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# STOCK PRICE REACTIONS TO EARNING ANNOUNCEMENTS – A CASE STUDY OF MARKET EFFICIENCY IN VIETNAM

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### Abstract

This research is an event study regarding the effect of earnings announcements on the Vietnam stock market, throughout the period of 2015-2020. It also looks for an answer whether Vietnam stock market is efficient in semi-strong form by analyzing the market's reaction to earnings announcements. With a sample dealing with 128 listed industrial companies on Vietnam Stock Market from 2015 to 2020, it is investigated whether earnings announcements have any noticeable effect on the trend of the share prices. The results discovered is that the reaction of the market to earnings announcements is significant on the announcement day itself and also in several days surrounding it. Therefore, my core results provide an indication that Vietnam Stock Exchange is mainly efficient along several deviations

Keywords: time series, optimal time interval, foreign exchange, trading, frequency model

#### **1. Introduction**

In recent years, the stock market's response to earnings announcements has been seen as a crucial topic in finance in general and to investors and companies in particular. However, there are various conflicting conclusions about the reaction of the securities prices towards the event. According to early research, companies are seen to gain significant abnormal returns in a two-to three-day surrounding the days of earning announcements. The reason for the existence of abnormal returns, while stock market are functioning efficient in general, is the leakages of data right before the announcement day, together with post-earnings drift. In the case of inefficient stock market, this paper allows the investors to determine and grasp the arbitrage chances related to the earnings announcements. Furthermore, the findings of the elements that add to abnormal returns could also pave a path for the investors and firms to apprehend the underlying driving forces of stock market prices after the announcement, since it plays an important role in the confidence of investors in the firm.

There is a dozen of reasons to re-conduct the reaction of stock market prices to earrings announcement. First of all, a majority of the related studies were conducted in the late 1980s and the remainder of the centuries, thus they are a bit out of date. In this period, there was only one way of publishing the earnings announcement which was releasing on the journal such as the Wall Street Journal. After that, firms have moved to a more developing method by publishing their earnings in a digital way. This enhancement in the approach of the publication has made stock market more efficient.

The second reason to re-conduct the reaction of stock market to earnings announcements is that almost all early research only focused on positive earnings surprises when examine the impact on

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earnings announcement because they believe that stock market prices do not response symmetrically to negative and positive earnings announcements. Another reason is that scholars seem to underestimate earnings of the companies, leading to a more serious market reaction. Therefore, I have found a better approach that belonged to Mc. Kinlay: Separating the event into three categories (Good news, bad news and no news).

# 2. Literature reviews

"Event studies are the cleanest evidence we have on efficiency"

Fama, 1991, p.1602

Event Study is a method in quantitative research to analyze the degree and direction of the impact of events on the market. In recent years, the Event Study plays an important part in finance and is widely applied management, and political science.

In case of finance and economy, event study methodology is popularly applied in assessing the impact of events such as merger and acquisition, high-level personnel changes, changes (split/joint) of stocks, events and other important facts or rumors to business and market operations. In detail, event study method allow people understand about how a security is likely response to the specific event and can help predict forecast how other securities are likely to response to different events.

Firstly, some pioneering research about earnings announcement can be listed are **Bearer** (1968) and **May** (1971). In their papers, two authors conclude that earnings announcements (containing the days around which they happen) have stronger impact on the performance of stock price than on average of it (there is no financial reports during period). This conclusion demonstrates that earnings announcements containing important information which influence to firm value.

After that, several papers about stock price response to dividends and earning announcements are published in many developed markets. Come up with the paper of **Watts** (1978), there is a statistically remarkable income in the quarter of the report of earning, thus it demonstrates that new information is captured in quarterly earnings announcements. However, the author also shows a statistically remarkable income in the next quarter so that the market is efficient because of the existence of abnormal return.

