past (only 20% can impact the market). They also should review informativeness of stock recommendations in Thailand and the issue that some stock recommendation changes only be revised to respond firms’ news without providing any useful information. Moreover, they cannot convince individual investors who are their customers to follow or believe in their stock recommendations because individual investors do in opposite way against recommendation changes in event period and subsequent months. Regulators should review the effectiveness of analyst recommendations in Thailand. Stock recommendations should not be issued from unprofessional analysts who able to provide only uninformative or junk recommendations. They have to control the quality of analysts’ stock recommendations in Thailand.

Nevertheless, this research has some limitation. We did not examine broker characteristics which needs I/B/E/S broker translation file. Moreover, we did not look into deep detail of analyst characteristics, such as sex, age, ranking or position. In addition, this study did not consider on the effect of firms’ news published in business newspaper and rumors in the market. We think these two actions may have significantly impacted to the market as well. Further research can also extend to study more in-depth with intraday timeframe data.
References


