



# Efficient Market and Signaling Hypothesis on Vietnam Stock Exchange 2006-2009

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*A thesis submitted in fulfillment of the requirements of the degree of Master of Science  
in Finance and Accounting*

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*To my parents, sisters Thuy Mai and Anh Dung  
for love, support and understanding  
N.T.K.Y*

## Abstract

Efficient market and signaling hypothesis are interesting topics that have interested many researchers. This study tests the signaling theory of dividend announcements and examines the day of the week effect for the Vietnam Stock Exchange in the period of 2006-2009. The results indicate that the announcements of dividend payments have affected the stock prices. There is a partial of significantly abnormal return, although announcements do not provide solid information to the market. The results provide evidence on the day of the week effect. The market is not weak efficiency; the stock prices do not follow random. It may provide a possibility for arbitrage in this market.

Key words: dividend announcements, Vietnam stock exchange, efficient market, signaling hypothesis, event study.

## Foreword

This is the Master Thesis in Finance and Accounting in Buskerud University College. The topic which I choose for my research is to study on the theory of efficient market in the Vietnam Stock Market for 2006-2009.

Firstly, I would like to thank Norwegian country, the Buskerud University College that gave me a chance to enrich my knowledge. I appreciate very much for all of the lecturers, professors who have educated me in Norway. Besides the interesting subjects in finance and accounting, here I have learned the methodology, which was a useful subject and it contributed to the increasing of the quality of the project. Thanks to Ms. Anne Sørrebø, the lecturer of the quantitative method subject, her question on my hypothesis's measurement made me think deeply how to improve my presentation in order that it shall be clearer for the readers.

Special thanks the two associate professors, Dr. Jørgen Haug, Norwegian School of Economics and Business Administration, and my instructor, Dr. Ole Skalpe, BI Norwegian Business School of Management, who gave me the good ideas for setting up the hypothesis 1 and hypothesis 2 in my study. Having solved the problems in these two hypotheses, I have perceived the entire pace of emotions as excitement, difficulty, anxiety, and usefulness.

I would like to thank Vice Director Quach Manh Hao, Thang Long Securities Company, the Chairman Pham Minh Huong and Do Ngoc Bach, head leader of Information Department of VN-Direct Securities Company, and the Vietnam General Statistic Office for full support of data information. Finally, I appreciate very much for the great supports of Doctor-Stipendiat Tonny Stenheim, lecturer of the Department of Economy.

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## Acronyms

HOSE	HoChiMinh Stock Exchange
HASTC	Hanoi Stock Trading Center
GDP	Gross Domestic Product
IPO	Initial Public Offering
OLS	Ordinary Least Square
SSC	State Securities Commission of Vietnam
VND	Vietnam Dong (National Currency Unit)

## Other Information

Vietnam Currency Unit: Vietnamese Dong (VND)  
Vietnamese Dong Exchange Rate (as of January, 2011)  
1 USD = Approximately 20,000 VND



## Chapter One: Introduction

Whether the Vietnam stock market is efficient and an event as the announcement on dividend payment can impact to the stock prices in Vietnam Market is a question which has been attracted numbers of researchers. It is interesting and practical to find out the different factors which can affect the price of the stock. This answer is meaningful to not only researchers, but also the market involvers who would like to understand and perceive the rhythm of the market precisely. It helps investors to seize opportunity for arbitrages or set up investment strategies successfully.

The purpose of this research is to test the theory of efficient market within empirical work in which the researchers would like to prove evidence that the stock market seems to be not completely efficient. Through the thesis, you may have some information about a new emerging market as Vietnam. In the chapter of introduction, I will present the background of choosing topic, the research questions, the purpose of the study and the structure of the thesis.

### 1.1 Problem Background



Vietnam is a new developing country with about 86 million inhabitants (2009, General Statistic Office estimate). The land was reformed from a planned economy to the capital market economy since 1989, followed by the renovation policy called as “Doi Moi” policy which was formed by preformed Do Muoi Prime Minister.

The greatest characteristic of the Constitution in the following year in 1992 was stated in the set of supreme laws of the nation in statutory form. Issues concerning economic matters such as the introducing of a market economy, the approval of freedom in proprietary rights and private enterprises, the approval of long term land-use rights and

joint-enterprises with foreign countries, and the assets for foreign companies not being nationalized were specified in the constitution. Then it became known as “The Doi moi Constitution”. This is how an environment that allows foreign companies to invest in Vietnam was made in the legal sense (Yotsui, 2007). At the present, the main obligation of the land is to stabilize the political situation and make strengthen the country economics. To accelerate the capitalization, the Vietnam stock market has been established in the year of 2000. I will give you more information on Vietnam stock market in the Chapter Five of Data collection.

In financial market, there are many factors that can affect the price of the stock. Information is always an important factor in the market. And the way the people react to the information in a particular market is also a factor which has been focused interestingly by both investors and academic researchers. Each of financial market has their own characteristic and way to operate it. No matter how and where the market is, the investors tend to catch all information so that they are able to predict a behavior of the market in the next coming days or in future properly. Recently there are many critics on the theories of efficient market within empirical work in which the researchers would like to prove evidence that the stock market seems to be not completely efficient. In the market where all pertinent information is available to all participants at the same time and where prices response immediately to available information is characterized as market efficiency. Followed to this feature, the possibilities for arbitrages tend to be difficult or there is no way for arbitrages once market is efficient, since all the information is reflected to the stock prices. Conversely, it may exist the market where the reaction of people to information is rather sluggish than rational.

A review of related literature below has suggested that there are events that could have an impact on the stock price. A direct impact on stock price through price pressure is triggered by basically demand or supply of equity, obligations from different financial sources such as fund management, banking, or government fund. The day of public announcement exclusion, abnormal return can be interpreted as a signaling impact due to the reaction of other market participants to the announcement. Also, there is evidence that the information content of dividend announcements can affect the changing of stock prices. The theory indicated that the stock price is affected by many sources of

information. The information is as accounting reports in which there is information as earnings report, abnormal earnings result, and so on. Thus, these empirical evidences showed that it has many levels of efficient in market efficiency. The Vietnam Stock Exchange is a new market that has been established and operated for 10 years. It is a desire for me not only to understand about the market movement, be able to perceive it but also can introduce the Vietnam market to all of you. To find out whether there is an opportunity for arbitrages in this market becomes a motive for my research.

## ***1.2 Research Questions***

According to the problem background, whether Vietnam Stock Market is efficient and an impact of the event on the announcement of dividend payment to stock price is a focus for my research. Since the problem whether the effect of announcements to stock price have remained unanswered, these answers for the following questions can give us some perspectives of the market. It also can provide us a better understanding on the Vietnam Market. It can be interesting and useful to set up the short and long investment strategies. The research questions are as followed:

- **Is Vietnam stock market efficient?**
- **Does the event on announcement of dividend payment provide information to the market? *i.e.* Does the announcement of dividend payment affect the stock price?**
- **Does “Day of the week effect” exist in the market?**

### 1.3 Purpose of the Study

In order to answer these above questions, I have set up the limit for my research in the two main parts. The first part is to examine the stock market's response to the event on announcement of dividend payment. Based on 71 announcements on dividend payment for the years of 2006 to 2009 of 16 listed firms which has paid out cash dividend continuously and Market Index of more than 350 listed firms in this period, the research will focus to the observation of security price around these special dates.

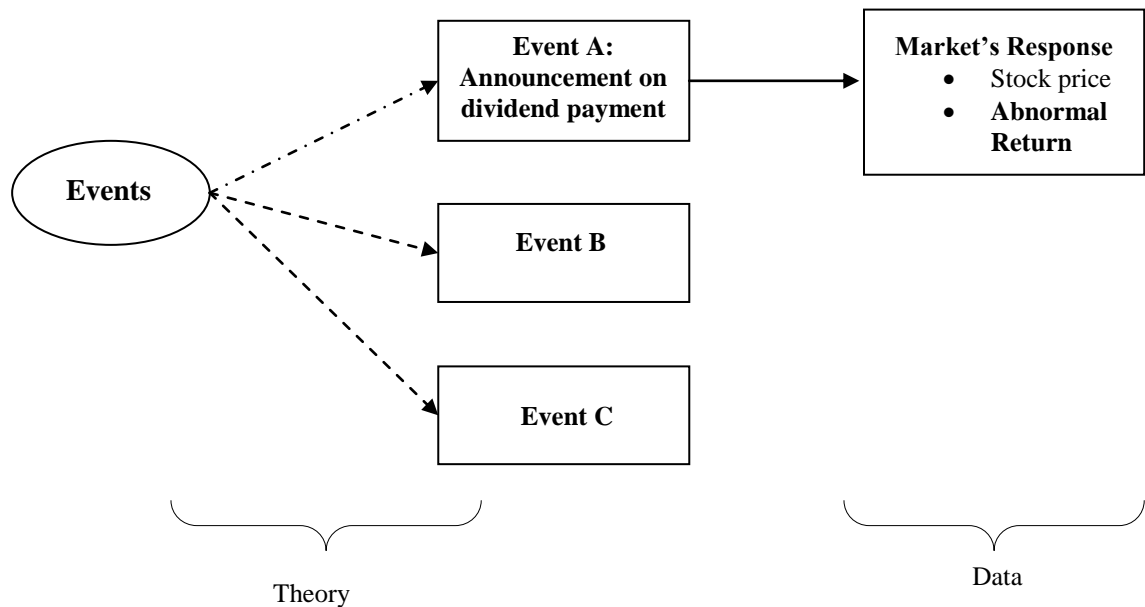


Figure 1: The Framework for the Hypothesis 1

To solve the problem for the first part, I approached to the methodology of the event study. The results of this research are expected to give some hints on how stock markets react to this type of announcement. It also can provide practically the implications in investment strategy for this market. In the limitation of the research question for whether the Vietnam market is weak efficient is the second part of my research. An observation of daily prices

and a testing for the daily mean return of more than 350 firms on Vietnam Index was applied for the period 2006 to 2009.

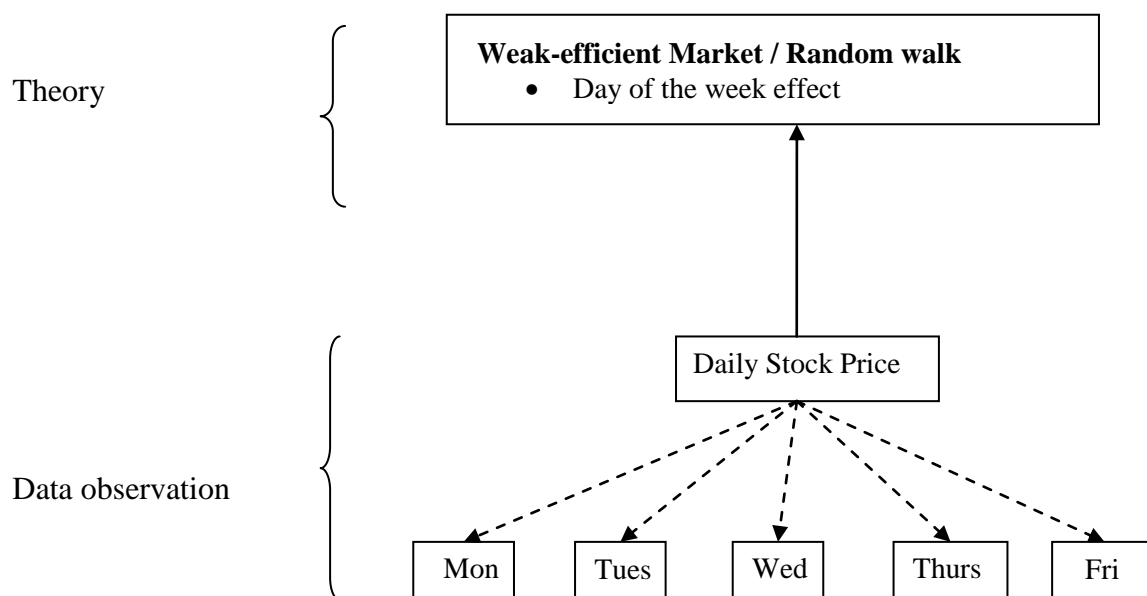


Figure 2: The Framework for the Hypothesis 2

## ***1.4 Structure of the Thesis***

**Chapter Two:** reviews and proposes some extension of relevant literature relating to the concept of event, value of information, the reaction of market to new information. A review of the concerned literature on dividend is then to go on to the attitudes of the investor around dividend payment. The theory of signaling and asymmetric information and the historical researches on dividend announcement and the stock market price behavior are also focused.

**Chapter Three:** starts with an emphasis to the central efficient market theory, efficient market hypothesis. The concept of random walk, market efficiency anomalies which are also present. I then review Capital Asset Pricing Model and approach to event study which is a basis for measuring the hypothesis one.

**Chapter Four:** I focus on the theoretical and statistical methodology. I then explain how I approached the research and present the process for measuring the two hypotheses based on the literature.

**Chapter Five:** An introduction to Vietnam Stock Exchange, common regulations related to Vietnam market, a market overview for the period of 2006-2010, and then trading technicalities may provide the readers a general view on the new market.

**Chapter Six:** Assess to impact of signaling effects and day of the week effect. I focus on the case of dividend announcement and stock prices, t-test and z-test is conducted to issue a conclusion on its impact. I also find an interesting result from t-test of the day of the week effect.

**Chapter Seven and Eight:** The two last chapters summarized the key findings and strategy conclusions made in the thesis. A recommendation for further studies and self evaluation of the thesis is also included.

## Chapter Two: Literature Review

Before I formalized the research problem in my thesis, I had reviewed a part of literature which guided me to approach and choose the research questions. A brief review on concerned literature was the definition about information, value of information, concept of events which belonged to information and its perspective over the stock price and investors' decision.

### 2.1 *The Concept of Events*

Events exist as phenomena, states, conditions which occur only once in a period of time. Following to events is a discussion on a changing, cause or effect which may affect the related objects in that environment. An event is noted with “the potential dichotomy between *facts* of an event and the *information* reveals in the event” (Prahala, 1997:4)

Any news or happening that affects the market value of a firm could be considered an event. In the securities market, the events are often related to the release of information to market participants through the financial press, for example Wall Street Journal or through corporate releases as proxy statement of Corporate or Securities and Exchange Commission. Specific events in finance can be earning announcements, merger and acquisitions announcements, and stock splits announcement. It can be an announcement of government on new tax law or new interest rate. An event often has three periods, pre-event, event period and post event period. Due to the spreading of the released information, the event period can extend more than one day. To select the length of these periods to calculate in the study is varied for studies, it depends to the researcher (Pamela, 1989).

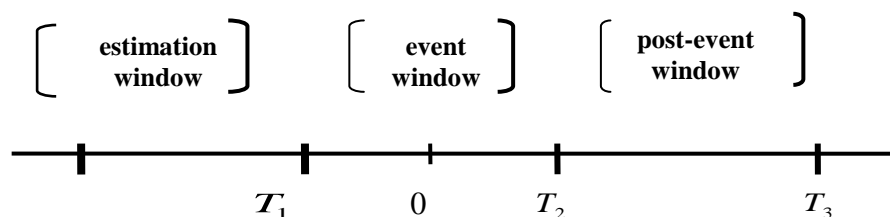


Figure 3: Time Line for an Event Study (Campbell, Lo, Mackinlay, 1997:157)

The event might take place at different points in calendar time or it might be clustered at a particular date. An event always has necessary connection with the meaning of information and its value of information which related to event-study. To understand clearly on event and its impact, we need to draw your attention to the event-study, its methods and perspective. I shall present the event study and its methods in the later of the chapter theory.

## 2.2 Value of Information

According to Weston 1993:333, the notion of efficient capital markets depends on the precise definition of information and the value of information. An information structure may be defined as a message about various events which may happen. One message may have various values to different people. People can exploit these values of information that will help them take any actions, which will result in gain. A message about abnormal earning announcement, a forecast on macroeconomic or a prediction on interest rate from a reputation firm can be a value to investors, who can act on information to increase their utility. Beaver 1968 defined information as a change in expectation about the outcome of an event. It implied that a firm's report is said to have information content if it leads to the change of the investors' assessment of the probability distribution of future prices. A formal expression of the above concept defines the value of an information structure:

$$V(\eta) = \sum_m q(m) \text{MAX}_a \sum_e p(e|m) U(a, e) - (V(\eta_0))$$

Where:

$q(m)$  = the marginal probability of receiving a message m

$p(e|m)$  = the conditional probability of an event e, given a message m

$U(a|e)$  = the utility resulting from an action (a) if an event (e) occurs = benefit function.

$V(\eta_0)$  = the expected utility of the decision maker without the information.

According to the function of information structure, "a decision maker will evaluate an information structure by choosing an action that will maximize his or her expected utility which is given by the messages "(Weston, 1993:333). The equation can be used to evaluate any information structure. In financial accounting, Ball and Brown 1968 and Beaver 1968 also introduced empirical finance methods. The literature adopted the assumption that accounting numbers supplied information for the security market



investment decisions and used information perspective to examine the relationship between the accounting numbers and the stock prices. This is therefore the stock price is probably affected by not only accounting amount but also the investors' perception on others publicly information.

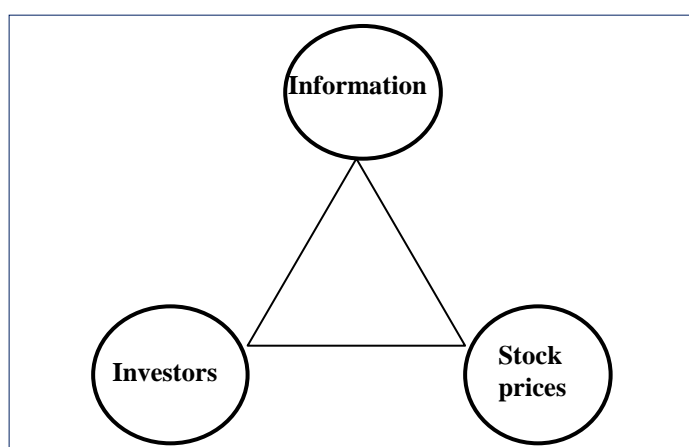
### ***2.3 New Information-Market Behavior***

New information or news can make a change in market behavior. There are not only researchers but also the security analyst or sophisticated investors who operate in the area of marketable securities, are deeply concerned with the price behavior. To understand the important behavior patterns of the stock market and the probable price movements, a numbers of event studies have been observed and tested adequately. Ball and Brown (1968) studied on the reaction between return of stock prices, the price of a firm's securities, and accounting information. The study showed that there was an association between earnings of a firm and the reaction of stock prices in which the price was influenced prior to the publication of the annual report. Beaver 1968 also found that stock price was volatile in the period of two weeks before and after annual report becomes public. Foster 1978 proved that stock price was volatile by the last two days of listing as well. (White, Sondhi, Fried, 2008:218-220).

News on a probable changing of interest rate can affect the market behavior. The reason is that today's interest rates already reflect, in some part at least, whatever changes in relevant economic factors can now be reasonably projected. The point is an expectation that future rate will be higher or lower than the present and how it affects to the behavior of stock market. This type of news causes an effect on the price fluctuations. Good news such as an earnings announcement conveys new information to market and it will reflect the security prices or the trading volume in the market over a short time period around the event (Collins and Kothari, 1989: 144). According to Fama "Dividend changes may be assumed to convey important information to the market concerning management's assessment of the firm's long-run and dividend paying potential" (Fama, 1969:3). These studies based on the hypothesis that the capital market is efficient. It also implied that prices of stock are reflected prior to the newly arrived information.

In the history of research, Fama, Fisher, Jensen and Roll (1969) gave evidence that successive price changes are nearly independent in individual stocks. Mandelbrot, Samuelson showed that independence of successive price changes is consistent with an “efficient market” - a market adjusts rapidly to “news” (Fama, Fisher, Jensen and Roll, 1969:1). To test of the speed of adjustment of prices to specific kinds of new information has a very little actual testing. Fama focused to examine the process of the changing of price by testing stock splits, dividends events as specific information.

The event study on the effect of news on asset returns previously has focused on two related issues. It typically focused on measuring the strength of news releases through analyzing the significance of abnormal returns, increases in trading volume, shifts in systematic risk, and changes in security returns variability (Beaver, Kettler and Scholes (1970), Ball and Kothari (1991). Generally, these studies have explicitly or implicitly relied on the rather implausible assumption that beta and volatility of stock returns are constant over time, except possibly during information intensive periods. This type of research is documented by among others Beaver (1968), and Kalay and Lowenstein (1985). In addition, the earlier studies have also focused on the speed with which announcement-induced effects first appear. The most common conclusion is that firm-specific news release dates are characterized by significant abnormal returns, increases in trading volume, etc. The majority of these studies seem to agree that markets are fairly efficient in the sense that prices adjust very quickly to public news disclosure. (Fama et al.1969), Schwert (1981), and Woodruff and Senchack (1988)



**Figure 4: An Illustration on Relationship between Information-Investors-Stock Prices**

## **2.4 Dividend**

### **2.4.1 Attitude of the Investors**

As investors they are fully aware of the importance of an adequate dividend, and they buy and sell accordingly. Investors want to have dividend on their stocks as they have wanted interest on their bonds, simply to compensate their investment. This is customary to assume that stocks carry greater risks than bonds, which risks are to be offset by a higher dividend return. Many stockholders count on their dividend to help meet their living expenses.