Another notable research is **Falk and Levy** (1989). They examine whether the stock market is efficient and whether abnormal return appear in the period from 1962 to 1965 in case of 171 publicly traded firms. Instead of using the Capital Asset Pricing model, two scholars use the model called stochastic dominance because they concern about the market portfolio of 171 firms is not totally representative of whole stock market. In this paper, they also point out that 171 companies do not gain significant abnormal return except on the day -1, 0 and +1. In case of day -1, the abnormal return demonstrates the supposition that there are information leakages in the market before publishing the earnings reports. Likewise, the existence of abnormal return on day

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+1 suggest that post-earnings announcement drift for the firms appear in their sample. This paper also state that the stock market might be not efficient in the days surrounding the earnings report.

Companies on the New York Stock were also examined by Kothari and Ball in 1991 to see whether they show abnormal returns around the time of earnings announcements and this process was done by applying the CAPM model to work out abnormal returns, Kothari and Ball also carry an event study on a whole number of stocks in the NYSE and AMEX starting from day -11 today 11 surrounding the earnings announcement periods. A similar pattern happens to Falk and Levy (1989) in which they discover that there are considerable abnormal returns for days -1, 0 and +1but not for the rest of the days in their research. As a result, they put emphasis on the "unsophisticated investors" effect on their paper. According to Kothari and Ball, "unsophisticated investors" are the people that are not successful in differentiating the valuation indications of the components of reported earnings and therefore, positive or negative surprise becomes the only cause in their response to reported earnings. Subsequently, they produce a null hypothesis that those unsophisticated investors tend to come up with the abnormal return surrounding the date of announcement. They apply the company's size as surrogate for such an effect as they admit that unsophisticated investors own greater shares of less significant companies. In such as a way, they foresee that companies that have smaller sizes will experience larger excess returns in response to earnings surprises and other components remain constant. Kothari and Ball build an independent variable that catches the relative size of the companies (RSIZE) 2. They predict a regression of abnormal returns on earnings surprises and RSIZE and uncover that both explanatory variable has expected sign and are statistically significant

# 3. Methodology

There are three types of earnings announcements that need to be determined (as in MacKinlay, 1997):

"good news" (where actual earnings are greater than forecast earnings by 2.5% or more),

"bad news "(where actual earnings fall below 2.5% of forecast)

"no news "(where the announced earnings fall within 2.5 % of forecast).

For the aim of this study, almost no earnings announcements fall within 2.5% of forecast, even there are very few occurrences to the earnings announcements within 5%. Therefore, a no-surprise event is described as an earnings number within 10% or forecast. When companies are classified, CAR across firms in every category, can be worked out in order to discover conclusive results about positive, negative or non-existent earnings surprises' effects on security returns. When the securities are allocated categories, the second is applied to calculate the sample abnormal return placed in each category, for each of the 41 days in the event period. In the research, I apply a quarter-by-quarter basis to calculate these sample abnormal returns before accumulating across the whole sample:

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$$\overline{AR}_{\tau} = \frac{1}{N} \sum_{i=1}^{N} AR_{i\tau}$$

The formula is applied to calculate the sample variance of the abnormal return:

$$\operatorname{var}(\overline{AR}_{\tau}) = \frac{1}{N^2} \sum_{i=1}^{N} \sigma_{\varepsilon_i}^2$$

The factor  $\sigma_{\epsilon}^2$  denote the squared standard error which is obtained from the market model regression for each company. However, the variance formula requires a large number of days in the estimated period

In the next step, the abnormal returns of sample for each quarterly announcement is aggregated into 1 sample abnormal return for each announcement day on all the sample quarter. This process is the same in three categories of news. After that, the cumulative abnormal return (CAR) is calculated for three category follow this equation.

$$\overline{CAR}(\tau_1,\tau_2) = \sum_{\tau=\tau_1}^{\tau_2} \overline{AR}_{\tau}$$

The conditional variance of cumulative abnormal returns is presented below:

$$\operatorname{var}(\overline{CAR}(\tau_1,\tau_2)) = \sum_{\tau=\tau_1}^{\tau_2} \operatorname{var}(\overline{AR}_{\tau})$$

#### 4. Data

My thesis applies the data from the companies in Vietnam Stock Exchange. All listed firms are asked to provide quarterly earnings reports to the public, making a large number of events to analyse. In a small stock market such as Vietnam Stock Market, it would be more challenging to analyse e.g announcement of merger as there are very few events per year. However, with nearly 130 listed companies of various sizes on the Vietnam Stock Exchange, each announcing quarterly earnings, the available events for the analyse are numerous.