Since dividend anticipates future earnings, it is no surprise to find that announcements of dividend decreases are usually taken as bad news, stock price typically falls and conversely, announcements of dividend increases are considered as good news. It follows with stock price rises. Healy and Palepu (1988) found that the announcement of the dividend resulted in an abnormal rise of 4 percent in the stock price. This result does not mean that the investors like higher dividends for their own sake. "The dividend may be welcomed only as a sign of the higher future earnings." (Brealey and Myer, 1996:422)

### **2.4.2 Attitude of Management**

Corporate management has always recognized in principle their obligation to pay satisfactory dividends when it is feasible but they have always subordinated that obligation to a higher duty to protect and strengthen the company. The retention of earnings to strengthen the corporation is almost always justified by management on the ground that it will benefit the owners.

To maximize the value of the shareholders' investment in the firm is the goal of the corporate firms. The managers try to reach this goal basing on their investment and financing decisions. Investment decisions involve with selection of positive net present value projects while financing decisions involve with selection of a capital structure that would minimize the cost of capital of firm. Besides the investment and financing decisions, managers need to decide on regular basis whether to payout the earnings to shareholders, reducing the agency problem (Jensen and Meckling, 1976).

### **2.4.3 Tax Considerations**

It concerns to the impact of high taxation rates on people with large incomes. There is an argument made by some financial analysts that dividend payment is not in the best interest of shareholders. Dividend payments are taxed as ordinary income in the year that they are received; while capital gains are not taxed until they are realized because of long-term capital gains of individual can generally be lower than the tax rate applied to dividend income. For most shareholders, ordinary income is taxed at a higher rate than capital gains, giving those investors an incentive to seek out stock that do not pay dividends at all, generating returns to shareholders exclusively through capital appreciation. That is an increase in the value of the stock itself. From the point of view of the corporation, a corporation cannot deduct the amount it pays in dividends from its incomes. So dividend payments in practice are a combination of tradition, investors, shareholder expectation and corporate strategy (Brealey and Myers, 1996).

In the United States and many other countries, dividend income is taxed at a higher rate than capital gains. In Vietnam, there are three general forms of dividend i.e. cash dividend, stock dividend and the combination of the two. So far dividend is not a taxable income. Whether earning from dividend is the taxable or non-taxable income is a subject to the Vietnamese government.

### **2.4.4 Asymmetric Information-Signaling Effects**

The concept of “signaling” is applied to dividend policy. The theory explained that “a possible benefit of dividends is that they provide valuable signals..., a firm that increases dividend payout is signaling that it has expected future cash flows that are sufficiently large to meet debt payments and dividend payments without increasing the probability of bankruptcy”. The point is that in order to show a signal of a potential future, several firms applied this theory in their dividend policy to be able to convince the investors (Weston, 1993:564)

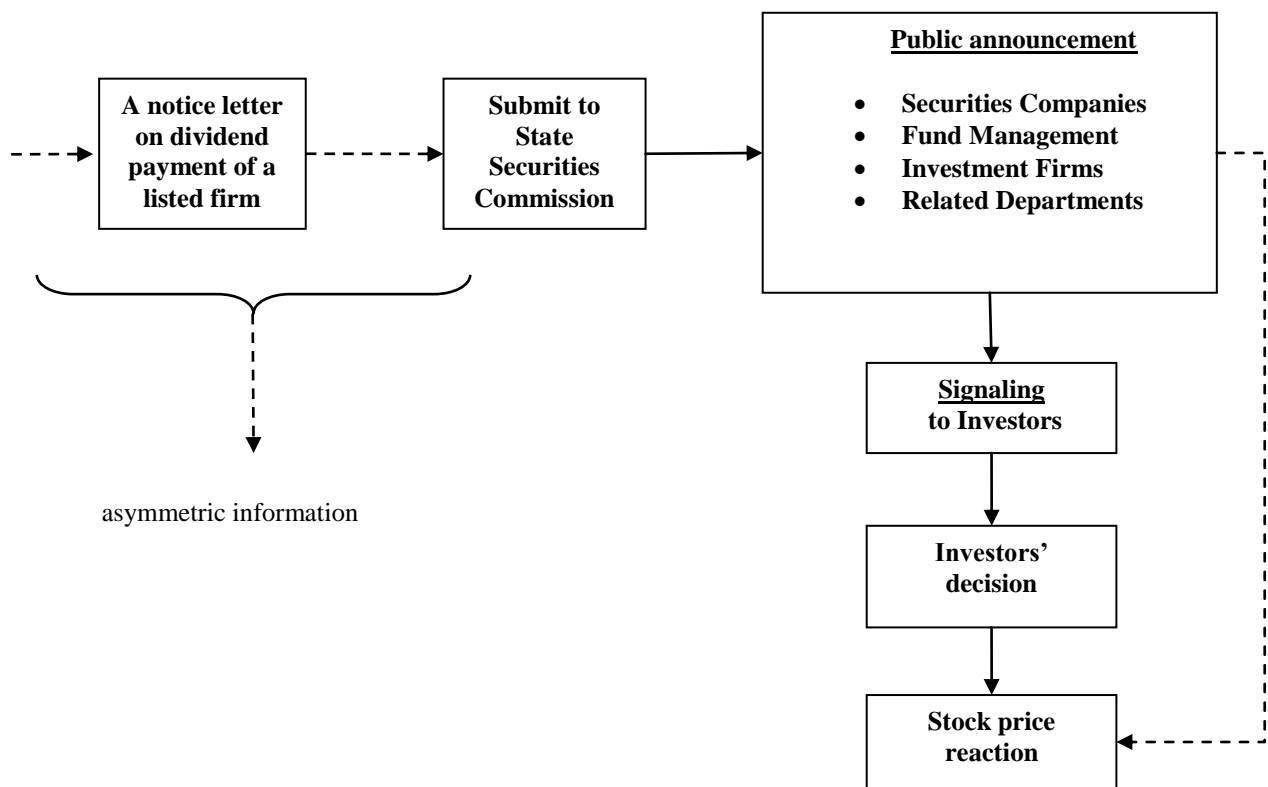
In empirical research, the researchers expect to find out that “the value of the firm increases because dividends are taken as signals that the firm is expected to have permanently higher future cash flows”. Moreover, “if investors believe that firms paying

higher dividends per share have higher values, then an unexpected dividend increase will be taken as a favorable signal". Additionally they argued that dividend payments give a signal or convey information about value of the firm that cannot be fully communicated by other means such as annual reports, earning forecasts (Weston, 1993: 564), (Bhattacharya, 1979).

As we know dividend is residual of earning over investment. Higher-than-expected dividend, which implies higher-than-earnings, will lead to a positive stock price reaction to the announcement of the dividend. The extensive literature on the signaling properties of dividends from Bhattacharya 1979 generally reports significant stock market reaction in the same direction as the announced dividend changes (Bhattacharya, 1979), (Eckbo, 2008:37).

Following to the dividend irrelevance propositions of Modigliani and Miller 1961, that many theories and justifications have been proposed to explain why firms continue to pay dividends and why investors continue to value them. One of the explanations is information asymmetry. The information asymmetry arises when there is one party or insider who was better informed than another party. Thus, the basic feature of signaling hypothesis is the existence of asymmetric information between the firm and investors that the management possesses privileged information regarding to the future performance of the firm. On the other hand, while investment decision has two dimensions, namely when to invest and how much to invest. The insiders know more about the value's investment opportunities of firm than outsider investors. Thus, the informational asymmetric can imply investment behavior because of their changing investment or financing policies related to the overpriced or underpriced firms. (Weston, 2003:506)

There are numbers of hypotheses on whether dividends can be used to convey information to market participants since the manager can not only use dividend as a means or a tool to stimulate investors but also have incentives to manipulate investment policy by paying higher dividends today for the purpose of increasing the current stock prices. In other words, there are possibilities for managers or insiders to give a false signal for trading the securities of their own firm by issuing such bad or good news. (Weston, 2003:501).



**Figure 5: An Illustration on mechanism of information to investors**

To restore consistency, numbers of signaling models have been developed that treat dividends a “costly” mechanism for signaling the firm’s future prospects. (Mille and Rock, 1985) (Eckbo, 2008:39). The model of Miller and Rock assumes that dividends and share repurchases are substitutes for each other and are part of a larger payout policy. Thus the firm can signal to market by paying dividends or repurchasing shares. In addition, the managers are assumed to have private information about future earnings that will finance future dividend payments and new investments.

Watts (1973) started many studies which proposed that management may use dividends to convey information to the market and to shareholders. He found little evidence that information in current dividends improves forecasts of future earnings based on current and past earnings. Watts 1973 gave an argument on the results of Petit (1972), who was the first demonstrated that positive (negative) changes in dividend payments induce positive (negative) abnormal return. By studying on 310 firms of S&P 500 index, the study pointed out that there is a relationship between these two variables. Before Watts, there

were initial researchers as Lintner (1956), and further developed by Fama et al (1969), Ross (1977) who worked with hypotheses on information content of dividends. Besides, there are many others who built numbers of models to show how dividends can act as a signaling device, according to Bhattacharya (1979), Miller and Scholes (1982), Miller and Rock (1985), and John and William (1985).

#### **2.4.5 Share Repurchase-Signaling Effects**

Repurchasing program has many reasons. It is assumed to be a smart thing to buy stock at the lowest possible price. In practice, it can be implemented as a direct tender offer or more open-ended open market repurchases. Share repurchase is not just a simple alternative to cash dividend. The literature showed five main motivations for share repurchase that may explain the abnormal returns on the announcement day. These hypotheses focused to signal to the market mispricing to the firm's stock, alter capital structure, exploit dividend/capital gain taxation differential, and so on. It depends on the circumstances, a firm may have its own reasons and motivations to buy back its own stock (Weston, 2003: 597).

In case of the manager recognized that the shares price is undervalued in a period, they may repurchase the share to benefit for long-terms shareholders. Repurchase program in a large volume can signal to the investor in open market that the firm's stock is undervalued. And this action has a relation to private information which leads to the information asymmetric between the firms and market. Practically, the repurchase of share can follow of the alter capital structure in a company. Firm can use share repurchases instead of dividend as a signal. This action signals that the firm can increase its capital or enable to pay an attractive stock dividend instead of cash dividend to investors. They increase leverage and they are interpreted as favorable signals about the future prospects of the firm. (Weston, 2003: 522).

An announcement of repurchase of share can cause a changing in price reaction in the market. Signaling effects is one of the motivations for the firm to repurchase the stock. In the paper of Vermaelen 1981, the study has examined the behavior of securities of firms which repurchase their own shares. The study found that it is consistent with the market in

which the investors price the securities such that expected arbitrage profits are precluded. Also hypothesis on the way to repurchase, via tender offers, are followed by abnormal increase in earnings per share. Numbers of hypothesis focused on price announcement effects of tender offers and signaling effects of shares repurchasing (Masulis, 1980), (Dann, 1981), (Vermaelen, 1981).

#### **2.4.6 Dividend Announcements-Stock Price Reaction**

There are three important dates in every dividend payment period: the announcement day, the ex-dividend day, and the payment day. As earning announcement, one of the special economics events of public new information is dividend announcement. On the announcement day, the firm declares the dividend per share to be paid on the payment date to its stockholder. The firm can pay dividend under a form of cash or stock.

Stock dividends are often mentioned as part of the dividend policy of the firm. A stock dividend is a type of small stock split. The number of shares outstanding is increasing without changing any of the underlying risk or return characteristics of the firm (Copeland, Weston, 2003:570). The evidence is the stock dividend announcements were in fact accompanied with by statistically significant abnormal returns on the announcement date. McNichols and Dravid, (1990) provided evidence to support the signaling hypothesis by examining the relationship between the size of a stock dividend and the rate of abnormal returns around the announcement dates. The result showed a positive relationship between stock dividend size and abnormal return, in which the larger the stock dividend the greater the signaling returns.

In theory, stock dividend or stock splits should have no material effect on the ownership or value of the firm. Splits simply increase the number of outstanding shares and decrease the price of each outstanding share. The split event itself did not guarantee for a stock future performance. While many investors perceive stock splits as to indicate the firm's good financial standing. In practice, investors especially prefer stock splits event when the market is in the uptrend. The empirical evidence in the United States, however, supported the notion that splits tended to influence share prices. This is therefore there is a conflict



between theory and practice that deserves further investigation in order to explain this phenomenon (Elfakhani and Lung, 2002:2)

Numbers of studies examined the reaction of stock market to dividend announcements and reported evidence of market inefficiency. Charest (1978) studied about stock return around stock split and dividend changes events for 1947-1967 experience of the New York Stock Exchange. The result was statistically significant for splitting stock with the efficient capital markets hypothesis, while the market's response to dividend announcements was sluggish: shares earn abnormally high returns subsequent to announcements of dividend increases and abnormally low returns subsequent to decreases. This result supported for a trading profit opportunity. The researchers have used mostly the United States (US) data stock market to examine the market reaction to dividend announcements.

To this extent, numbers of researchers used data from outside US market such as Lonie, Abeyratna and Power (1996). Lonie attempted to measure the market reaction to joint announcement of earnings and dividends by using 620 listed firms on London Stock Exchange. He found there was an interactive effect for both announcements and stock prices. Earnings announcements have more impact on stock prices than net dividend based on the regression analysis. Conroy, Eades and Harris (2000) examined the impact of contemporaneous announcement of dividend and earnings to stock prices of listed firms on Tokyo Stock Exchange. However, they did not found the support for information content of dividends hypothesis while Harada and Nguyen (2005) measured both the short-term and long-term market reaction to dividend changes announcements for the Japanese listed firms. They found the result is consistent and it supported for the information content of dividends hypothesis.

Gurgul (2003) also attempted to measure the reaction of stock prices and trading volume on changing dividends for the Austrian Stock Market. Stock price was influenced by news on dividend payment. The result confirmed that dividend increases (decreases) induced a significant positive (negative) reaction to stock prices. The stock price remains unchanged once dividend is constant. The trading volume around dividend announcements days was also changing as quickly as the pattern of stock price.

All these studies have provided further supports for the information content of dividend. The below figure illustrated the response of stock price to new information (Fama, Fisher, Jensen, Roll, 1969)

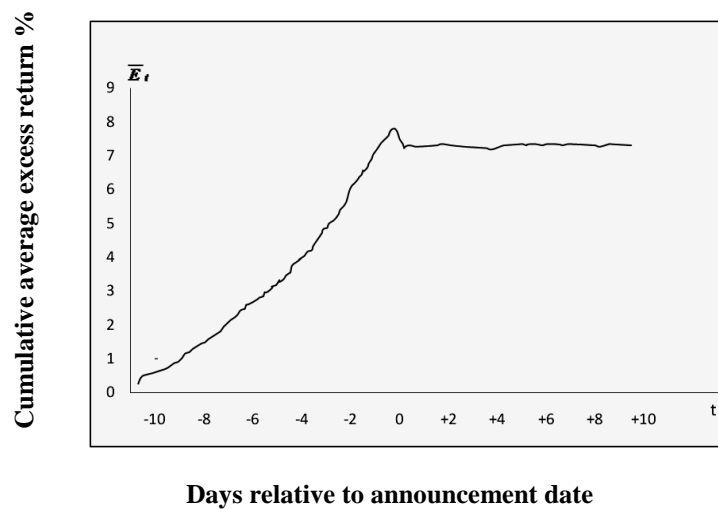


Figure 6: Stock Response to New Information in a Strong-Form Efficient Market (Fama, Fisher, Jensen, Roll, 1969)

## **Chapter Three: Theoretical Framework**

### ***3.1 Efficient Market***

Numbers of researchers have studied and mentioned about “efficient market”. What it actually means in financial theory and its perspectives which concerned to the research can be considered by the below literature.

The concept of market efficiency is mentioned by Haugen (2001) that if new information becomes known about a particular company, how quickly do market participants find out about the information and buy or sell the securities of the company? How quickly do the prices of the securities adjust to reflect the new information? If prices respond to all relevant new information in a rapid fashion, we can say the market is relatively efficient. (Haugen, 2001:573).

The word “efficient” refers to how fast the market prices change when new information is released. Thus an efficient market is one in which the prices of the stock fully reflect available information. “All the empirical research on the theory of efficient markets has been concerned with whether prices “fully reflect” particular subsets of available information” (Fama, 1969:388).

To definite the efficient market in the relationship among “dividend announcement, security performance and capital market efficiency”, Pettit has mentioned that in an efficient market, current prices fully and without bias reflect all published, widely available information.” It also implies that the return expected from a security in one period is independent of all information available in the previous periods since the price of stock already reflects the effect of this information (Pettit 1972:994).

An efficient market implied a random. According to Malkiel.B (1996:24) “a random walk is one in which future steps or directions cannot be predicted on the basis of the past actions”. When we apply it to the stock market, it means that there is a short run changes in stock market prices that cannot be predicted. Following to Malkiel, the technical analysis, earnings predictions or chart analysis are useless in the random walk hypothesis (Malkiel, 1996).

The market is neither strictly efficient nor strictly inefficient. The question is how efficient the market is. In order to measure what types of information, encompassed by the total set of all available information, are reflected in stock prices, Haugen 2001 grouped “Information” into three groups which related to the main three different forms of hypothesis.

First, it represented all information relevant to the valuation of a particular stock that is currently “knowable”. This includes publicly available information about company, its industry, the domestic and world macro economy. Second, information represents the part of the information set that has been publicly announced and publicly available, for examples the information of the accounting reports, the report of firms, announced information relating to the state of the economy or information relevant to the valuation of the firm. Third, represents any information relevant to the valuation of the stock that can be learned by analyzing the history of market price of the stock (Haugen, 2001:547).

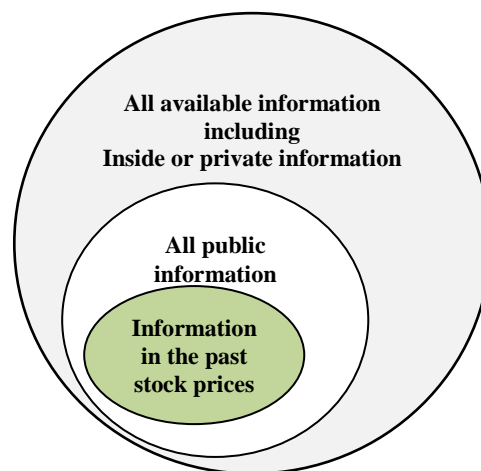


Figure 7: Subsets of Available Information for a Given Stock (Hansen, 2001:574)

## **3.2 *Forms of Efficient Market Hypothesis***

Efficient market hypothesis divided into three different forms; weak form of efficiency, semi-strong form and the strong form of efficiency. These different forms of market efficiency can be presented shortly as follows: (Hansen, 2001) (Malkiel, 1996)

### **3.2.1 Weak Form**

Under weak form of efficient market hypothesis, stock prices are assumed to reflect any information that may be contained in the *past history of the stock price* itself (Haugen, 2001:575). According to Malkiel “the weak form of the efficient market hypothesis, or the random walk notion, says that the technical analysis of past price pattern to predict the future is useless because any information from such an analysis will already have been incorporated in current market prices” (Malkiel, 1996:197).

As the ideas of value of information and efficient market that I have mentioned in the first part, the researchers consider “capital markets that are efficient in their weak form, the relevant information structure is defined to be the set of historical prices on all assets.” “If market is efficient, the function of the joint distribution of security prices today has already incorporated in past price history, it is not possible to develop trading rules based on past prices that will allow anyone to beat the market”. In other words, there is no arbitrage in the market because the utility value of gain from information to the *ith* individual is zero. (Weston, 1993:338)

With random walk notion, stock market analysis formed a theory that stock price and a capital market in general follow a pattern-less random walk. Therefore, the future course is unpredictable and the best of stock's price is equal to its present value plus an unpredictable negative or positive random error (Malkiel, 1996:197). Fama pointed out that the empirical works evolved more or less historically. The initial studies concerned to weak form test in which the information subset of interest is just past price or return histories. “Most of the results come from random walk literature. And when extensive tests seemed to support the efficiency hypothesis at this level, attention was turned to semi-strong form tests” (Fama, 1969:388). In case of the weak form is valid, technical analysis

or charting becomes ineffective. In other words, there is no information in the past series that is useful in predicting the future. (Haugen, 2001:575)

### **3.2.2 Semi-Strong Form**

Under semi-strong form of the efficient market hypothesis, *all publicly available information* is presumed to be reflected in stock's prices. (Haugen, 2001:575). Semi-strong form tests concerned to "the speed of price adjustment to other obviously publicly available information". There is a further important source of this theory in which the initial tests also corroborated semi-strong form efficiency. One testing strategy is to look at particular news events pertaining to individual firms and to ask whether prices adjusted to this news immediately or over a period of a few days. These so-called event studies, pioneered by Fama et al. (1969), became the principal methodology of empirical finance. These event studies are as multitudes of important corporate news events such as earnings and dividend announcements, announcements of stock split, annual reports, new security issues, changes in management compensation, and so on (Fama, 1969: 388) (Shleifer, 2000)

Taken together, the early evidence on weak and semi-strong form market efficiency was almost entirely supportive. In his study, Fama pointed out that "there is no important evidence against the hypothesis in the weak and semi-strong form tests". It means there is no strong evidence which can reject the hypothesis on prices seems to efficiently adjust to obviously publicly available information which includes information in the stock price series as well as information in the firms' accounting reports, and so on (Fama, 1969).

Shortly, semi-strong form argues that no published information will help us to select undervalued securities and the argument here is that the structure of the market prices already takes into account any public information that may be contained in balance sheets, income statements, dividend declarations, and so on.

### **3.2.3 Strong Form**

Under strong form of efficient market hypothesis, people believe that *all information* is reflected in stock prices. All information includes private or inside information as well as that which is publicly available (Haugen, 2001:575). Because of the action of buying and selling related to inside information, these actions affect the price of the stock and the price quickly adjusts to reflect the inside information. “No investor can earn excess returns using any information, whether publicly available or not” (Coperland, Weston, 1993: 332)

Strong-form tests are not only concerned with whether all available information is fully reflected in prices in the sense that no individual has higher expected trading profits than others because he has monopolistic access to some information (Fama, 1969:388). There is only limited evidence against the hypothesis in the strong form tests (Fama, 1969). Thus the argument of the strong-form is that absolutely nothing that is known or even knowable about a company will benefit the fundamental analyst, even “inside” information. There is no further, because of the rational actions from the analyst once they recognize or interpret whatever new information does become available, thus information is disseminated rapidly today and it gets reflected almost immediately in market prices.

### **3.3 Random Walk**

The ideal “random” is explained by Markov process in 19th century, in which process whose future behavior cannot be accurately predicted by its past behaviors. Malkiel argued that “if the flow of information is unimpeded, then tomorrow’s price change in speculative markets will reflect only tomorrow’s “news” and will be independent of the price change today. But “news” by definition is unpredictable and thus the resulting price changes must also be unpredictable and random” (Malkiel, 1996:197). “Random walk” characterizes that the stock price changes are randomly from previous prices and the investment returns are serially independent. “The earliest empirical work on the random walk hypothesis generally found that stock price changes from time to time were essentially independent of (or unrelated to) each other. Their probability distributions are constant through time.” (Malkiel, 1996:197)

The theory of random walk is consistent with the Capital Assets Pricing Model (CAPM) that the market is equilibrium. There is no way to gain the superior performance or extra returns for a stock's portfolio. The possibility of obtaining higher returns is from higher-beta (Malkiel, 1996:254). This also means that holding a higher-beta portfolio is more risky than the low one, once the stock market is in the down trend. While the semi-strong form of efficient market theory argues against many of the beliefs held by those using fundamental analysis, the weak form- random walk theory attacks the ideas of technical analysis. To understand more about the theory of Random walk, we would understand how its theory explains or argues around the stock behavior relating to the other theories.

The attempt to predict accurately the future stock price in order to sell or buy in appropriate time is one of the investors' most persistent endeavors. Technical or fundamental analysis which is the two methods we have known up to now. While fundamental analysis is the technique of applying the tenets of the firm-foundation theory to the selection of individual stocks by attempt to estimate the stock's intrinsic value. The technical analysis is essentially the making and interpreting of stock charts. They interest on the past, and both the movements of stock prices and the volume of trading, for a clue to the direction of future change. Most of chartists believe that the market is only 10 percent logical and 90 percent psychological, oppositely fundamental analysis believe the market to be 90 percent logical and only 10 percent psychological. (Malkiel, 2006:117).

Following to the personal point of view, numbers of investors also claim that the stock market adjusts so quickly and perfectly to new information that the amateurs buying can do just as well as the professionals. This idea has certainly not been believed by numbers of professional advisers or portfolio managers or researchers who believe and support to the non-random walk theory. A presence or an absence of random walk has important implications for not only researchers but also for investors, trading strategies, portfolio or fund manager, assets pricing models and consequently for financial and economic development.

With the development of the above theories, some contradicting studies of anomalies have existed. Numbers of studies on "the day of week effect" refers to the existence of a pattern on the past of stock returns, where these returns are linked to the particular day of the



week. The result indicated that the last trading days of the week, particularly Friday, are characterized by the positive and substantially positive returns. While Monday, after the weekend, market prices tend to open at lower levels, suggesting an advantageous strategy of selling short at the Friday close and covering the short position Monday morning. Those studies verified mainly in the US market (Cross, 1973), (Lakonishok and Levi 1982), (White, 2003:178).

Whether the application of “Monday effect” theory is also valid in the emerging markets as Vietnam or not is also a question. That is if the pattern Monday effect of share prices in the land’s market has tendency to decrease on Monday as United States markets. The day of the week effect in Vietnam stock market has not been extensively researched. To some extent, the presence of such an effect would show that the returns are not independent of the day of the week, possibility evidence against random walk theory.

### ***3.4 Market Efficiency Anomalies***

Market efficiency anomalies seem to be in-consistent with the efficient market hypothesis. Anomalies indicated the market inefficient, profit opportunities or inadequacies of underlying of capital access pricing model that implies stock market is equilibrium (Schwert, 2003). The examples of anomalies are Monday effect, day of week effect, January effect and season effect. In the limit of this study, the day of the week effect is presented.

#### **3.4.1 The Day of the Week Effect**

Day of week effect is primarily relating to stock market patterns occurring on Friday and Monday trading days. Numbers of researchers have found the stock price has tendency to be highest on Fridays and be lowest on Mondays. With more evidence appearing, the day of the week effect not only occurs on Mondays and Fridays but also on the other days among the world stock markets.

The empirical results were found by many researches. The daily average return on Monday to Standard and Poor’s Composite portfolio was negative lower than the average return for any other day of the week for the period 1953-1977. This was a result of a study

on 500 largest firms on the New York Stock Exchange (French, 1980). Gibbons and Hess (1981) also found the evidence for a lowest return on Monday, and a highest return on Friday for the United States stock market from 1962-1978. The study was also done for Asian-5 stock market for the period of 2002-2009 by Shiok, Chia 2010. There was evidence of the day of week effect in the Malaysia and Thailand Stock market. It was significantly lower returns on Monday and highest returns on Friday, and Monday returns in Indonesia, Malaysia, and Philippines had a negative median return. A study over a period 1987-1994 in Bombay Stock Exchange showed empirical result of Monday effect in India market, in which the average return of Monday is lowest. Those results provided evidence of the day of the week effect and stock market was not weak form efficient.

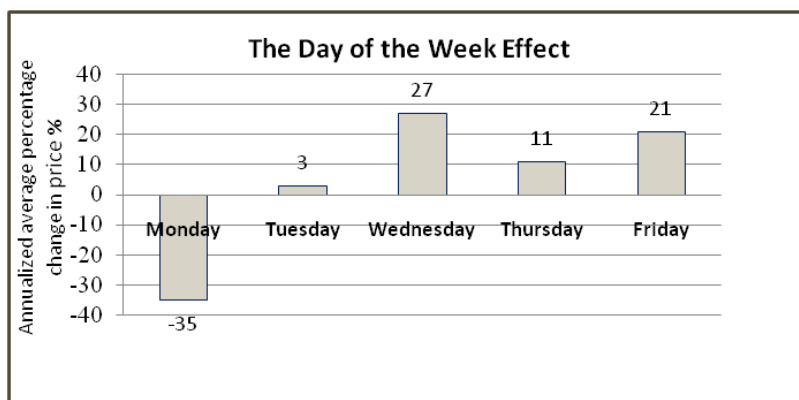


Figure 8: An Illustration of the Day of the Week Effect (Haugen, 2001:605)

### 3.5 Capital Assets Pricing Model

The definition of Capital Asset Pricing Model (CAPM) is a mathematic model which is described as:

$$E(R_i) = r_f + \beta_i * [E(R_m) - r_f]$$

Where:

$E(R_i)$	Expected return of a stock i
$\beta_i$	Market risk or systematic risk of a stock i
$r_f$	Risk free rate
$E(R_m)$	Expected return of market portfolio

Both  $E(R_m)$  and  $r_f$  are the macro number. The model can rewrite as follows:

$$[E(R_i) - r_f] = \beta_i * [E(R_m) - r_f]$$

The left hand side is an expression for the risk premie of stocks, while the right hand side expresses the market risk of stocks. The logic of CAPM is that a beta value is specified for each of the stock. The beta value is expressed for the expected relationship between the return of market and the return of the stock. By estimating the beta value, one can know how much an individual stock reacts on the changing of the market. The beta value is defined as the condition between the covariance of the return of market portfolio and the firms portfolio, and the variance of market portfolio which is described follows:

$$\beta_i = \frac{COV(R_i, R_m)}{VAR(R_m)}$$

The theory means that the risk rate for an invesment can be reduced by diversifying. The CAPM has been used to appreciate the the value of shares, to estimate the return requirement of equity. Although the model is simple to use, the topic of how pfect the model is has become an interesting debate among the researchers. Since the empirical tests showed that the CAPM was not perfect validity. The main sustainable implications at the

systematic risk, the beta value is a validity objective on risk, the model is a positively linear model , described a relationship between risk and return.

**Beta ( $\beta_i$ ):**

The market beta of the stock is the slope in the regression of the return of the market and the sensitivity of an individual stock in relation to the market portfolio, is measured by beta value. It means that the stock return is showed as the function of the return of market portfolio. In statistic, it is explained by the function of the linear regression in which slope value is beta value. The general linear regression function is  $Y= ax+b$ , where  $Y$  is the dependent variable,  $X$  is independent variable,  $a$  is the value of the slope and  $b$  is constant. In this actual case, the function is written by  $Y= \alpha + \beta x + \varepsilon$ ; where  $\alpha$  is constant,  $\beta$  represents for the slope value, and  $\varepsilon$  is an error term.  $Y$  and  $X$  are respectively the dependent and independent variables. The value of coefficient beta can be found by running the regression statistic, in which  $Y$  value is the covariance of the stock ( $i$ ) in the portfolio, market portfolio and variance of the market portfolio in the period  $t$ . These values can also be found by the helping of the “slope” function in excel. In my study, in order to determine the entire beta coefficient in 71 announcements, I have run 71 statistic regressions.

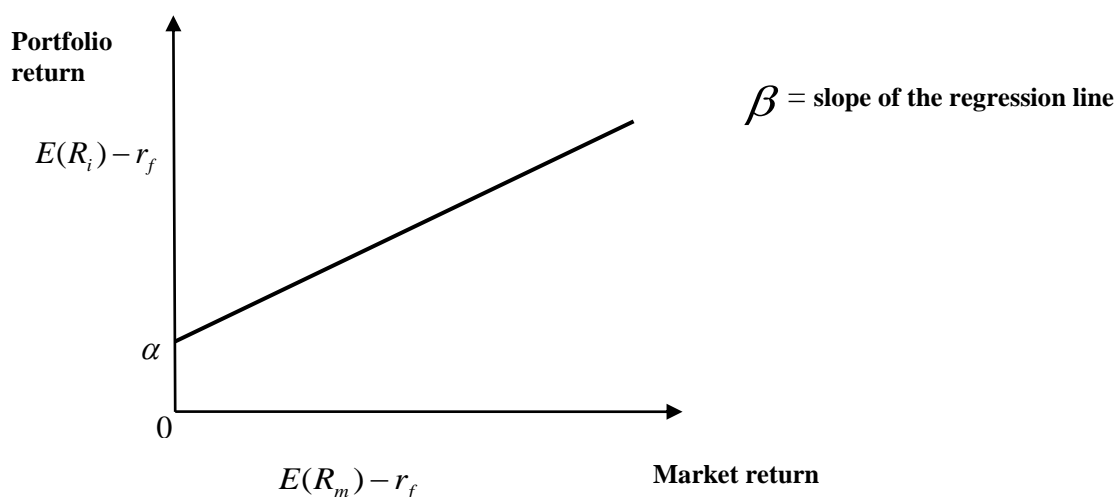


Figure 9: Slope of the Regression Line

An expected return of a stock is given by the stock's beta value. It means that if beta value =1, the expected return of the stock is equal to the market portfolio's return. Beta > 1 means that the return of the stock swings more than the market portfolio and the risk is a minimum expected return for an investment as the bank deposit, does not vary to the return. In other words, the expected return equal to risk free rate, beta value is expected to be zero. When the risk of stock is lower than the market risk, one expects to have the lower expected return. Based on this foundation, the CAPM means that one can apply the equation and its principles to calculate the expected return for a project. If the risk for the project can be set equally to the known-beta of a firm, the risk of the project can be calculated with this beta value. CAPM is a good theory, however how effective the theory is men are still uncertain of the practice. This point is related to how one can assess the investment risk free rate without risk.

In this study, I have reviewed the theory of CAPM and its regression test for the purpose to determine beta value prior to estimate excess returns. In the limitation of my research, the event study assumed that the CAPM is correct.

### ***3.6 Event Study Model***

Event studies have interested many researchers. By using 95 splits from 1921 to 1931, the first study on a stock price changed on the event of stock-splits by Dolley (1933). The result demonstrated that the stock price was increased mostly on the event of splits. The numbers of study have increased since 1930-1960, which was done by many researchers as Myer and Bakay (1948), Barker (1956, 1957, and 1958) and Ashley (1962). Ball and Brown (1960), Fama Fisher, Jensen and Roll (1969) became well-known with their introducing on the methodology which have been used up to now. Ball and Brown studied the information content of earnings, while Fama, Fisher, Jensen and Roll studied the effects of stock splits and the effects of dividend increases on stock prices. Brown and Warner 1980, 1985 also took many studies by using daily data. (Campbell,Lo,Mackinlay, 1997:150-151).

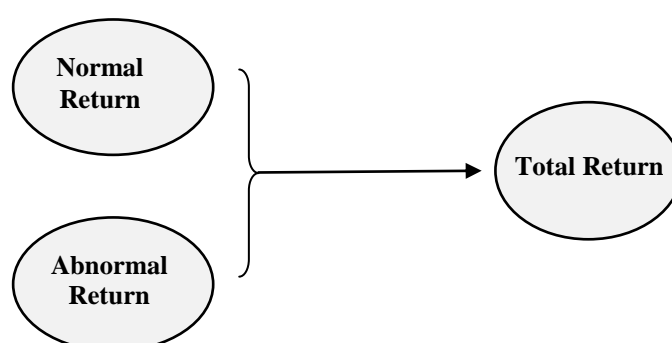
The Event studies are used to study the information content of corporate events. The main purposes of this study are to test for the existence of an "information effect", for example

the impact of an event on the value of firms and to estimate its magnitude (1) and to identify factors that explain changes in firm value on the event date (2). (Pabhala, 1997)

The assumption in the event study is consistent with the theory of Capital Asset Pricing Model (CAPM) that the market is equilibrium. In the efficient market hypothesis, under the semi strong form, the type of study is to examine of the speed of adjustment of stock price to new information. The argument is that if the market is rational the effect of an event should be reflected immediately in stock price and returns. Thus, a measure of the impact of event can be constructed by using the stock price and return observed over a relatively short or long period. The objective of event study is to assess whether there are any abnormal returns or excess returns on specific events. (Pamela, 1989)

If  $t = 0$  represents the time of the event.  $R_{i,t}$  is called the return on each sample of the security for time period  $t$  relative to the event.  $R_{i,t}$  is the function of “normal return” and abnormal return”. The event study model is described as  $R_{i,t} = K_{i,t} + e_{i,t}$ , where  $K_{i,t}$  is the “normal”, which is described by the expected or predicted return given a particular model of expected returns. And  $e_{i,t}$  is the component of returns which is abnormal or unexpected. Then, the abnormal return,  $e_{i,t}$ , is the difference between the observed return and the predicted return. It is named  $e_{i,t} = R_{i,t} - K_{i,t}$ . It is the difference between the return conditional on the event and the expected return unconditional on the event. It is therefore the abnormal return (AR) must be estimated. Since the theory of CAPM is assumed to be correct, the requirement of using CAPM have been used in event studies. To examine return behavior in a particular event is to find down if there is the AR that exists in the observed event. The AR is a direct measure of the unexpected change in the stock holder wealth associated with the event. In an event study, the stock price performance is expressed as a function of the normal and AR. The model is described as follows: (Kothari, Warner; Eckbo, 2007:9)

Figure 10: An Illustration of Event Study Model



## Chapter Four: Methodology

In this chapter I would like to present methods that I have applied in my research. How to choose the methods, the best possibilities for testing hypotheses, and describe the process I have done; Followed by a presentation of the hypotheses; the next part shall drive you to the selection of research Design, Data, sample selection, and Measuring.

### 4.1 Model and Hypotheses

#### Model:

In order to test my hypothesis, I used namely the below (I) Event Study Model which included (II) Market Model, (III) Capital Asset Pricing Model for hypothesis 1, and (IV) the Expected Return Model for the hypothesis 2. Models are as followed:

$$\begin{aligned} (I) \quad & e_{i,t} = R_{i,t} - K_{i,t} \\ (II) \quad & R_{i,t} = \alpha_i + \beta_i \times R_{m,t} + \varepsilon_{i,t} \\ (III) \quad & E(R_{i,t}) = r_f + \beta_i \times (R_m - r_f) \\ (IV) \quad & R_t = \alpha + \gamma_2 d_{2t} + \gamma_3 d_{3t} + \gamma_4 d_{4t} + \gamma_5 d_{5t} + \varepsilon_t \end{aligned}$$

$e_{i,t}$  - the abnormal return of stock i

$K_{i,t}$  - the normal return of stock i

$R_{i,t}$  - the rate of return for the firm (i) at day t

$\alpha_i$  - the intercept coefficient alpha of stock i

$\beta_i$  - the systematic risk beta of stock t, market beta coefficient representing the linear regression relationship between the firm (i) and the return on a market index.

$R_{m,t}$  - the rate of return of market index on day t

$\varepsilon_{i,t}$  - the regression error of stock i at day t

$E(R_{i,t})$  - expected return of the portfolio

$R_m$  - Market return of the portfolio

$R_t$  - Expected return of the VN-Index

$\alpha$  - Average return for Monday

$\gamma_2, \gamma_3, \gamma_4, \gamma_5$  - Difference between the expected return for Monday and the expected return for each of the other days of the week.

$d_{2t}, d_{3t}, d_{4t}, d_{5t}$  - Days of the week which the return is observed.

### **Hypotheses:**

Based on the above literature, I noted that the event of dividend announcement has been an interesting issue of theoretical and empirical researches since the pioneering work of Fama, Fisher, Jensen, Roll (1969) who studied on event of stock splits announcements and the performance of stock prices. The relationship between the announcement of dividend payment and stock price reaction has been discussed much in the financial literature. Empirical research particularly in the United States showed that market generally reacts to the announcement of dividend payments.

#### **Hypothesis 1:**

- $H_0$ : Dividend announcements do not provide information to the Vietnam stock market, *i.e.* there is no stock price reaction on the announcement day.

#### **Hypothesis 2:**

- $H_0$ : Stock prices in Vietnam stock market do follow random walk.



## **4.2 Theoretical Methodology**

### **4.2.1 Design**

There are many factors to be considered when choosing an appropriate research methodology. At the beginning phase of the research process which was namely “literature review”, the researcher should have some idea of the field of study, and the area of his or her interest in which the research is to be carried out (Remenyi, William, Money, Swartz, 1998:65). The topic and the specific research question are among the primary drivers in the choice of methodology. To choose a design is a basic foundation for planning how a research shall be followed. “Research Designs are plans and the procedures for research that span the decisions for broad assumptions to detailed methods of data collection and analysis, and interpretation.” (Creswell, 2009: 3).