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In order to catch the impact of public data selecting before the event as well as any signs of the post-earnings-announcement drift, the event window will be illustrated as the 16 trading days before the announcement date, the event date, and the 16 trading days after this date. This consists of a 33-day event window which is slightly distinctive to Mackinlay's (1997) example of a standard event study.

| SUMMARY STATISTIC |    |              |             |            |              |             |            |                   |             |         |  |
|-------------------|----|--------------|-------------|------------|--------------|-------------|------------|-------------------|-------------|---------|--|
|                   |    | FULL SAMPLE  |             |            | SOE          |             |            | PRIVATE COMPANIES |             |         |  |
|                   |    | Good<br>News | Bad<br>News | No<br>News | Good<br>News | Bad<br>News | No<br>News | Good<br>News      | Bad<br>News | No News |  |
| No.<br>Events     | of | 600          | 1269        | 1273       | 280          | 469         | 512        | 320               | 791         | 764     |  |
| Total<br>Events   |    | 3142         |             |            | 1267         |             |            | 1875              |             |         |  |
| No.<br>Stocks     | of | 128          |             |            | 56           |             |            | 72                | 72          |         |  |

# 5. Results and Discussion

There are 3142 earnings announcements included in the sample, with 600 positive earnings surprises, 1269 surprises are negative the 144 will be as non-surprise events.



Figure 5.1 Cumulative abnormal return and abnormal return for the Good News Events

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It is clear that figure 5.1 illustrates a stability in the CAAR in the first few days starting from day -16 to -6. The CAAR begins to increase gradually before the event. There is a positive sign in the CAAR proved by a maintained rise after the day of the announcement. A possible reason for the fact that the good-news firms reveal considerable positive abnormal returns several days before the event could be that there is a leak of information out to the public before the announcements day. A telling example to be mentioned here is in March 2010, there were five waves of investment in Vietnam, each created an average increase of 5% to 7%, so it brought some earnings of 30% per month. This is seen to be a huge earning in a short period of time. This was due to the leak of information and it gives the investors a clue for the trend of the stocks. In addition to the cause of the increase in abnormal returns before the announcement day is that some company-specific news could give signal to investors that earnings of the firms have experienced a growth this quarter from the year before. The situation could also be that there is the existence of insider trading which means that there is an illegal practice of trading on the stock exchange to one's own advantage through having access to confidential information. There is one more typical example in Vietnam that should be discussed, all the financial statements must be submitted to the State Securities Commission of Vietnam 5 days ahead and those will released once the SCoV has approved. It seems to be a long period of time and the people who have the information could take advantage by selling the stocks if the returns of the company fall down and vice versa in this quarter. The other result I discover in the "good news" category is that the sample presents a significant positive abnormal returns on the day after the event. This shows a discretion of the people inside the market. The market feels optimistic and take wise steps when discovering positive earnings surprises, so there is no disappointment in the stock price. The results so far represent that Vietnam stock market is clearly efficient



#### CAAR and AAR - Bad News Event

Figure 5.2 Cumulative abnormal return and abnormal return for the No News Events

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For the "bad news" event shown in figure 5.2, the CAAR appears to be zero up until the event, however, it starts to decrease rapidly from the announcement day. There seems to be a delay for some of the reactions proved by a significant negative abnormal return on the day after the event. MacKinkay (1997) gives an explanation for this with varying times of announcing earnings during the trading day. There are companies that decide to release their earrings at a late hour leading to an impact on the price response on the following day. As the time of day for announcements differs, this could hold for some of the securities in the sample, however, as declared earlier, even dates have been changed so that day zero will be set to the first trading day after the announcement if the firm releases earnings after the closing bell. If when a company chooses to release its earnings at 1 PM, an efficient market should predict that the prices response happens during the remaining hours of the day. With this declaration, I will define the results for the "bad news" firms to have a slightly delay in the price responses. It is possible that there needs to be some time for the market to become aware of the complete implications of the bad news earnings for the fair stock price.