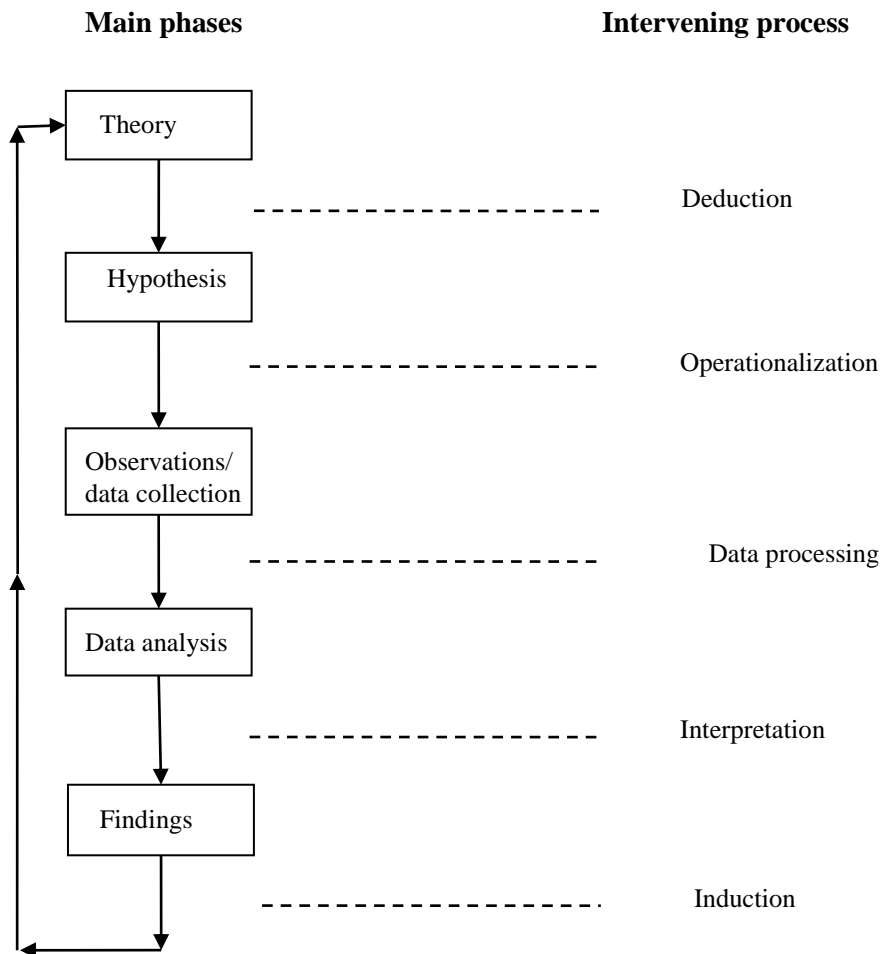
Design is focused on methods of collecting evidence. A research design is a plan for collecting evidence that can be used to answer a research question. The main seven types of research design are document analysis (1); secondary analysis of data such as census data (2); naturalistic observation (3); surveys (4); interviews (5); experiments and quasi-experiments (6); participant observation (7) (Vogt, 2007:7-9). The major element in the framework is the specific research methods that involve the forms of data collection, analysis, and interpretation that the researcher proposes for the study. Both quantitative and qualitative approach techniques can be handled for that any of those designs can produce evidence. The choice of methods turns on whether the intent is to specify the type of information to be collected.

Three types of the technical approach in research design are advanced: qualitative, quantitative, and mixed methods (Creswell, 2009:3). “Quantitative research is often conceptualized by its practitioners as having a logical structure in which theories determine the problems to which researchers address themselves in the form of hypotheses derived from general theories” (Bryman, A.,1993:18). The different designs or research have its own strong and weak sides. Choosing the design depends on what the researcher shall search and which resources he or she has to disposition, here under time resources.

The method I selected for my research issue was quantitative method. Since “In quantitative studies, one uses theory deductively and places it toward the beginning of the

proposal for a study. With the objective of testing or verifying a theory rather than developing it, the researcher advances a theory, collects data to test it and reflects on its confirmation or disconfirmation by the results” (Creswell, 2009:55). Quantitative research is a means for testing objective theories by examining the relationship among variables. These variables can be measured. Data can be analyzed by statistical procedures or instruments. In quantitative approach, the researcher shall test a theory by specifying narrow hypotheses and the collection of data to support or refute the hypotheses (Creswell, 2009:16).

Also, to choose a design has a relation to the subject of the research. My research philosophy is positivism. The analysis and conclusion based on a great amount of data, the result of the calculation and statistical tests. Before doing the research, the scientific approach has to be set up. In general, there are two approaches the researcher can apply, namely the deductive and inductive approach. In the deductive hypothesis, the researcher can build up a new hypothesis from a theory or retest the same hypothesis of the historical studies. They shall test those hypotheses in the same environment or different environment with different periods of time where the researcher can find the support or rejection of these hypotheses. In case of the deductive approach is adopted, they have to use some existing theories which can conduct the empirical study. Conversely, if the inductive approach is applied, the researchers shall analyze the data from the previous models and use those data to develop a theory. The below figure is a structure for a research process.



**Figure 11: The Logical Structure of the Quantitative Research Process (Bryman, 1988:20)**

By applying the deductive approach, I based on the relevant existing theories; the historical researches have been tested by the pioneers in other markets, such as America and India. Also, I adopted their procedures, testing methods and re-tested those theories with the data of Vietnam market. My thesis, the main topic concerns to the theory of market efficiency. To focus on signaling hypothesis on announcement and stock price (H1), and the day of the week effect (H2), I would like to re-test those theories whether those theories exist in the Vietnam stock market. As I have presented in the chapter of Theory that the characteristic of market efficiency theory is equilibrium. It also means that if the Vietnam market is efficient, in consequences, there is no possibility for arbitrage in this market. Thus, to choose the design as quantitative, including empirical data observation is the best way for my case, for the purpose to figure out whether or not there is any abnormal return and it is large enough to support the hypothesis.

#### **4.2.2 Data Collection**

There are two types of data, called as primary data and secondary data. In a research study, we can use only secondary data or both of them. And there are many techniques to collect it, depending on the quantitative or qualitative approaching methods. Secondary data is not limited for the data research. Those data come from different sources such as documents from statistic offices, research-surveys reports. Document data can be found from economics bulletins, news, journals, science articles and databases. Technique for collecting primary data is via interviews, questionnaires, observation in fields of experiment. To choose data collection technique also depends on the questions and the field of the research (Ringal, 2001).

The main purpose of my research is to find out whether the Vietnam market is efficient and there is the day of the week effect to stock price in this market. Data from Vietnam becomes a foundation for my study. By accessing to the Library database, I can find a great source of data in the fields of my research; books, together with a lot of relevant scientific articles and journals are very helpful for constructing theoretical framework. The key words I have searched are as follows: market efficiency, signaling hypothesis, dividend announcement, event studies, Vietnam stock market, and many famous historical researchers as Fama, Ball and Brown, French (1980), etc. The data for the chapter of introducing on Vietnam stock market has been mostly from accessing the official Vietnamese website and many sources of secondary data that I listed in the reference.

When reading articles, the session of the methods and testing are important, it shows the way to test hypothesis and the required data related to the research questions. Follow up to the research question, to figure out whether the Vietnam stock market is efficient, whether there is any effect on stock price by the event of announcement on dividend payment (H1), the data I have to collect is a sample of 16 Vietnamese listed firms in Vietnam Stock Exchange which have paid cash dividend continuously for the period 2007-2009. The details of data were all announcement dates for dividend payment.

Thanks to the support of VN-Direct, and Thang Long Securities companies, I have got a list of all the listed companies which had paid dividend in the period of 2006-2009. Next, to get the date of announcement in the history, my task was to access to website

information of an individual listed company, searched historical dates, then read the “historical events” to find the announcement of dividend, dates, holdings. These letters of announcement were sent to State Securities Commission from listed companies. The list of announcement dates can be considered as primary data in this situation.

To test both of the two hypotheses required the daily market price and Vietnam stock exchange index. All data for the period of 2006-2009 was also provided by VN-Direct Securities Company. Yearly consumer price index and government bond yield in present were supported by State Statistic Office and Thang Long Securities Company. Those data are raw data. Before testing, many steps of analysis and calculating were required. I shall present it in the later chapters.

### 4.2.3 Measuring

The measurement is a process involving both theoretical as well as empirical considerations (Lewis-Beck, 1994:2) in which the function of measurement can be summarized with the basic formulation as follows:

$$X = t + e$$

Where  $X$  is the observed score,  $t$  is the true score and  $e$  is the random error (Ringdal, 2001:166), (Lewis-Beck, 1994:20). According to (Reve, 1985), (Churchill 1979), the function was also presented as:

$$X_0 = X_T + X_S + X_R$$

Where  $X_0$  is the observed score,  $X_T$  is the true score,  $X_S$  is a systematic error, and  $X_R$  is random error. The reliability goes along to random error while systematic error goes direct over of the validity of data in which the error can have when we collect the holding of data. The error can exist in the data collecting process. Error can be to take note false or to input false by electronic data registration. The measurement shall be perfect when and only when  $X_0 = X_T$ . This criterion is quite difficult, impossible to avoid systematic error or random error. Therefore, the most meaningful is to minimize  $X_S$  and  $X_R$  lowest as possible. This is to maximize the validity and reliability of theoretical definition of the research when inputting and computing data material in the study (Ringdal, 2001).

### 4.2.4 Measuring for Hypothesis 1

The objective of my research is to indicate that whether the announcement of dividend payment in Vietnam market provides any information to investors, it means I have to figure out if the event of this announcement affects the stock price in the market. Thus, in the hypothesis 1 (H1), I have to measure stock price performance that related to the event. To measure H1, I followed the estimation alternative procedures of event study in Econometrics of events studies (Kothari, Warner; Eckbo, 2007:09). Besides, I also studied

many articles of the former researchers as Fama, Fisher, Jensen and Roll, 1969; Campbell, Lo, MacKinlay, 1997, etc, to have the ideas how to measure the hypotheses. As I have presented in brief about event, event studies and its perspective in the introduction part of the chapter two. The function of the stock price performance is sum of the two components, namely the Normal Return ( $K_{i,t}$ ) and Abnormal Return ( $e_{i,t}$ ).

**The model can be summarized as follows:**

$$R_{i,t} = K_{i,t} + e_{i,t}$$

The performance of Return of stock,  $R_{i,t}$  depended to the abnormal return  $e_{i,t}$ , since the variable of  $e_{i,t}$  represented for the “abnormal” or “unexpected”. It is clearly that the increasing of the performance of the variable  $R_{i,t}$  existed when and only when there is the existent of abnormal return  $e_{i,t}$ . In other words, the stock price performance shall be affected and increased when and only when the abnormal return  $e_{i,t}$  is different from zero ( $e_{i,t} \neq 0$ ). Thus my task was to find out whether there was an abnormal return related to the event or not. It can be described in the summarized function:

$$e_{i,t} = R_{i,t} - K_{i,t}$$

According to the methodology of the event study, I estimated both estimation periods and event period to figure out abnormal return. After abnormal return was computed, I have applied t-test to test whether the hypothesis under the condition that dividend announcement do not provide any information to investor in the Vietnam market that can be accepted or rejected under the statistical results.

### Event and estimation period:

A time line for this study is represented in Figure 7. Selection of the length of event period and estimation period is based on previous event studies. To choose the length of event period was varied by different studies. Theoretically, a point of time of an event when the information was released was at point zero (0) in a period of one day.

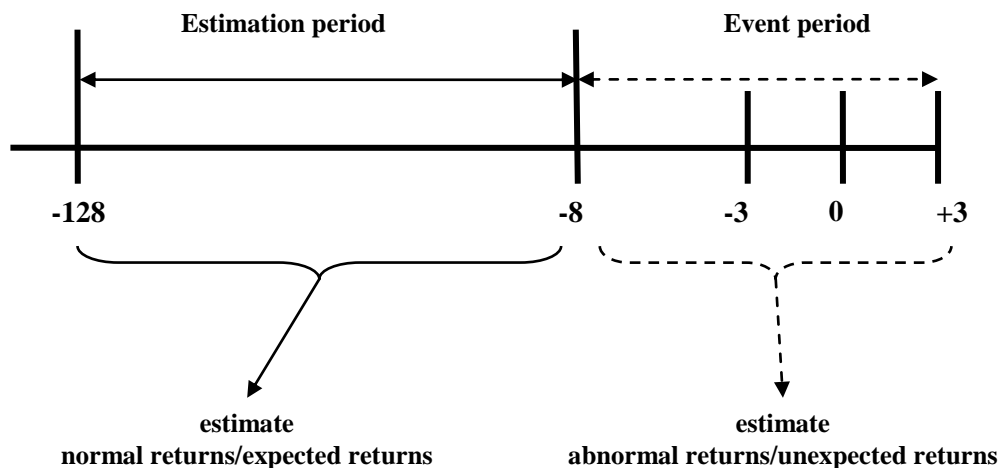


Figure 12: Estimation and Event Period

However, when the event of announcement appeared in the public newspaper, it was unclear whether the market was informed before the closing time of the market on the prior trading day. Thus, if the announcement occurred after the closing time of trading on the previous day, any immediate valuation effects should be reflected in the stock price on the day in which the announcement appeared in print. Conversely, if the information was released prior to the closing time, any immediate valuation effects should be registered on the day before the announcement appears in print. The usual way of handling this problem was to expand the event window from one day to three days, five days or ten days. Accordingly, this study applied a three-day event period, including the day of publication of the announcement and two days preceding it. On the other hand, the period for estimating normal returns typically ranges differently from 100-250 days for daily studies. I used an estimated period of 121 days (a 6-month period) before the event period to estimate the expected return or normal return.



The two following figures at the end of this part shall show you a general look on the alternative estimation processes for the two hypotheses which I went through in my research. I shall describe calculation and variables in details in the analyzing chapter.

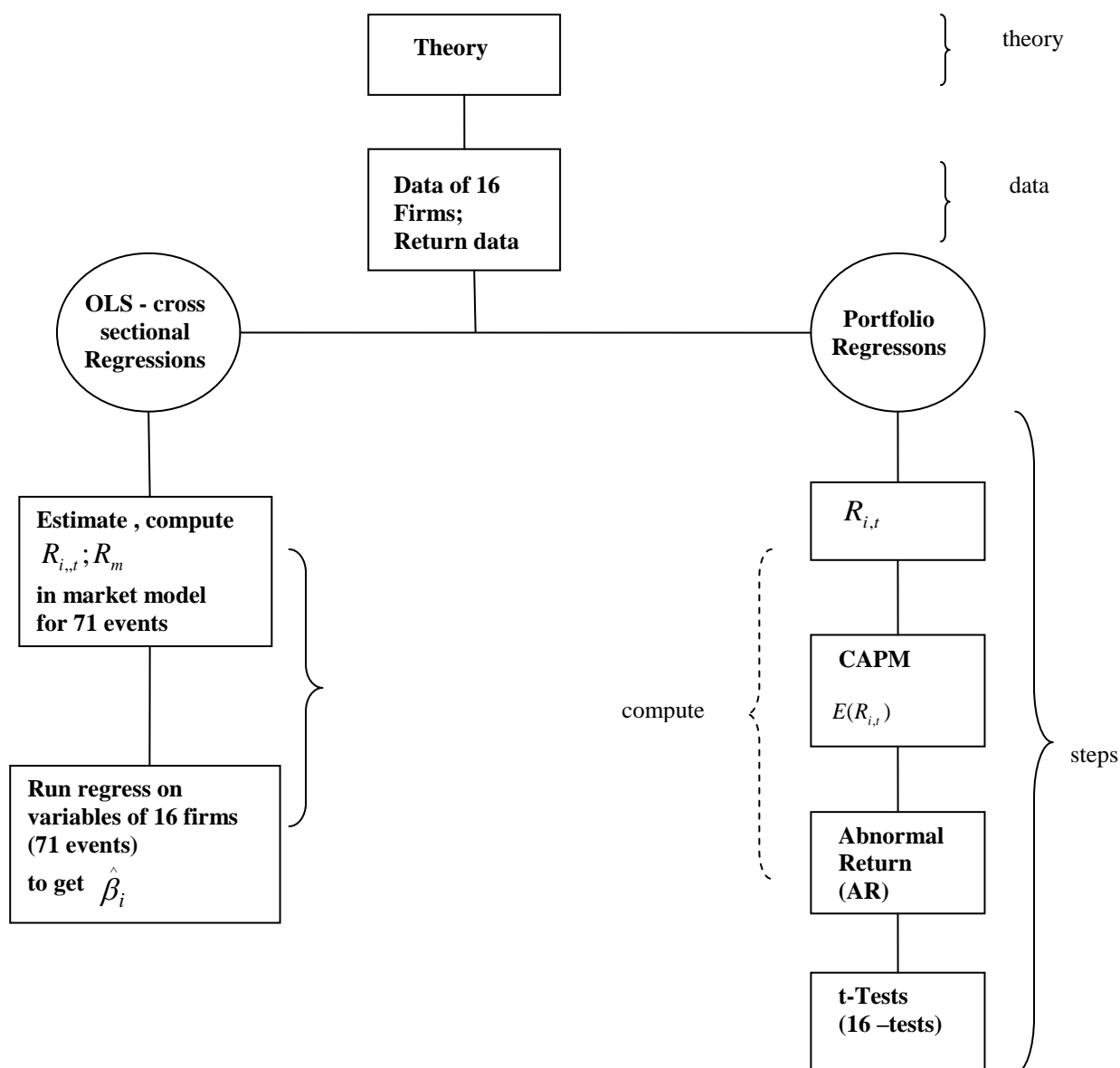


Figure 13: Steps of Estimation Procedures for Hypothesis 1

In the estimation process of figure 13 for the H1, I applied process of event study which I have introduced in the previous part. In H1, the important step is to find all beta value for 71 events of 16 firms. By running 71 OLS (Ordinary Least Square) regression tests on

variables, the beta coefficient was defined as the “systematic risk” of (i) asset, which was described as the correlation between the expected excess return of (i) asset and the expected excess return on “market portfolio” (Jensen, Black, Scholes, 1972). Beta was a measure of volatility, or systematic risk, of a security or a portfolio in comparison to the market as a whole. Beta was used in the Capital Asset Pricing Model, a model that calculated the expected return of an asset based on its beta and the expected of market returns. I then computed daily return and expected return in the portfolio model. When the Expected return of the estimation period was estimated, I could calculate the value of abnormal return. The t-test of 16 tests, which contains of 71 events were run individually. The regression tests between the variables of the cumulative of all the abnormal return in each firm and the variance of abnormal return showed the result of hypothesis 1, abnormal return equal to zero is supported or rejected.

#### **4.2.5 Measuring for Hypothesis 2**

The hypothesis 2 (H2) which is related to the day of the week effect, I used theory of French who examined the behavior of daily stock price of the USA market and applied a part of the methods in this article to my study. The article “stock returns and the weekend effect” of Kenneth French studied two alternative model of the process generating stock return. French used daily return of Standard & Poor’s portfolio with the studied period from 1953 to 1977. The study tested hypotheses about daily return behavior and to examine the anomalous returns for market efficiency. To test hypotheses about daily return behavior is assumed that the expected return is constant and the expected return of Monday is higher than the daily return of the others days. French collected data of 6024 daily observations in 25 years from 1953 to 1977. The result indicated that the expected return was not constant through the week and the return for Monday was negative lower than the average returns for any other day of the week during 20 of the 25 years (French, 1980:57-61).

#### **The Regression model:**

$$R_t = \alpha + \gamma_2 d_{2t} + \gamma_3 d_{3t} + \gamma_4 d_{4t} + \gamma_5 d_{5t} + \varepsilon_t$$

Where  $R_{i,t}$  is the return to the Standard and Poor's portfolio and the dummy variables indicated the day of the week on which the return is observed,  $d_{2t}$  = Tuesday;  $d_{3t}$  = Wednesday;  $d_{4t}$  = Thursday;  $d_{5t}$  = Friday. The expected return for Monday is measured by  $\alpha$ , while  $\gamma_2$  through  $\gamma_5$  represent the different between the expected return for Monday and the expected return for each of the other days of the week. If the expected return is the same for each day of the week, the estimates of  $\gamma_2$  through  $\gamma_5$  will be close to zero, stated by French (French, 1980:60-61).

It means that:

$$\gamma_2 = r_2 - \alpha, \quad r_2 \text{ is the expected return of Tuesday}$$

$$\gamma_3 = r_3 - \alpha, \quad r_3 \text{ is the expected return of Wednesday}$$

$$\gamma_4 = r_4 - \alpha, \quad r_4 \text{ is the expected return of Thursday}$$

$$\gamma_5 = r_5 - \alpha, \quad r_5 \text{ is the expected return of Friday.}$$

$$\text{And } \gamma_2, \gamma_3, \gamma_4, \gamma_5 = 0 \Leftrightarrow r_2 = r_3 = r_4 = r_5 = \alpha$$

Based on the argument of the above theory, I tested the hypothesis 2 whether there is day of the week effect by testing if the expected return of Monday is the same with the expected return for each of the other days of the week. The hypothesis is presented generally as  $H_0: r_2 = r_3 = r_4 = r_5 = \alpha$

Besides the research from the USA market, the research for a period from 1987 to 1994 for India Market showed that the mean returns of days of the week were positive except Monday and Wednesday. The return on Monday is lowest compared to the other days. And the return on Friday is highest (Poshakwale, 1996:614). The evidence from Asian stock market which was studied for a period from 2002 to 2009 for five countries Indonesia, Malaysia, Singapore, Thailand and Philippines also indicated that the mean and median return are all negative on Monday, except Singapore. Only Singapore had a positive median return on Monday, however it was also in the lowest return in a week. All five Asian countries had a positive and highest return on Friday (Lim, Chia, 2010:999-

1000). There were many ideas and theories left from the current presentation on measurement of H2 of day of the week effect in random walk theory.

The estimation process of the hypothesis 2 was simpler than the hypothesis 1. Prior to testing, the task was to compute the return of 996 daily observations for the 4-year period, from 03-Jan-2006 to 31-Dec-2009. Mean, median, p-value and correlation of the test shall provide evidence whether there was a day of the week effect in the Vietnam market.

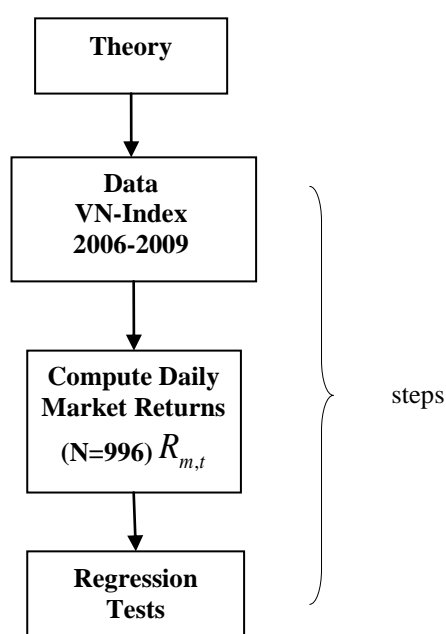


Figure 14: Steps in Measurement Process for Hypothesis 2

### 4.3 Statistical Methodology

In statistical methodology, I shall apply the SPSS - a computer program used for statistical analysis - to test the hypotheses. I would like to present the basic steps in a hypothesis testing generally.

#### 4.3.1 Hypothesis Testing

In general, there are five steps in a hypothesis testing. The first step is to formulate the research question to the statistics hypothesis. The basis paradigm for single hypothesis testing is to test a null hypothesis  $H_0$  versus an alternative hypothesis  $H_A$ . For a given rejection region  $K$ , we shall reject  $H_0$ , when  $\mu \in K$  and we accept  $H_0$  when  $\mu \notin K$ .

The way the hypothesis formulated, it can be rejected null hypothesis when  $\mu \neq 0$  for the hypothesis 1. For the hypothesis 2, the null hypothesis can be rejected when  $\mu_1 \neq \mu_2$  (Ringdal, 2001: 376).

The second step is to find a test observation which can be applied to in order to indicated that the result of null hypothesis is supported or rejected by using t-test, regression test.

By hypothesis test on coefficients, one shall estimate the simple linear regression, one can perform hypothesis test on the true value of a coefficient. Such tests are useful for determining whether the explanatory variable is significant enough to be included in the regression, where the null and alternative hypothesis are mentioned in the hypothesis 1 below and sample mean is described by  $\mu$  (Alexander, 2008:151).

#### **General:**

##### **Hypothesis 1:**

$$H_0 : \mu = 0$$

$$H_A : \mu \neq 0$$

$\mu$ , is the abnormal return (AR) in the event period.

##### **Hypothesis 2:**

$$H_0 : \mu_1 = \mu_2$$

$$H_A : \mu_1 \neq \mu_2$$

$\mu_1$ , is the average daily return of the investigated day in percentage.

$\mu_2$ , is the average daily return of the other weekdays in percentage.

$$H_0 : \mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5$$

$\mu_1$ , is the average daily return of the investigated day in percentage.

$\mu_2, \dots, \mu_5$  :, is the average daily return for each of the other weekdays in percentage.

The third step is to choose the significance level. In hypothesis testing the significance level is the criterion used for rejecting null hypothesis. The difference between the results in experiments and null hypothesis is determined. Then the probability value (p-value) is compared to the significance level. If the probability p is less than or equal to the significance level, then the null hypothesis is rejected and the outcome is said to be statistically significant. Normally, the significance level is used either 0.05 level or 0.10 level for one-tail, for the large of data observation  $N > 200$  or a small data  $N < 200$  respectively (0.025 and 0.05 for a two-tails) ( Ringdal, 2001: 376).

In the fourth step, one can find and observe the p-value p which constitutes the main statistical significance testing, which was identified by the significance level of 0.05 or 0.10. One can find critical value by t-distributing table and degree of freedom  $df = n-1$ . The null hypothesis shall be rejected when t -value is bigger than critical value t-alpha, or it must be smaller than minus critical value t-alpha, besides basing on the probability value p. The last step is to make a conclusion base on the statistical results and analysis (Ringdal, 2001:378).

## Chapter Five: The Vietnam Stock Market

The Vietnam stock market has run for over 10 years. This chapter is a short summary of the main aspects of the market. A brief introducing to market performance, sector, regulations, and highlights of the market in the past period 2006-2010 can give you a general overlook of its constituents, operations of the emerging market.

### 5.1 Introduction to Vietnam Stock Market

The country has made many important changes to turn the planned-economy into a market-oriented one. It has been nearly 11 years since the stock market of Vietnam has established in the date of July, 20<sup>th</sup> 2000. Starting with 24 listed companies with total capital of Vietnamese Dong (VND) 1.2 billion, 140 kinds of Government bonds, 2 commercial bonds of the Vietnam Bank for Investment-Development, and 1 municipal bond, with their listed total value of VND 17,300 billion (1063 million USD). HoChiMinh Index or namely called as Vietnam Index (VN-Index) was about 249.7 points in June 2004. The total market capitalization in 2004 accounted for 3.4% of Gross Domestic Product (GDP), and it was more than double as compared to 2003. The HoChiMinh Securities Trading Center (HoSTC) was converted to HoChiMinh Stock Exchange (HOSE) on May 11<sup>th</sup> 2007 signed by the Prime Minister Decision No-559/2007/QD-TT. On August 8<sup>th</sup>, 2007, HoChiMinh Stock Exchange was officially established.

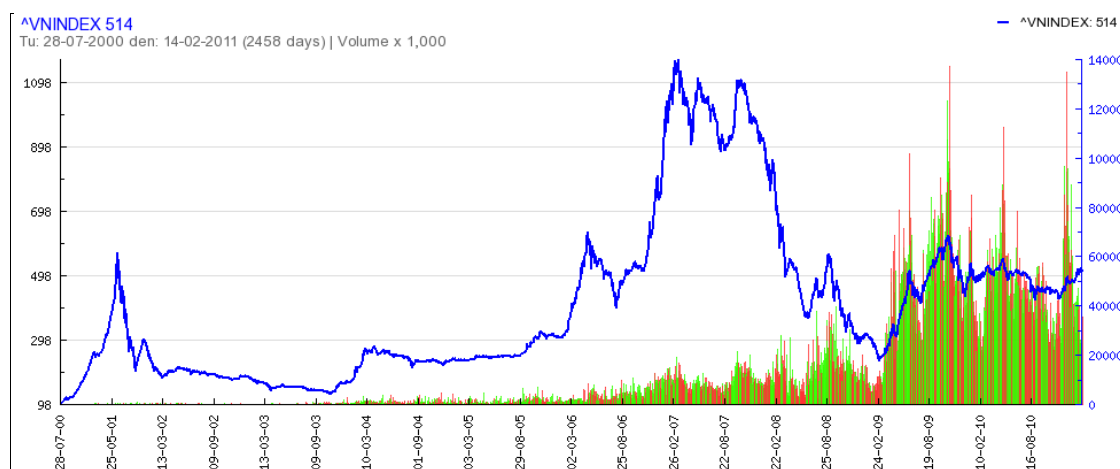


Figure 15: Market Performance 2000-2010-VN-Index (Cohieu68)

According to the historical data, I noted that Vietnam market has had many changes and volatiles in the past ten years. In the first three years 2000-2003, firstly market grew up strongly; VN-Index heated to the top of 571.04 points at June 25 2001, and fell deeply to 203.12 after 14 weeks, on October 5 2001. The downtrend period took place with the lower Index at 180.73 points at March 11, 2002 and down to 139.64 points in April 1, 2003. The second period 2004-2005, VN-Index was moved between 213.4 and 307.05 points (Feb 6, 2004 to 307,05points on Dec 30, 2005). In the period 2006-2009, VN-Index reached to top on Feb 02 2007 at 1167.36 points before financial crisis. The lowest level felt on Feb 24, 2009 at 235.5 points. Index was at 480.93 on Dec 31, 2010 and at 479.01 points as of May 15, 2011.

The market has grown up impressively with large new listed companies in 2006. There were 164 companies listed on HOSE, and 154 on Hanoi Trading Center (HASTC) by the year of 2008. The number of listed companies was increasing to 627 in the year of 2010 in which there were 284 companies in HOSE and 374 in HASTC. Rests of them are Fund Management Companies. The summaries below are a glance of Vietnam and a positioned PE relative to the other lands for 2010, reported by Bloomberg.

Market Capitalization (USD Billion)	35
Average daily trading value (USD million)	80
Listed securities	627
PE FY2010 (VN-Index)	9.98
PB FY2010 (VN-Index)	2.01
Dividend Yield	2.5 %

**Table 1: Vietnam at a Glance (Bloomberg, 2010)**

At the worst period of the Financial Crisis in March 2009, the VN-Index fell to a low of 230 which was traded at 8x PE. Meanwhile, companies keep growing. At the end of 2010, VN-Index is twice as high at 475 and still trades at 9.9x PE, showing that companies have seen health earnings growth in spite of the difficult time. At the present, PE of Vietnam Market is still low comparing to the others in the areas (2010, Sales commentary, Vcsc).



<b>Relative Valuation</b>	<b>PE FY2010</b>
China CSI 300	17.95
China Shanghai A shares	16.50
China HSI	14.68
India Sensex	18.42
Indonesia JCI	17.96
Malaysia FTSE Bursa	16.04
Philippines PSEi	14.90
South Korea Kospi	11.37
Taiwan TaieX	14.76
Thailand SET	14.56
<b>Vietnam VNI</b>	<b>9.98</b>

Table 2: Relative Valuation (Bloomberg, 2010)

#### Sector of Listed Companies:

<b>Sector</b>	<b>Number of companies</b>	<b>Market Capital bil-VND</b>	<b>Foreign Holding</b>
Banking	8	163,982	23,50 %
Consumer Goods	89	119,400	20,50 %
Consumer Services	42	16,922	7,60 %
Financials	94	260,128	17,40 %
Industrials	279	84,597	8,40 %
Information Technology	23	18,125	20,70 %
Materials	76	72,705	14,60 %
Petroleum	4	19,766	22,90 %
Pharmaceuticals	18	8,006	23,20 %
Telecommunications	0	0	0,00 %
Utilities	28	15,540	11,30 %
<b>HOSE</b>	<b>285</b>	<b>641,038</b>	<b>19,70 %</b>
<b>HNX</b>	<b>376</b>	<b>138,133</b>	<b>8,50 %</b>

Table 3: Sector Summary 2011 (Stoxplus)

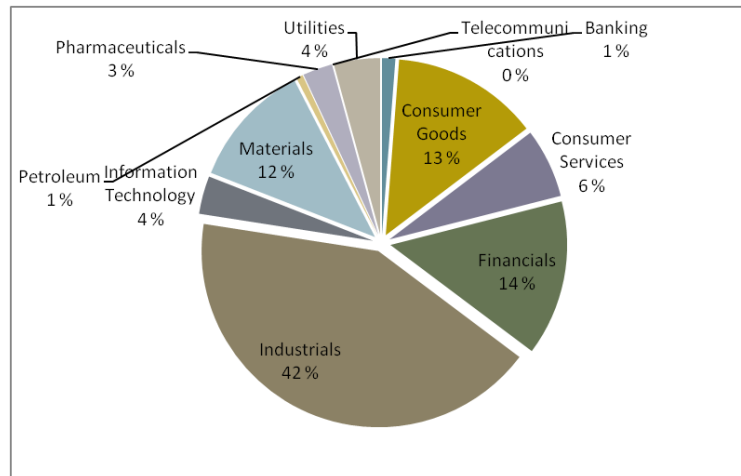


Figure 16: Sector of Listed Companies in % 2011 (Stoxplus)

## 5.2 *The Rights and Duties of the HoChiMinh Stock Exchange*

The HOSE has the major Rights as follows: (web 1)

- Promulgate regulations on listing, trading, information disclosure and trading members after approved by the State Securities Commission;
- Organize, regulate and operate securities trading activities;
- Interrupt, suspend or cancel securities trading activities under the Securities Trading Regulation;
- Approve or cancel listing, inspect and supervise the maintenance of the listing conditions of the listed firms;
- Inspect and supervise the information disclosure of the listed firms and trading members on the exchange;
- Supply market information and others related to listing stocks;
- Adjust the conflicts related to securities trading activities at the members' requests.
- Collect fees under provisions of the Ministry of Finance.

The Duties of the HOSE:

- Guarantee that securities trading activities are made public, fairly lawfully and effectively;
- Comply with statistical standards, financial obligations, accounting and auditing principles by the laws;
- Disclose information on securities trading activities, the listed firms on the exchange, brokerages, fund management companies, securities investment funds or companies, and supervisory information;
- Supply information and co-ordinate the State's Organizations, which have authority to investigate and prevent violations of the Securities Law;
- Co-ordinate to popularize knowledge of securities and securities market;
- Compensate the trading members for losses if any caused by the exchange.

### ***5.3 Public Offering, Listing Requirements, Duty of Listed Company***

The HoChiMinh Stock Exchange and the State Securities Commission of Vietnam (SSC) play a key role in development and implementing Securities commission Laws and regulations to ensure the market is operated in legal, eligibility, safety, information efficiency; Listed firms shall be aware of their responsibilities, and benefits prior to joining the market; to minimize unreasonable risks due to misunderstanding and lack of standards. The State Securities Commission requires many criteria for public offering, listings.

According to the Government's Decree on Securities Market, securities issued to the public shall be informed of both certificates and book-entries. Its issuance to the public shall be denominated in Vietnamese dong (VND). Par value of a share and securities in investment fund unit in the initial public offering shall be VND 10,000 (0.50 USD/unit). To be able to go public and sell stock, a company must fulfill numerous requirements. One of the criteria for an Initial Public Offering (IPO) of shares is the company must have the profitable in the 5 previous years continuously. Furthermore the company must have the feasibility study to utilize the proceeds from the issuance of shares.

As provided by Laws and guiding documents, the criteria for becoming a public listed company are the applicant must be a legal Joint-stock company which has had public offering of shares; the company must have at least 20% of its equity held by more than 100 outside shareholders, excluding the specialist investors. According to Securities Laws, dated June 29<sup>th</sup> 2006, the company must possess a lawfully registered equity of minimum 10 billion VND (0.5 billion USD) which is as market invested capital at the time of filling its application. 10 billion VND is the criteria for listing in Hanoi Securities Trading Center, while 80 billion VND for listing in HoChiMinh Stock Exchange. (It was 5 billion VND, Government's Decree for Nov 28<sup>th</sup>, 2003) (Web 2)

As provided by the new circulars of State Securities Commission no. 14/2007/ND-CP, the criteria for listing have been changing for the purpose of increasing the quality of listed companies. A registered lawfully equity of no less than 30 billion VND (1.5 million USD) and 120 billion VND (6 million USD) for listing in HNX and HOSE consequently is required by law at the present. Finally, the company must have a good financial position and making profit in the last 5 consecutive years before the applying years. All documents, financial statement, including the prospectus of the company must be submitted to the State Securities Commission for approval (web 3).

Duty of listed companies is important for to be existed officially in the market. Listed companies must be accepted for auditing and the auditor certifying the financial statements under the applicable law. Major changes in the corporate capital structure must be reported to the HoChiMinh Stock Exchange or States Securities Commission. The founding shareholders are not allowed to transfer shares without SSC's approval. Major decisions and resolves in the corporate resolves must be approved by corporate general shareholders meeting, annual or extraordinary, on the basis of majority votes. Finally, the company is obligated to make a public announcement of listing within 5 working days before the trading day of its securities on three consecutive issues of a national or local newspaper. The announcement informs about its license granted by the State Securities Commission, trading day, and the place of delivery of its prospectus, stated by Chapter III, Securities listing, Article 28, No. 144/2003/ND-CP.

#### 5.4 An Overview of Market 2006-2010

This part shall give you a better overlook on Vietnamese market. In the period of 2006-2009, Vietnam country has to face up the two sakes. Both are to keep maintain developing of the land's economy on GDP and to control the inflation. The Customer Price Index (CPI) was increasing; especially it has peaked to 19.89 % in 2008. The recent tightening of monetary policy had some impact in cooling the economy, inflation slowed down in 2009 compare to the previous year. However, the inflation average still remains in double digits which hit nearly 12% in December 2010. To control the customer price inflation into single digits, stabilize the macro economics, and to grow the stock market are among the priority goals of the land. So far, the country has not published inflation rate officially (State Statistic Office). To calculate risk free rate  $r(f)$ , I used CPI in percent and average government bond yield in percent. The table below is the summary of CPI, average government bond yield, and risk free rate in percent for the annual of 2006 - 2009.

	2006	2007	2008	2009
<b>Customer Price Index - CPI %</b>	6,56	12,63	19,89	6,52
<b>Average Government Bond Yield %</b>	7,13	7,15	13,25	8,96
<b>Risk Free Rate - <math>r(f)</math> %</b>	14,16	20,68	35,78	16,06

**Table 4: Risk Free Rate 2006-2009**

According to the rankings overview country report, Vietnam's business environment shall improve comparing to the historical period 2005-2009. Political stability shall remain a relative strong point. The country's macroeconomic environment shall improve slightly, but worries persist over the general quality of policymaking. Perhaps the bigger test is whether Vietnam's leadership has the capacity to modernize its management practices and better equip the country to tackle the ebbs and flows of a quick-moving, increasingly globalized economy. To move forward and take a more aggressive stance against country's persistent inflationary problems is a must.

Vietnam's stock market capitalization represented nearly 37% of Gross Domestic Product in 2009. This is a positive sign for the economy and suggests that the stock market still has strong development potentials. In the meantime, The Ministry of Finance has plans to change numbers of securities decrees and circulars to create system of legal documents for

the local stock market in the coming time in hopes of attracting more foreign funds. The changes would help promote liquidity on the market, such as allowing investor to open many transaction accounts, and buy and sell the same stock on the same single session. (Country Report, Economists Intelligence Unit)

## ***5.5 Trading Technicalities***

Below is the summary of the key trading technicalities applicable to Vietnam Stock Market (Vcsc, 2010)

### **5.5.1 Trading Mechanics**

HoChiMinh Stock Exchange (HOSE) announced to apply the adjusted transaction time. In details, the State Securities Commission has lately issued document No.2214/UBCK-PTTT dated July 19, 2010 regulating about changing the transaction time during one trading session. Accordingly, starting from September 13, 2010, the southern bourse will change the length of the order matching period. The first trading session will be shortened to 15 minutes, therefore increasing the continuous order matching phase. The adjustment is expected to help increase the market liquidity during each session, in comparison with the previous ones. The details are described as follows:

**Trading days/Hours:** The market opens from Monday to Friday accepts holidays. The trading in HOSE has four sessions from 8:30-11:00.

- Session 1: 08:30 - 08:45 - (Order Matching Method) for At-The-Opening-order
- Session 2: 08:45 - 10:30 - (Continuous Order Matching)
- Session 3: 10:30 - 10:45 - (Order Matching) for At-The-Closing-order
- Session 4: 10:45 - 11:00 - Put-Through method (PT) or Negotiation method

The trading in HaSTC has one session from 8:30-11:00 where the matching is conducted by Continuous Order Matching and PT Method.

**Size of a round lot:** a round lot is a set of 100 shares for each type of stock for both HoChiMinh and Hanoi Market. In order to increase liquidity for the HOSE market, the date of May 20 2003, 1 round lot in HOSE Market consists of 10 shares. The minimum transaction is 1 round Lot for both markets.