For the "no news" category displayed in figure 5.3, there seems to be a random pattern in the aggregate abnormal returns, not following a specific path, apart from a significant drop in the CAAR towards the end of the event window. There are no abnormal returns made surrounding the announcement day, however, when the abnormal returns are aggregated, it creates a downward trend in the CAAR. This is due to the leak of information before the announcement day, there is no surprises and the market seems to react calmly when the information is revealed.

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#### 6. Conclusion

This thesis has been carried out carefully with the estimation and investigation of the abnormal returns related to a particular event, earnings announcements or surprises are applied in this case. I have concurrently looking for proof of efficiency in the Vietnamese market, and for the well of recorded, confusing extraordinariness seen as the post-earnings-announcement drift. A sample of 128 listed companies has been in investigation for a period of four years of quarterly earnings announcements.

My overall result is that the stock market in Vietnam seems to be mainly efficient, just like the efficient market has been broadly approved in various earlier researches. In our time and day, with a complex and advanced securities market, and with significant number of investors and analysts inspecting over it at all times, it is considerably convincing that the hypothesis should confirm to be true.

The results achieved from the research are successfully brought into agreement with the efficient market hypothesis, but I had an opportunity to discover a few aberrations. For the earnings announcements that were placed into the bad-news category, I detected considerable negative abnormal return also on the next day after the event date, demonstrating that there is a delay in several market reactions to negative earnings announcements. This could possibly indicate phenomenon of market under-reaction to bad news. One feasible clarification is that it requires a period of time for individuals in the market to recognize completely the implications of the negative earnings announcements, and its impact on the fair value of stock. In addition, I discovered two conflicting points to efficiency in the good-news category. Firstly, these events were seen to have considerable positive abnormal returns two days before the announcements. In fact, the abnormal returns on day zero in this category appears to be more challenging to determine compared to the bad-news category. A telling example to be mentioned is that there might have been several leakages of some news before the announcement occurred which could provide some evidence of the earnings growth in the firm, thus leading to a more even spread of the abnormal returns throughout the days. It is noticeable that this has the impact only on the good-news category, in the meantime it is possible that companies that soon reveal bad earnings are more careful with ways to indicate this to the market before the occur of announcement. The second discovery for the good-news event is that there is a steady increase in the abnormal returns from day -8 until day 16. A possible explanation is that there are leakages of data, causing insider trading to be possible.

Following the conclusion, the recommendations, which relied on the finding, are presented below: it is important to encourage listed firms to reveal their financial reports on time. Therefore, speculators do not find opportunities to gain abnormal returns around the day of dividend and earnings announcements. Consequently, it promotes liquidity and the information efficiency of the stock market is boosted. Secondly, the market should be made attractive to large companies and foreign investors so as to enhance liquidity of Vietnam stock exchange. As a matter of fact, institutional and international investors have greater ability of security analysis,

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thus leasing them on board will help advance availability of quality and related financial information and the general quality of the information environment in the market. Thirdly, the stock market would also better encouraged to keep up undated database of the numerous event dates in a way to make them become available in order to give support in further event analysis opposing to the current approach in which a researcher seek to find a considerate amount of data in order to draw the announcement dates. Fourthly, it is better for the government to engage in policies to ensure stability in macroeconomics as it is a core factor which can bring confidence to investors on the stock market and make sure that companies are listed on the market. The last recommendation to be illustrated here is that analysis in the future ought to make consideration about a greater sample size as well as extending the capacity of the research to include more institutions. Moreover, further research should be performed in order to demonstrate the nature of the market reaction to positive and negative earnings announcements.

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