**Normal trading:** Transactions in session 1, 2, 3 follows the Price-Time-Quantity principles (PTQ). Sell and buy orders have been matched automatically by the computer system. The matching criteria was computerized with the priorities matching criteria which follows to (i) best price; (ii) first come, first served; (iii) largest eligible quantity; (iv) individual over institutional. The volume of each order is allowed by not exceeding 20,000 shares. Orders in the period of session 1 and 3 in HOSE Market do not allow canceling. The last matching price of individual stock in HOSE is identified as Closing Price of trading day and becomes a reference price for the next day.

**Trading by Negotiation:** This type of transaction mechanics was primarily devised to deal with a larger blocks of shares. Buying or selling order with the volume 20,000 shares or more must be traded in the session 4. The Put-Through system records and disseminates approved transactions negotiated privately by members with relying on a price mechanism of the Exchange. To be able trade before 10:45, the Investor can break a large block of order into many smaller lots of orders, for that the order will match the trading criteria in normal.

**Rules on buy / sell orders:** It is not allowed to write both Buy and Sell orders for the same stock in a single trading session.

**Daily price limits:**

- **HOSE:**  $\pm 5\%$  of previous day's closing price;  $\pm 20\%$  in case of the 1<sup>st</sup> day of listing.
- **HaSTC:**  $\pm 7\% / \pm 10\%$  of previous day's volume weighed average price. No limit on 1<sup>st</sup> day of listing.

**Matching priority:** All exchanges follow PTQ principle. These rules do not apply to PT transactions.

- (i) Price Priority: Priority to the highest price Bid or the lowest Ask
- (ii) Time priority: for orders at same price, priority to orders that came in first.
- (iii) Quantity priority: for orders at same price and time, priority is given to orders with the highest quantity of shares.

**Settlement:** T+3days; T+1 if transaction is over 100,000 shares.

## Chapter Six: Empirical Analysis and Results

### 6.1 Signaling Effects

I have presented in the chapter methodology that the objective of my research is to indicate that whether the announcement of dividend payment in Vietnam market provides any information to investor. It means I have to figure out if the event of this announcement affects the stock price in the market. To appraise the impact of event, it required a measure of the abnormal return. The observation data was N= 16 listed firms, in which there were 71 announcements. The below presentation described all steps which I have done.

#### 6.1.1 Steps for Analyze

##### Formula 1: Steps for Analyze - Step 1

$$\text{Step 1: } R_{i,t} = \frac{P_{i,t+3} - P_{i,t-3}}{P_{i,t-3}} \quad (1)$$

“The abnormal return was the actual ex-post return of the security over the event window minus the normal return of the firm over the event window. The normal return was defined as the return that would be expected if the event did not take place”(Campbell, Lo, Mackinlay, 1997:151). What I needed to do in this step was to identify ex-post return for each of event window. In step one, the ex-post stock return of each individual stock was computed over the event window of a 6-day period, plus-minus 3days was computed, in which the day of null was the announcement day of dividend payment.

In step two, the requirement was to find risk free rate, market return of each event and beta value. Risk free rate was calculated by CPI and average government bond yield in percent, which was summarized in tables 4. Beta coefficient value was found by running 71 regression tests in which the daily stock return and daily market index return was dependent and independent variables respectively. Market beta for an individual stock for the event was the correlations between the daily stock return and the daily market index return in the normal period. The daily stock return and the daily market index return from the day of (-128) to (-8) were computed base on the daily stock price and daily closing





In step three, the abnormal return was measured by the actual ex-post return of the stock over the event window minus the normal return of the firm over the event window which was presented in the first and second step.

Formula 4: Steps for Analyze - Step 4

<p><b>Step 4: t-test</b></p> $t = \frac{AR}{\left[ \text{Var}(R_{i,t}) - \hat{\beta}_i^2 \text{Var}(R_m) \right]^{\frac{1}{2}}} \quad (6)$
--

In step four, the 16 t-tests of 16 individual firms were tested. The t-test was the regression tests of two variables, the abnormal return and the variance of the abnormal return for the market model. Under null hypothesis the expectation of the abnormal returns is zero. The event-study analysis explained that we can use the  $\hat{\sigma}^2$ , which contains the  $\hat{\beta}$ , as a consistent estimator for testing null hypothesis (Campbell, Lo, MacKinlay, 1997:162).

### 6.1.2 Regression Test

The abnormal return in which the stock price reaction is attributable to a specific event is the difference between the realized rate of return and the expected rate of return. The expected rate of return for each event is determined using the estimates of  $\beta$  in respect of each event as  $E(R_{i,t}) = \hat{\alpha}_i + \hat{\beta}_i * R_{m,t}$ , in which  $\hat{\beta}$  is the estimated market model beta of stock  $i$ , which affects the movement of prices or returns in the market. In order to estimate correctly, I needed to estimate beta value  $\hat{\beta}$ . By estimating the beta value coefficient, I ran 71 regression tests which are based on the CAPM, which I have presented in chapter three. The below is the summary of the results of beta value and the value of the other variables which I have found prior to testing.


## Summary of Results for Beta value of 71 Announcements



No.	Code	Events	Announcement date	Price (T+3)	Price (T-3)	R(i,t) for (-/+3)	R(i,m)	R(i,t)	Beta	R(m) for 121 days	Beta^2
1	BMC	1	13.08.2007	192,754	149,581	0,28863	-0,11331	2,04362	0,65762	-0,11350	0,43247
		2	25.02.2008	136,998	161,441	-0,15141	0,12722	-0,01984	19,57133	-0,09153	383,03691
		3	09.04.2008	76,083	79,307	-0,04065	-0,72704	-0,98321	1,08277	-0,53369	1,17238
		4	11.07.2008	67,379	57,819	0,16534	-0,75862	-1,31065	1,11256	-0,55562	1,23780
		5	23.10.2008	68,737	86,849	-0,20855	-0,28924	0,22042	1,11872	-0,30519	1,25153
2	CII	1	26.01.2007	39,811	40,335	-0,01299	0,81164	0,94955	0,93544	1,23764	0,87506
		2	07.08.2007	36,407	36,407	0,00000	-0,02975	0,05501	1,06247	-0,03310	1,12885
		3	17.01.2008	32,453	33,042	-0,01783	-0,09681	-0,03598	0,82875	-0,10822	0,68682
		4	22.08.2008	22,413	18,457	0,21434	-0,48963	-0,66267	1,03375	-0,98042	1,06864
		5	11.02.2009	14,723	15,459	-0,04761	-0,33219	-1,15544	1,04100	-1,65335	1,08369
3	DHA	1	07.12.2006	27,792	27,792	0,00000	0,17189	0,37311	0,92181	0,16648	0,84974
		2	20.11.2007	36,562	36,943	-0,01031	-0,07877	0,22695	0,87506	-0,07790	0,76574
		3	20.05.2008	11,173	12,397	-0,09873	-0,71090	-1,02801	1,10453	-0,51493	1,21998
		4	05.05.2009	12,696	11,455	0,10834	-0,03890	0,08926	0,96471	-0,09371	0,93067
4	DHG	1	15.10.2007	160,001	147,557	0,08433	0,06483	0,50025	0,80784	0,06951	0,65260
		2	17.04.2008	124,862	119,867	0,04167	-0,68296	-0,18981	1,05898	-0,51217	1,12143
		3	27.10.2008	73,923	81,818	-0,09649	-0,27636	-0,37032	0,73725	-0,23910	0,54354
		4	28.11.2008	86,135	86,859	-0,00834	-0,17037	-0,23516	0,85650	-0,17728	0,73358
5	HAS	1	17.07.2006	13,838	14,667	-0,05652	0,52405	0,64109	0,94481	0,62537	0,89266
		2	23.02.2007	33,419	26,559	0,25829	0,84526	0,60210	0,44451	1,26282	0,19759
		3	07.09.2007	34,731	36,149	-0,03923	-0,21018	-0,12131	1,29188	-0,19786	1,66896
		4	11.03.2008	18,907	19,537	-0,03225	-0,29518	-0,41549	1,01900	-0,25348	1,03836
		5	10.03.2009	8,411	7,246	0,16078	-0,77806	-0,49850	0,90827	-0,56312	0,82496



No.	Code	Events	Announcement date	Price (T+3)	Price (T-3)	R(i,t) for (-/+3)	R(i,m)	R(i,t)	Beta	R(m) for 121 days	Beta^2
6	HMC	1	27.08.2007	29,079	29,152	-0,00250	-0,15620	0,24574	0,96192	-0,14708	0,92528
		2	15.01.2008	29,439	29,439	0,00000	-0,08767	-0,02407	0,84584	-0,08795	0,71544
		3	26.06.2008	16,005	13,781	0,16138	-0,87179	-0,70437	1,04243	-0,60035	1,08665
		4	16.02.2009	8,736	8,736	0,00000	-0,43210	-0,59659	0,95694	-0,35601	0,91573
7	RAL	1	05.10.2007	90,648	88,589	0,02324	0,00242	-0,03734	0,83747	-0,01718	0,70135
		2	25.03.2008	33,657	36,679	-0,08239	-0,34826	-0,52199	0,96239	-0,30719	0,92620
		3	08.08.2008	33,643	32,097	0,04817	-0,53273	-0,46663	1,12148	-0,43394	1,25771
		4	31.03.2009	17,687	15,849	0,11597	-0,50275	-0,70824	0,95689	-0,41316	0,91563
8	SAV	1	19.07.2007	52,173	52,173	0,00000	0,24173	0,47207	0,87897	0,22441	0,77259
		2	15.01.2008	38,684	40,381	-0,04202	-0,08767	-0,12553	0,64856	-0,08795	0,42063
		3	04.02.2009	13,901	12,539	0,10862	-0,33956	-0,06765	0,70868	-0,31116	0,50223
9	SCD	1	03.08.2007	31,806	34,430	-0,07621	-0,04681	0,34817	0,64779	-0,05599	0,41964
		2	05.03.2008	19,726	20,129	-0,02002	-0,22164	-0,29386	0,78913	-0,24417	0,62273
		3	18.09.2008	18,256	18,588	-0,01786	-0,18856	0,04523	0,78160	-0,17741	0,61090
		4	17.02.2009	11,040	12,992	-0,15025	-0,44203	-0,21516	0,63785	-0,38916	0,40685
		5	27.04.2009	12,651	11,813	0,07094	-0,04452	-0,08093	0,63501	-0,08498	0,40324
10	SSC	1	04.01.2007	39,534	38,725	0,02089	0,39894	0,18671	0,72533	0,47281	0,52610
		2	26.06.2007	59,762	60,634	-0,01438	0,37712	0,52833	0,75804	0,40809	0,57462
		3	03.01.2008	55,032	52,831	0,04166	-0,07042	-0,05925	0,72324	-0,08200	0,52308
		4	23.06.2008	25,002	22,777	0,09769	-0,93871	-0,90297	1,13299	-0,61991	1,28367
		5	18.11.2008	17,716	19,442	-0,08878	-0,17006	-0,18713	0,99343	-0,15522	0,98690
		6	16.04.2009	19,608	20,734	-0,05431	-0,17837	0,11139	0,65274	-0,21977	0,42607
11	TMS	1	21.12.2006	41,389	44,624	-0,07249	0,36073	0,36134	0,84884	0,41757	0,72053
		2	31.05.2007	44,789	43,807	0,02242	0,69304	0,18765	0,17246	0,89165	0,02974
		3	21.12.2007	50,616	48,961	0,03380	-0,08771	0,18765	0,63217	-0,09896	0,39964
		4	19.06.2008	28,037	31,507	-0,11013	-0,93377	-0,34887	0,74386	-0,61164	0,55333
		5	19.03.2009	21,638	23,947	-0,09642	-0,60134	-0,21607	0,36694	-0,47931	0,13465



No.	Code	Events	Announcement date	Price (T+3)	Price (T-3)	R(i,t) for (-/+3)	R(i,m)	R(i,t)	Beta	R(m) for 121 days	Beta^2
12	TNA	1	13.07.2006	20,349	20,349	0,00000	0,52239	0,49172	0,51256	0,66282	0,26271
		2	10.01.2007	20,135	19,645	0,02494	0,42843	-0,05831	0,07932	0,50137	0,00629
		3	05.07.2007	30,938	28,495	0,08573	0,37691	0,66818	0,54613	0,40347	0,29825
		4	31.01.2008	26,335	23,514	0,11997	-0,12048	-0,06519	0,80958	-0,09669	0,65543
		5	09.07.2008	12,149	11,415	0,06430	-0,80418	-0,96779	0,99356	-0,57252	0,98717
		6	03.02.2009	10,357	10,949	-0,05407	-0,31338	-0,06167	0,89618	-0,30055	0,80314
13	TTP	1	29.06.2007	59,096	60,469	-0,02271	0,32250	0,09396	0,75182	0,34636	0,56524
		2	08.05.2008	38,112	42,805	-0,10964	-0,72084	-0,66894	0,81402	-0,52386	0,66263
		3	16.09.2008	19,194	20,545	-0,06576	-0,13562	-0,63928	0,82934	-0,12549	0,68781
		4	17.11.2008	16,706	17,140	-0,02532	-0,14849	-0,53769	0,98427	-0,17083	0,96879
		5	23.04.2009	27,140	25,688	0,05652	-0,07171	0,51250	0,99325	-0,11596	0,98655
14	VFC	1	03.04.2007	26,368	28,063	-0,06040	0,77022	0,38898	0,31016	1,11484	0,09620
		2	24.04.2008	22,236	23,126	-0,03848	-0,69006	-0,81816	0,92395	-0,50622	0,85368
		3	30.06.2009	11,117	11,213	-0,00856	0,46751	0,63655	0,79310	0,55982	0,62901
15	VIP	1	13.08.2007	47,134	44,285	0,06433	-0,11331	-0,07932	0,77301	-0,11350	0,59755
		2	15.02.2008	31,630	35,529	-0,10974	-0,10033	-0,23355	1,02457	-0,13733	1,04975
		3	03.03.2009	7,760	7,407	0,04766	-0,73899	-0,61473	1,05542	-0,53516	1,11392
16	VNM	1	17.01.2007	77,325	71,892	0,07557	0,59619	0,71629	1,02587	0,75145	1,05242
		2	14.05.2007	81,421	85,382	-0,04639	0,64015	0,91097	1,18301	0,82875	1,39952
		3	03.04.2008	52,029	48,473	0,07336	-0,68686	-0,46988	1,00258	-0,48709	1,00517
		4	11.08.2008	48,427	46,185	0,04854	-0,55965	-0,22279	0,95306	-0,44768	0,90832

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Table 5: Summary of the Result of 71 Beta Values

## Summary of the Result for the Estimate of the Abnormal Returns and Standard Errors

No.	Code	Events	Announcement date	$E(R(i,t)) = r(f) + \text{Beta} * (R(m) - r(f))$	$AR = R(i,t) - E(R(i,t))$	$VAR(Ri,t)$	$VAR(R(m))$	$(VAR(R(i,t)) - \text{Beta}^2 * (VAR(Rm)))^{0,5}$
1	BMC	1	13.08.2007	-0,00383	0,29245	0,00160	0,00034	0,03813
		2	25.02.2008	-8,43532	8,28391	0,00081	0,00000	0,02833
		3	09.04.2008	-0,60747	0,56682	0,00098	0,00042	0,02210
		4	11.07.2008	-0,65843	0,82377	0,00074	0,00044	0,01412
		5	23.10.2008	-0,38389	0,17534	0,00100	0,00047	0,02043
2	CII	1	26.01.2007	1,17110	-1,18409	0,00075	0,00038	0,02043
		2	07.08.2007	-0,04809	0,04809	0,00104	0,00034	0,02552
		3	17.01.2008	-0,02842	0,01060	0,00034	0,00017	0,01503
		4	22.08.2008	-1,02558	1,23992	0,00063	0,00041	0,01409
		5	11.02.2009	-1,72773	1,68012	0,00116	0,00060	0,02263
3	DHA	1	07.12.2006	0,16453	-0,16453	0,00055	0,00035	0,01566
		2	20.11.2007	-0,04233	0,03202	0,00035	0,00017	0,01471
		3	20.05.2008	-0,60615	0,50742	0,00081	0,00042	0,01714
		4	05.05.2009	-0,08473	0,19307	0,00078	0,00051	0,01746
4	DHG	1	15.10.2007	0,09590	-0,01156	0,00064	0,00025	0,02193
		2	17.04.2008	-0,56348	0,60515	0,00086	0,00043	0,01965
		3	27.10.2008	-0,08228	-0,01421	0,00057	0,00048	0,01773
		4	28.11.2008	-0,10050	0,09216	0,00084	0,00060	0,01998
5	HAS	1	17.07.2006	0,59866	-0,65519	0,00075	0,00044	0,01875
		2	23.02.2007	0,67622	-0,41793	0,00065	0,00037	0,02399
		3	07.09.2007	-0,31599	0,27676	0,00102	0,00029	0,02314
		4	11.03.2008	-0,26509	0,23284	0,00083	0,00031	0,02245
		5	10.03.2009	-0,49673	0,65751	0,00100	0,00057	0,02297

No.	Code	Events	Announcement date	$E(R(i,t)) = r(f) + \text{Beta}^*(R(m) - r(f))$	$AR = R(i,t) - E(R(i,t))$	$VAR(Ri,t)$	$VAR(R(m))$	$(VAR(R(i,t)) - \text{Beta}^2 * (VAR(Rm)))^{0,5}$
6	HMC	1	27.08.2007	-0,13361	0,13110	0,00118	0,00032	0,02962
		2	15.01.2008	-0,01924	0,01924	0,00060	0,00017	0,02201
		3	26.06.2008	-0,64100	0,80238	0,00079	0,00041	0,01833
		4	16.02.2009	-0,33377	0,33377	0,00133	0,00061	0,02773
7	RAL	1	05.10.2007	0,01923	0,00401	0,00045	0,00023	0,01712
		2	25.03.2008	-0,28218	0,19979	0,00077	0,00040	0,02004
		3	08.08.2008	-0,53011	0,57828	0,00078	0,00044	0,01529
		4	31.03.2009	-0,38842	0,50439	0,00102	0,00051	0,02353
8	SAV	1	19.07.2007	0,22228	-0,22228	0,00086	0,00044	0,02270
		2	15.01.2008	0,06869	-0,11072	0,00050	0,00017	0,02062
		3	04.02.2009	-0,17372	0,28234	0,00089	0,00060	0,02414
9	SCD	1	03.08.2007	0,03658	-0,11279	0,00124	0,00035	0,03314
		2	05.03.2008	-0,11725	0,09723	0,00056	0,00030	0,01922
		3	18.09.2008	-0,06053	0,04267	0,00060	0,00034	0,01997
		4	17.02.2009	-0,11867	-0,03158	0,00115	0,00060	0,03012
		5	27.04.2009	0,00467	0,06627	0,00105	0,00051	0,02910
10	SSC	1	04.01.2007	0,39975	-0,37886	0,00052	0,00040	0,01771
		2	26.06.2007	0,35939	-0,37378	0,00096	0,00049	0,02608
		3	03.01.2008	0,03971	0,00195	0,00059	0,00017	0,02237
		4	23.06.2008	-0,74993	0,84761	0,00084	0,00041	0,01776
		5	18.11.2008	-0,15185	0,06307	0,00100	0,00058	0,02065
		6	16.04.2009	-0,08767	0,03336	0,00084	0,00052	0,02479
11	TMS	1	21.12.2006	0,37585	-0,44835	0,00056	0,00036	0,01736
		2	31.05.2007	0,32493	-0,30252	0,00081	0,00056	0,02809
		3	21.12.2007	0,01352	0,02028	0,00042	0,00018	0,01873
		4	19.06.2008	-0,36334	0,25321	0,00067	0,00041	0,02108
		5	19.03.2009	-0,07418	-0,02224	0,00104	0,00056	0,03108

No.	Code	Events	Announcement date	$E(R(i,t)) = r(f) + \text{Beta} * (R(m) - r(f))$	$AR = R(i,t) - E(R(i,t))$	$VAR(Ri,t)$	$VAR(R(m))$	$(VAR(R(i,t)) - \text{Beta}^2 * (VAR(Rm)))^{0,5}$
12	TNA	1	13.07.2006	0,40874	-0,40874	0,00080	0,00044	0,02618
		2	10.01.2007	0,23019	-0,20525	0,00037	0,00040	0,01921
		3	05.07.2007	0,31422	-0,22848	0,00117	0,00045	0,03219
		4	31.01.2008	-0,01016	0,13013	0,00054	0,00022	0,02002
		5	09.07.2008	-0,56653	0,63084	0,00065	0,00043	0,01517
		6	03.02.2009	-0,25267	0,19860	0,00130	0,00061	0,02852
13	TTP	1	29.06.2007	0,31173	-0,33444	0,00091	0,00048	0,02526
		2	08.05.2008	-0,35989	0,25025	0,00083	0,00043	0,02332
		3	16.09.2008	-0,04302	-0,02274	0,00070	0,00033	0,02178
		4	17.11.2008	-0,16251	0,13719	0,00116	0,00057	0,02467
		5	23.04.2009	-0,11409	0,17062	0,00087	0,00052	0,01904
14	VFC	1	03.04.2007	0,48846	-0,54886	0,00078	0,00046	0,02704
		2	24.04.2008	-0,44051	0,40203	0,00092	0,00043	0,02348
		3	30.06.2009	0,47723	-0,48579	0,00110	0,00051	0,02789
15	VIP	1	13.08.2007	-0,04079	0,10512	0,00064	0,00034	0,02096
		2	15.02.2008	-0,14950	0,03976	0,00061	0,00024	0,01903
		3	03.03.2009	-0,57372	0,62138	0,00109	0,00056	0,02152
16	VNM	1	17.01.2007	0,76554	-0,68997	0,00059	0,00040	0,01300
		2	14.05.2007	0,94257	-0,98896	0,00114	0,00055	0,01910
		3	03.04.2008	-0,48927	0,56263	0,00079	0,00044	0,01854
		4	11.08.2008	-0,40987	0,45841	0,00067	0,00043	0,01668

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Table 6: The Estimate of the Abnormal Return and Standard Errors



### 6.1.3 t-Test

#### **Interpretation of R square, Significant F, P-value and t-value**

R square ( $R^2$ ) gives some information about the goodness of fit of a model. In the regression, the coefficient of determination  $R^2$  is a statistical measure of how well the regression line approximates the real data points. It is ranged from 0 to 1. The more the explanatory power for the regression equation is, the more  $R^2$  approaches to 1.

In Anova statistic report, we can read the significance-F of the whole model which is the explanatory power of a regression test. The aim is to be able to reject the null hypothesis, the smaller significance level the better. It must be smaller than 0.10 in the small data observation ( $N < 200$ ), and be smaller than 0.05 in the large data ( $N > 200$ ). Because the numbers of event dates in my study was small, the significance level, the criterion for rejecting the null hypothesis was at about 0.10. The P-value was also bigger than 0.10. Most of the tests showed that the significance F and p-value bigger than 0.10. The less the p-value is, the more the power of the test shall be. The result of the tests which was statistically significant was quite low. There were only two firms, SCD and VFC got the p-value of 0.114 and 0.160, which its significance level belonged to a range of null hypothesis that closed to being rejected.

Although the significance F for the whole model of SCD and VFC was 0.120 and 0.154 which neither was smaller than the significance level of 0.10, I recognized that its R-square 0.609; 0.943 was in the range of a good model. Moreover, the t-value of SCD and VFC, was 2.206 and 3.893 respectively, was bigger than the critical value t-alpha at 5% level of confident interval (Gripsrud, Olsson, Silkoset, 2004:386). Neither, the rest of models indicated the null-hypothesis can be rejected, nor can I find the support for the alternative hypothesis. Please find the details of report in the table 8.

P-value of SCD and VFC was 11.4% and 16% indicated that the probability for the result of these tests was in error or random. The power of these tests (1-p) was found at 88.6% and 84% respectively.

In summary, the data was  $N= 16$ , and I have tested 16 individual tests. During the entire observation, I found that there were only 2 of 16 tests statistically significant at 5% level. In other words, the result provided information that there were two firms amongst 16 firms in which its stock prices were affected around the dividend announcements. Although the probability for finding a “success” in this case was low, it was so difficult to give a conclusion on accepting the null hypothesis that the dividend announcement did not provide any information to the investors in this period. In order to give a conclusion for the hypothesis 1 precisely, some aspects were necessary to consider. Those were a type I error and type II error and the power of the test. To interpret an event study, one needs to know the ability to detect the presence of a non-zero abnormal return. To evaluate the power of the test means to evaluate the ability to reject the null hypothesis for a given level of abnormal return associated with an event. According to the methods of Lo, Campbell, MacKinlay, (1997:168-172) and Pamela (1989:54), the suggestion for a nonparametric test should take place in order to identify the power of the test prior to give a conclusion for rejecting the null hypothesis.

### 6.1.4 Nonparametric Test

The sign test was one of the two common nonparametric tests, which is presented in this section. This test based on the sign of the abnormal return (AR) or cumulative abnormal return (CAR). Pamela 1989 mentioned that the researcher may use the nonparametric tests of the abnormal returns because the assumption of normally distributed of returns may not be enough to confirm the parametric tests.

What I need to do in this nonparametric test is to test whether the positive abnormal return followed to dividend announcement, under the null hypothesis was 0.5. The alternative hypothesis was that there was positive average abnormal returns (AAR) associated with a given event (Lo, Campbell, MacKinlay, 1997:172). The following hypothesis 1A was formulated for a one-side test, followed binomial z statistic.

**H1A:**

**$H_A$  : Probability for there was positive average abnormal returns associated with a given event, was bigger than 0.5.**

$$H_0 : p \leq 0.5 \quad H_A : p > 0.5 \quad \text{Where: } p = \Pr(\overline{AR}_i \geq 0.0)$$

**Formula 5: Nonparametric Test (Lo, Campbell, MacKinlay, 1997:172)**

$$J_3 = \left[ \frac{N^+}{N} - 0.5 \right] * \frac{N^{0.5}}{0.5} \quad , \quad H_0 \text{ can be rejected if } J_3 > \Phi^{-1}(\alpha)$$

The original data was announcements with 71 ARs accordingly, therefore, I used  $\overline{AR}$  instead of AR for this test. Data observation was also N=16, a total number of cases.  $N^+$ , the total number of cases where the  $\overline{AR}$  was positive. This test was focused on the probability of the alternative hypothesis which was bigger 0.5, so that could demonstrate the ability to detect the null hypothesis, and help to increase the power of the test. There were 47 of 71 ARs, which were positive, while 4 of 71 ARs was negative (table 6). The below table was summarized  $\overline{AR}$  for 16 individual firms. 12 of 16  $\overline{AR}$  were positive.

$$J_3 = \left[ \frac{12}{16} - 0.5 \right] * \frac{16^{\frac{1}{2}}}{0.5} = 2 = Z > \text{One-side test } z_{\alpha} = 1.645, \text{ significant level } \alpha = 0.05$$

If the data was tested by the quantity of AR (table 6), the test statistic could be found as followed:

$$J_3 = \left[ \frac{47}{71} - 0.5 \right] * \frac{71^{\frac{1}{2}}}{0.5} = 2.73 = Z > z_{\alpha} = 2.326, \text{ significant level } \alpha = 0.01$$

Based on the above result, the null hypothesis of this nonparametric test was rejected at 5% level and I found the support for the alternative hypothesis that the probability for an event of dividend announcement associated with the positive of average abnormal returns, was bigger than 0.5 (Bjørnstad, Evensmo, Olsson, Søyland, 1997:261).

No	Code	AAR	Positive/Negative AAR
1	BMC	2.02846	+
2	CII	0.35893	+
3	DHA	0.14199	+
4	DHG	0.16788	+
5	HAS	0.01880	+
6	HMC	0.32162	+
7	RAL	0.32162	+
8	SAV	-0.01689	-
9	SCD	0.01236	+
10	SSC	0.03223	+
11	TMS	-0.09992	-
12	TNA	0.01951	+
13	TTP	0.04018	+
14	VFC	-0.21087	-
15	VIP	0.25542	+
16	VNM	-0.16447	-

**Table 7: Summary of Positive and Negative AAR Followed to Dividend Announcement**

### 6.1.5 Type I Error and Type II Error

The basic paradigm for single hypothesis testing is to test a null hypothesis  $H_0$  versus an alternative hypothesis  $H_A$ . For a given rejection region  $K$ , we shall reject  $H_0$ , when  $\mu \in K$  and we accept  $H_0$  when  $\mu \notin K$ . A type I error occurs when  $\mu \in K$  but  $H_0$  is really true; conversely, a type II error occurs when  $\mu \notin K$  but  $H_A$  is really true. In other words, type I error is a “false discovery” and type II error is a “false of non-discovery”.

There were procedures to control the false discovery rate, according to the pioneering works of Benjamini and Hochberg 1995, by estimating rejection region for controlling the proportion of significant results that are in fact type I error. Estimating type I error and type II error required the researcher to construct another new hypothesis on  $H_0$  : “true hypothesis”. However, to conduct and estimate it is out of my range of knowledge. (Benjamini, Hochberg, 1995), (Storey, 2002)

If the null hypothesis is true, to reject the null hypothesis of SCD and VFC and find the support for alternative hypothesis at 5% level of confident interval means that I made type I error because of the “false discovery”. Conversely, if the alternative hypothesis is true, to neither reject the null hypothesis at 5% level and nor find the support for the alternative hypothesis means that I made type II error for the “false of non discovery”.

The result of the t-test for the hypothesis 1 showed that there was an existence of stock prices' reaction around dividend announcement date; however the power of the test was not enough to confirm the alternative hypothesis. Conversely, the result of the nonparametric test demonstrated that the probability of an announcement of dividend payment associated with a positive abnormal return was bigger than 0.5 for the same data observation N=16. To combine these results, it means, therefore, there was a partial support for the alternative hypothesis and the null hypothesis was rejected in the hypothesis 1.

### Summary of the Results for the Regression Tests – Hypothesis 1

No.	Code	R-square	(Anova) Significance F	(Coefficients) P-value	t-value	df	Critical value t( $\alpha$ )	Reject/support
1	BMC	0.035	0.763	0.967	0.044	4	2.132	No
2	CII	0.012	0.863	0.771	0.318	4	2.132	No
3	DHA	0.451	0.329	0.352	-1.203	3	2.353	No
4	DHG	0.003	0.945	0.897	0.147	3	2.353	No
5	HAS	0.280	0.359	0.363	-1.070	4	2.132	No
6	HMC	0.342	0.415	0.312	1.341	3	2.353	No
7	RAL	0.014	0.880	0.893	0.152	3	2.353	No
8	SAV	0.445	0.535	0.533	-0.901	2	2.920	No
<b>9</b>	<b>SCD</b>	<b>0.609</b>	<b>0.120</b>	<b>0.114</b>	<b>2.206</b>	4	<b>2.132</b>	<b>Reject at the 5% level</b>
10	SSC	0.187	0.391	0.385	0.975	5	2.015	No
11	TMS	0.003	0.929	0.818	-0.251	4	2.132	No
12	TNA	0.323	0.240	0.242	1.372	5	2.015	No
13	TTP	0.208	0.440	0.425	0.921	4	2.132	No
<b>14</b>	<b>VFC</b>	<b>0.943</b>	<b>0.154</b>	<b>0.160</b>	<b>3.893</b>	2	<b>2.920</b>	<b>Reject at the 5% level</b>
15	VIP	0.557	0.464	0.486	-1.044	2	2.920	No
16	VNM	0.039	0.802	0.772	-0.332	3	2.353	No

Table 8: Results of the Regression Test for the Hypothesis 1

## 6.2 The Day of the Week Effects

The HoChiMinh Stock Exchange - a representative of Vietnam Stock Market - is chosen as a proxy for this research. In this hypothesis 2, I used 996 daily closing price of Vietnam Index from 03-Jan-2006 to 31-Dec-2009 as the data samples for my statistical testing. The daily change or return was calculated by the Equation:

$$R_t = \left[ \ln \left( \frac{P_t}{P_{t-1}} \right) \right] * 100$$

### Formula 6: Equation of Logarithm Return

Where  $R_t$  is the daily return in the period t;

$P_t$  is the daily closing price of VN-Index at in the current session;

$P_{t-1}$  is the daily closing price of VN-Index for the preceding period.

Ln is natural logarithm

The original definition of daily returns is given by the equation  $R_t = \ln(P_t + D_t) / \ln(P_{t-1}) = E(R_t) + \varepsilon_t$  in the theory of Fama 1980, where  $P_t$  is the current session closing price;  $D_t$  is dividend paid during the period; and  $P_{t-1}$  is the preceding closing price.  $D_t$ , appears on the ex-dividend day, when the reference price is reduced automatically by the exact amount of dividend and this drop is in no relation to actual performance of dividend paying stock.  $\varepsilon_t$  is a serially independent random variable where expected value is zero (Fama, 1980:57).

For testing the hypothesis 2a, I applied t-test for two independent samples (Gripsrud, Olsson, Silkoset, 2004:236). It means to test  $H_0 : \mu_1 = \mu_2$ . The dummy variables 1 and 0 was represented for the two groups that I need to measure, in which 1= the average daily return of the investigated day in percentage (groups 1) and 0= the average daily return of the other weekdays in percentage (groups 2). Thus, 1= Monday return and 0 = the other weekdays return except Monday. The dummy variables were replaced for Monday through Friday respectively. Therefore, 1= Tuesday and 0=the other weekdays return except “Tuesday...etc”, and finally 1= Friday return, and 0=the other weekdays return except

Friday. T-test of the two dependent samples was applied. It means pair of samples was tested individually in order that we can observe its mean return clearly.

### 6.2.1 Descriptive Statistic

Descriptive statistic is used to describe the basic features of the data in the study. Its purpose is to observe the central tendency of the distribution. In the period of 03 Jan 2006 to 31 Dec 2009, the maximum and minimum VN-Index is 1170.67 and 235.5. With the data of 996 daily closing prices (N=996), the average closing price was 608.94 while the median was 522.84 which was lower than the average closing price. The closing price of VN-Index in this period was in a lower score, since data samples of this period were included the period of the financial crisis of 2008 randomly.

		Close_Price	Daily Return
N	Valid	996	996
	Missing	0	0
<b>Mean</b>		<b>608.9372</b>	<b>.0484803</b>
<b>Median</b>		<b>522.8400</b>	<b>.0326323</b>
Std. Deviation		258.98993	2.10032895
Variance		67075.782	4.411
Minimum		235.50	-4.97135
Maximum		1170.67	7.74135

Table 9: Descriptive Statistic of Closing Price and Daily Return, 2006-2009

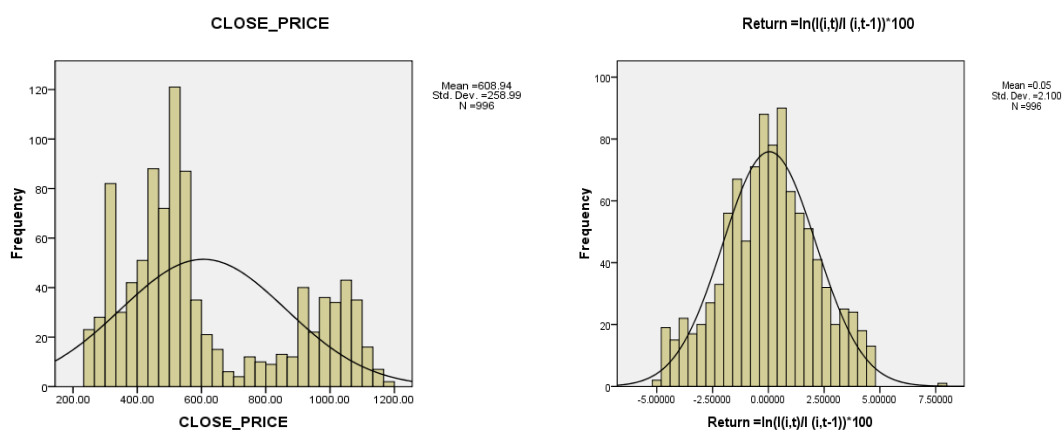


Figure 17: The Closing Price and Daily Return of VN-Index-2006-2009



The result showed that median is smaller than mean. To consider the t-distribution on the figure of close price of Index, I saw that the right tail was longer than the left tail. A distribution that is not symmetric when a tail of the figure towards one end of the distribution than the other, is called 'skewed'. Skewness measures a tilt of the distribution. Skewness characterizes the degree of asymmetry of a distribution around its mean. Observing the figure of Index, we can see that the distribution was skewed to the right or positively skewed. It means that the mass of the distribution of closing price was concentrated on the left of the figure from the central mean. Kurtosis measured the height of the distribution, indicated the extent to which observations cluster around a central point. It characterized the relative peak or flatness of a distribution compared to the normal distribution. Positively kurtosis indicated a relatively peaked distribution. Negatively kurtosis indicated a relatively flat distribution. The distribution is exactly normal when the values for skewness and kurtosis are about 0. This distribution of the closing price was positively skewed and has a value of kurtosis -0.884.

The asymmetry on the figure was not too big to recognize. Mean and median was 0.0485 and 0.0326; minimum and maximum was negative -4.972 and 7.741. If the distribution is symmetric, then the mean equals to median. In this case, the median was smaller than mean, therefore both of the closing price and daily return was not in symmetrical distribution.

The results indicated that the distribution of price was not normal in this period.

<b>Daily Return</b>		Monday	Tuesday	Wednesday	Thursday	Friday
N	Valid	<b>193</b>	<b>200</b>	<b>203</b>	<b>200</b>	<b>200</b>
<b>Mean</b>		<b>-.2548009</b>	<b>.0748638</b>	<b>.0734670</b>	<b>.2993373</b>	<b>.0385445</b>
Median		-.0323295	.0324878	.0450958	.1531258	-.0172077
Std. Deviation		2.23309115	1.97297507	1.95963157	2.01494079	2.28933872
Variance		4.987	3.893	3.840	4.060	5.241
Minimum		-4.97135	-4.79468	-4.73783	-4.79532	-4.69548
Maximum		4.64210	4.50133	4.64164	7.74135	4.64841

Table 10: Daily Average Return for 2006-2009

From 03-Jan-2006 to 31-Dec-2009, total was 996 days, in which 193 days allocated to Monday. There were 203 days of Wednesday. For Tuesday, Thursday and Friday, there were 200 days for each. In the report of daily average return, it showed that Monday had the lowest negatively average return and Friday had the lowest positively return in the week. Average daily return of Tuesday and Wednesday was not different much. It was also found that the highest average daily return was Thursday. The average daily returns was negative -0.2548 percent and 0.2993 percent for Monday and Thursday.

This result may indicate that there existed Monday and Thursday effect in the Vietnam Stock Market during 2006-2009.

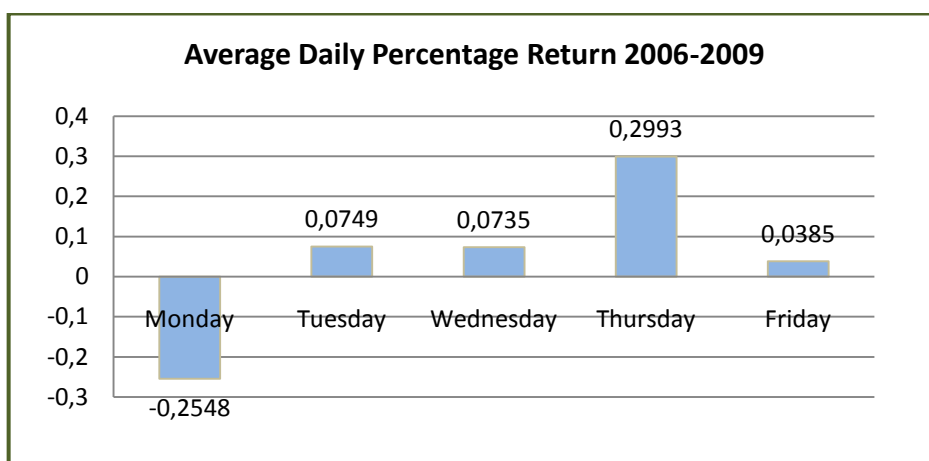


Figure 18: Result of Average Daily Percentage Return 2006-2009

## 6.2.2 t-Test for the Two Independent Samples

### Group Statistics

V1	N	Mean	Std. Deviation	Std. Error Mean	
Return ( Monday ) = LN (I(i,t)/I (i,t-1))*100	1	193	-.2548009	2.23309115	.16074142
	0	803	.1213735	2.06196419	.07276514

V4	N	Mean	Std. Deviation	Std. Error Mean	
Return ( Tuesday ) = LN (I(i,t)/I (i,t-1))*100	1	200	.0748638	1.97297507	.13951041
	0	796	.0418513	2.13226696	.07557620

V7	N	Mean	Std. Deviation	Std. Error Mean	
Return ( Wednesday ) = LN (I(i,t)/I (i,t-1))*100	1	203	.0734670	1.95963157	.13753917
	0	793	.0420839	2.13598738	.07585114

V10	N	Mean	Std. Deviation	Std. Error Mean	
Return ( Thursday ) =LN (I(i,t)/I (i,t-1))*100	1	200	.2993373	2.01494079	.14247783
	0	796	-.0145491	2.11780098	.07506347

V13	N	Mean	Std. Deviation	Std. Error Mean	
Return ( Friday )= LN (I(i,t)/I (i,t-1))*100	1	200	.0385445	2.28933872	.16188069
	0	796	.0509767	2.05163742	.07271836

Table 11: Group Statistic Report - Hypothesis 1a

In the group statistic reported above, day for observation was N=996, in which the sample of Monday was 193 and the other days of the week was 793. And the sample of Thursday was 200 and the other days of week were 796. We saw that the average of Monday (group 1) was negative -0.2548 percent compared to the other weekdays (group 0) 0.1214 percent. Also the average of Thursday (group 1) and the other weekdays (group 0) was 0.2993 and -0.0145. The question is about the difference between -0.2548 and 0.1214 or the difference between 0.2993 and -0.0145 was big enough for that we can rely on them, or this difference was caused randomly.

For the test of Monday-the other weekdays, I found that the average return for Monday was lower than the average return of the other weekdays. The average return difference among these two groups was -0.3762. While the average return for Thursday was higher than the average return of the other days in the week. Its average difference was 0.3139.

With the degree of freedom of 994, the observed test, t-value was -2.239. In the table of t-distribution, by the range of 2.5% (with two-tailed) significant level and a degree of freedom exceeding 100, we had a critical value at 1.960. In the statistic report, the observed test t-value, - 2.239 was smaller than t-alpha, -1.960. And for the test of Thursday, t-value was 1.892 and the critical value was 1.645 based on the range 5% significant level and the degree of freedom of 994. The rest of the report showed that the tests were not statistically so significant that we can rely on. Further, sig.-two tailed or the p-value for the Monday-the other weekdays test was 0.025 and Thursday-other days test was 0.059. P-value provided us more information about the statistical result that the probabilities to be error or the probabilities for the result was in random were 0.025 and 0.059 respectively. The percentage for random or error probabilities were in the acceptable range, this means we can rely on this result.

For the other groups of Tuesday/Wednesday/Friday - the other days, the statistical report showed that the p-value was not in the significant level, and also the absolute t-value was not bigger than t-alpha value. For those groups, therefore I did not find any support for the hypothesis. Please find the details in the statistic report of independent samples t-tests which were summarized in the table 13.

In summary, I found that there was a difference in returns between groups in the week, the average return on Monday/Thursday and the other days of the week. The average return of Monday was lower than the average return of the other days, while the average return of Thursday was higher than the average return of the other days in the week. Therefore, the hypothesis 2a was rejected and found the support for the alternative hypothesis that the average return of Monday was not equal to the average return of the other days in the week.

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Return ( Monday ) = LN (I(i,t)/I (i,t-1))*100	Equal variances assumed	5.442	.020	-2.239	994	.025	-.37617441	.16803775	-.70592388	-.04642495
	Equal variances not assumed			-2.132	275.979	.034	-.37617441	.17644424	-.72352201	-.02882682

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Return (Thursday ) = LN (I(i,t)/I (i,t-1))*100	Equal variances assumed	2.646	.104	1.892	994	.059	.31388647	.16591411	-.01169565	.63946859
	Equal variances not assumed			1.949	318.656	.052	.31388647	.16104178	-.00295301	.63072595

Table 12: Independent Samples Test-Monday/Thursday and the Other Days of the Week

### Summary of the Results for Independent Samples t-test- Hypothesis 2a

Weekday	Mean Difference	p-value	df	t-value	Critical-value t( $\alpha$ )	Reject/ Support
Monday Other days	-0.3762	0.025	994	-2.239	1.960	Reject
Tuesday Other days	0.0330	0.843	994	0.199	1.960	No
Wednesday Other days	0.0314	0.190	994	0.849	1.960	No
Thursday Other days	0.3139	0.059	994	1.892	1.645	Reject at 5% level
Friday Other days	-0.0124	0.940	994	-0.075	1.960	No

Table 13: Results of the Hypothesis 2a-Test of Weekdays and the Other Days Return

### 6.2.3 t-Test of the Two Dependent Samples

So far, I have run the two independent t-test samples in hypothesis 2a. For testing the hypothesis 2b, I applied t-test of the two dependent samples. The data samples for Monday was N= 193 and for Tuesday/Wednesday/Thursday was N= 200. One should apply the t-test of the two dependent samples when they would like to test the two populations against each other, to estimate whether there is any difference among them. Here I tested on the average return of each day of the week against to each of the other days. It means I tested  $H_0 : \mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5$  , where  $\mu_1, \mu_2, \dots, \mu_5$  was the average return of Monday, Tuesday,... through Friday respectively. The pair of samples for the two tailed test was tested individually in order that we can observe its individual mean return clearly (Gripsrud, Olsson, Silkoset, 2004:239).

Pairs of Samples	N	Mean	Mean
Monday - Tuesday	193	-0.2548	0.0609
Monday - Wednesday	193		0.0351
<b>Monday - Thursday</b>	<b>193</b>		<b>0.2820</b>
Monday - Friday	193		0.0172
Tuesday -Wednesday	200	0.0749	0.0729
Tuesday -Thursday	200		0.2993
Tuesday - Friday	200		0.0385
Wednesday - Thursday	200	0.0729	0.2993
Wednesday - Friday	200		0.0385
Thursday - Friday	200	0.2993	0.0385

Table 14: Summary of the Results of Paired Samples Statistic

The table of paired samples test above showed that the average of return of the pairs of Monday-Thursday was in negative -0.2548 and positive 0.2820. The days which had the average return almost remained unchanged was Tuesday and Wednesday. This result was estimated for both Monday and Thursday with N= 193. The result was the same as the

previous test, the lowest return fell on Monday, and the highest return fell on Thursday. The mean difference among Monday-Thursday was highest, -0.5368. Observing the statistical report (table 15), we can find the pairs of correlations sig. 0.07 for Monday and Thursday which showed that statistical result for this pairs samples was not random. Next, the sig. two tailed or p-value of a paired samples test, Monday-Thursday was 0.009 which was in significant level. With the degree of freedom of 192, I can find all the critical t-alpha values. The t-value was negative -2.643, which was  $<$  t-alpha value of -1.960. This result met the criteria to reject the null hypothesis when and only when  $|t| > t_{\alpha}$ .

Follow up to the summary report in table 15 below, the result of the pairs of samples of trading days, Monday-Thursday was statistically significant, while the other pairs of samples as Monday-Tuesday; Monday-Wednesday; Monday-Friday; and Thursday-Friday were not in significant level. The p-value of them was 0.143; 0.191; 0.191; 0.181 respectively. Comparing the t-value and critical value of t-alpha, only the null hypothesis was able to reject at 10% level. The rest of the results of paired samples tests were not statistically significant.

In summary, the results from the estimations above are supportive of day of the week effect, where a pair of trading day, Monday-Thursday was statistically significant. It means that the null hypothesis was rejected. We can find the support for the alternative hypothesis that average return of Monday shall not be equal to the average return of Tuesday, Wednesday, Thursday, and Friday. Please find the report pair samples t-tests in the table 16.



**Paired Samples Test**

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 1	Return (Monday)=LN (I(i,t)/I (i,t-1))*100 - Return (Tuesday ) =LN (I(i,t)/I (i,t-1))*100	-.31573347	2.98438117	.21482046	-.73944459	.10797764	-1.470	192	.143
Pair 2	Return (Monday)=LN (I(i,t)/I (i,t-1))*100 - Return (Wednesday ) =LN (I(i,t)/I (i,t-1))*100	-.28992969	3.06760510	.22081105	-.72545662	.14559725	-1.313	192	.191
Pair 3	Return (Monday)=LN (I(i,t)/I (i,t-1))*100 - Return (Thursday ) =LN (I(i,t)/I (i,t-1))*100	-.53678918	2.82192063	.20312629	-.93743476	-.13614359	-2.643	192	.009
Pair 4	Return (Monday)=LN (I(i,t)/I (i,t-1))*100 - Return (Friday ) =LN (I(i,t)/I (i,t-1))*100	-.27196579	2.88183541	.20743905	-.68111785	.13718627	-1.311	192	.191

**Paired Samples Correlations**

		N	Correlation	Sig.
Pair 1	Return (Monday)=LN (I(i,t)/I (i,t-1))*100 & Return (Tuesday ) =LN (I(i,t)/I (i,t-1))*100	193	.009	.897
Pair 2	Return (Monday )=LN (r(i,t)/r (i,t-1))*100 & Return (Wednesday ) =LN (I(i,t)/I (i,t-1))*100	193	-.050	.490
Pair 3	Return (Monday)=LN (I(i,t)/I (i,t-1))*100 & Return (Thursday ) =LN (r(i,t)/r (i,t-1))*100	193	.131	.070
Pair 4	Return (Monday)=LN (I(i,t)/I (i,t-1))*100 & Return (Friday ) =LN (I(i,t)/I (i,t-1))*100	193	.194	.007

Table 15: Paired Samples Test and Paired Samples Correlations

### Summary of the Results for Paired Samples t-test – Hypothesis 2b

Pairs of Trading days	Correlation (Sig.)	Mean Difference	df	P-value	t-value	Critical value t( $\alpha$ )	Reject/Support
Monday - Tuesday	0.897	-0.3157	192	0.143	-1.470	1.282	Reject at 10% level
Monday - Wednesday	0.490	-0.2899	192	0.191	-1.313	1.282	Reject at 10% level
<b>Monday - Thursday</b>	<b>0.070</b>	<b>-0.5368</b>	192	<b>0.009</b>	<b>-2.643</b>	<b>1.960</b>	<b>Reject</b>
Monday - Friday	0.007	-0.2720	192	0.191	-1.311	1.282	Reject at 10% level
Tuesday -Wednesday	0.222	0.0020	199	0.992	0.010	1.960	No
Tuesday -Thursday	0.358	-0.2245	199	0.277	-1.091	1.960	No
Tuesday - Friday	0.439	0.0363	199	0.861	0.175	1.960	No
Wednesday - Thursday	0.860	-0.2264	199	0.261	-1.128	1.960	No
Wednesday - Friday	0.070	0.0343	199	0.864	0.172	1.960	No
Thursday - Friday	0.007	0.2608	199	0.181	1.342	1.282	Reject at 10% level

Table 16: Summary of the Results for Hypothesis 2b-Pairs of Samples Test

### ***6.3 Summary of the Study***

The limit of my study is to find out whether the announcement of dividend payment provided information to the market by answering for the question if the event of dividend payment impacts on the stock prices. Also, to answer for the question whether the stock prices in this market do follow random was a focus of my research.

The findings may be interpreted in several ways; the results are in line with the existence of abnormal return for SCD and VFC. However, the result of event study model t-test was low; the power of the t-test was not strong. Within N=16 firms, it was found only 2 firms that was statistically significant. The binominal z-test indicated that the probability for an event associated with the positive average abnormal returns, was statistically significant, and was bigger than 0.5. With the expectation of the alternative hypothesis is true, I may conclude that in the period of 2006-2009, the announcement of dividend payment did provide partial information to the investors.

The empirical results may indicate that the announcement had partly significant impact on the stock price of the firms, and those results supported some aspects of signaling theory that the firms may use signaling of dividend payment as good news to attract the investors. The results showed that it still had probability for increasing stock price around the announcements. Basing on this point, we saw that there were some investors in this market who have been interested in dividends. The evidence of the existence of the day of the week effect demonstrated that the stock price in this market was not random. There was also a pattern in the movement of stock price in this market. In other words, the market was not completely efficient. I may say that the Vietnam market was in weak form.

Another interesting point is that in the Vietnam market, the average highest return was Thursday instead of Friday which existed mostly in the stock market while the lowest return was Monday, the same as mostly markets. There was a difference in returns between groups in the week, the average return on Monday/Thursday and the other days of the week. The average return of Monday was lower than the average return of the other days, while the average return of Thursday was higher than the average return of the other days in the week. Series of return on VN-Index for the day of the week effect were tested.

If there is no day of the week effect then the average return would be the same. The results in table 12 and 15 indicated that there was an effect of weekday in Vietnam market, namely the Monday was found negatively lowest and Thursday was positively highest average return. The null hypothesis that there was no difference between the returns was rejected, and I found an evidence of the average return of each day of the week was different. Based on the characteristics of the market, my understanding was that the market could provide a possibility for arbitrage.

My presentation on the hypotheses in this study again was concluded as follows:

**H1:**

**$H_0$  : Dividend announcements do not provide information to the Vietnam stock market, *i.e.* there is no stock price reaction on the announcement day.**

The power of t-test of event study model for the Hypothesis 1 was low. It was hard to infer a conclusion that there was no support at all for the hypothesis that the announcements had an impact on the stock price of the firms, without going with another probability binominal z-test H1A. The result of H1A was statistically significant. It means, therefore, to get a partial support for the Hypothesis 1, and reject  $H_0$  there was no stock price reaction on the announcement day.

**H1A:**

**$H_A$  : Probability for there was positive average abnormal returns associated with a given event, was bigger than 0.5.**

**H2:**

**$H_0$  : Stock prices in Vietnam stock market do follow random walk.**

Hypothesis 2 was tested by the t-test for two independent and dependent samples. The results indicated that the market had the day of the week effect, negatively lowest return on Monday and positively highest returns on Thursday. There was a pattern in the movement of stock price. The movement of prices in this market was not completely unpredictable. I found support for the alternative hypothesis, and rejected the null hypothesis.

## **Chapter Seven: Conclusion**

As the abnormal returns have been observed to be asymmetric distribution (Fama, Fisher, Jensen, Roll, 1969), the value which was different to zero should be considered for the unexpected return. A slightly difference in returns was found and the probability for the positive average abnormal returns associated with the given events was bigger than 0.5. The combination of results in the t-test and z-test indicated that announcements of dividend payment affected the stock prices of firms. The announcements about dividend payment attracted the individuals and investors slightly in this period. Therefore the results provided small evidence against the theory of efficient market in weak form instead of against the theory under semi-strong form, which was stated that all the publicly available information is presumed to be reflected in stock's prices.

In addition, I have presented in the previous part, the ideas of a random walk in the theory of efficient market that it is not possible to predict the future's prices. In other words, prices seem to follow a random walk, the successive changes in value are independent or there are no patterns for share price changes (Bryaley, Myers, 1996:324). The results concerned to this theory indicated that the distribution of prices in this market was not symmetric or normal. It implied that there was also a possibility for arbitrage in this market. The evidence of the day of week effect provided us information that the prices were not completely unpredictable. In Vietnam market the returns of Monday and Thursday had tendency to be negatively lowest and positively highest respectively. While, the most common case is Monday and Friday, in which the average return of Monday is significantly lower than that of the other days and the average return of Friday is significantly higher than that of the other days.

The statistical results were against the theory of efficient market in weak form. It means the assumption that the stock price followed a random is the basic of the weak efficient market hypothesis was rejected. This evidence indicated that there was a pattern in price changes. I may say that there was a possibility for arbitrage in this market. Based on the results of the above statistic reports, I may conclude that the stock prices in Vietnam market did not follow random and the market was not efficient in weak form for the last period, from Jan 03, 2006 to Dec 31, 2009.

## ***7.1 Practice Implications***

Since the announcement of dividend payment slightly provided information to investors, the stock price was affected around the dividend announcement. Although the abnormal return of stock prices was not strong, individuals can also seize chance for arbitrage. In addition, the tests provided information that in the period of 2006-2009, the expected stock market return from Friday to Monday tends to be decreasing and be negative in average return. This result probably caused by the mass of distribution of information at the end of the week tends to be unfavorable. This also means that the release of unfavorable information to the market can be postponed until Friday afternoon in case of the firms want to reduce effect of bad news, or to avoid a panic selling from the investors. In order to increase the effect of bad or good news, the firms may also exploit this characteristic of the market to release a mass of unfavorable information at the end of the week or release favorable information by middle of the week intentionally. Individuals or investors can base on the characteristics of this market to seize opportunities for trading.

Based on this information, the simple trading strategy for the investors to purchase the stock in Vietnam market on Monday and sell on Thursday afternoon seems to be effective, particularly for a transaction  $T+1$ . In general, an individual who would like to buy the stock can delay the purchase planned for Thursday or Friday until Monday. For the one who would like to sell the stock, can seize the opportunity to execute sales scheduled for preceding Thursday and re-purchase on Monday, can sell in the session 1 or in the early of session 2 (by 8:30 to 8:50 a.m.) and cover it back by the end of the transaction day (by 10:30 to 11:00 a.m.)

Besides holding a portfolio of stock which has a good fundamental value for the purpose of mid-term or long term investment, individuals or investors can choose high volatile stocks that its prices used to be more affected by information for the purpose of arbitrages.

## **7.2 Further Studies**

In my study, I found partial support for the announcement of dividend payment impacted on the stock price of the firms. There was small evidence that events on dividend payments provided information to the investors. The statistic result provided information that the theory of signaling hypothesis has also applied to this market. To use the good news as a signal to attract and make influence to investors' decision on investment, the results opened for a probability for this theory can be applied further in this market.

To achieve a strongest effect or a best result by using announcements may be challenging for the firms. As we have noted that the distribution of daily returns in the market was not symmetry. The characteristic of the negatively lowest returns on Monday and positively highest returns on Thursday of the market can be exploited to release the information to investors. In order to get a maximum impact of announcements to investors, a further question on when the information should be released to the market for that the event of good news or bad news can bring a strongest effect.

To observe and estimate the abnormal returns by studying on the effectiveness of announcements or information-bad news or good news-which was released to the market on early Monday or Thursday respectively and on the other days of the week may a further interesting. In Vietnam market, dividend was paid in cash, stock, or both. My research is focused on the announcements of cash dividend payment. Thus, another question that may also be interesting is amongst these two types of dividend payments, which one the investors in this market was attracted most. Sample size played a role in the statistical testing, a requirement of a large sample size is essential. This is, therefore, the observation for the next period 2009 to 2015 and a comparison between the Vietnam Stock Exchange and Hanoi Trading Center are recommended.

Next, it is useful to test season effect, monthly effect, and size effect of stock prices which was extended to the theory of market efficiency anomalies, which has not done in this study. A depth study for this theory which is against the theory of market efficiency can also demonstrate us a clearer picture on the prices movement in the future for this market.

## **Chapter Eight: Research Evaluation**

The aim of this chapter is to present the reliability and validity of the research.

### ***8.1 Reliability***

The reliability is concerned with the consistency of a measure. It concerns to the internal consistency and the measure's consistency over time. It may be understood that the reliability of the test may be evaluated in case of there is a big difference in results between the first and the second test.

In this study, the index data of Vietnam Stock Exchange and daily market price of shares were supplied by the two reputation securities firms, the relevant data as CPI was provided by Vietnam Statistic Office. This is, therefore, the source of data is reliable to measure. However, errors might occur during the process of measurement such as errors in computing numerical data, mistyping. In addition, the reliability also concerns to the sample size of the test.

The objective of the hypothesis 1 is focused on the impact of the announcement of dividend payment and stock prices. Data was 71 announcement dates of 16 listed firms which had paid the cash dividend for the period of 2006-2009. The probability for a bias, therefore, could be possible since the data was included the event of financial crisis in 2008. Also, the sample size for the hypothesis 1 was small. These two aspects may affect the result of the test. The reliability of the test was possibly reduced.

For the hypothesis 2, the sample size was big. Data N=996 daily observations for the 4 years period 2006-2009 and the measuring process was simple. Therefore, I believe the result of the hypothesis 2 is reliable.

In order to identify reliability, the suggestion is to test-retest data. It means one can re-test data or testing for another period to measure its consistency over time. Thus, it is open as an alternative for a junior master student to re-test this study, in order to be able to re-evaluate the reliability.



## 8.2 *Validity*

One of the important challenges for the researcher is to ensure the evidence, results which was collected is valid and reliable. Validity is often assessed along with reliability, the extent to which a measurement gives consistent results. While reliability of a measure extent to which the measurement process is free from Random Error, a measure must be reliable in order for it to be valid. Validity concerns to measurement process are free from Random Error and Systematic Error.

“Internal validity was defined as the degree of validity of statements made about whether x causes by y”(Demenyi, Willams, Money, Swartz, 1998:180). At the beginning of the research, I followed all necessary tactics, steps and methods for researching. The research questions and problems have been identified; this type of research required a positivistic approach involving the analysis of large quantities of stock market data. The weak point in this research was the time constraints. It took more time for data collecting and solving process than I had counted since it needed to be done carefully to avoid mistakes.

On other hand, “External validity is concerned with knowing whether the researcher’s findings are generalizable to a wider universe..” (Demenyi, Willams, Money, Swartz, 1998:180). The research questions on efficient market and signaling hypothesis have been done by many pioneers, researchers for many years in different countries. Their studies have devoted theories and application to the universal. My work is focused on apply these theories and methods for the land’s market. A part of the statistic results on historical information shall provide you an aspect of the question, also possibility perspective on Vietnam Stock Exchange.

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## Attachments