

**EVENT STUDY ON THE SIGNALING MODEL FROM CHINESE  
CAPITAL MARKET**

By

**SIDIAN LI**

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Dr. Visit Phunnarungsi Chairperson

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Dr. Veeranuch Leelalai, Committee Member

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Dr. Asst.Prof. Dr Nopphon Tangjitprom, Advisor

Date of Defense February 20, 2018

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**Event Study on the Signaling Model from Chinese Capital Market**

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**Student Name:** Ms. Sidian Li  
**ID:** 5729620

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I confirm that this independent study has been carried out under my supervision and it represents the original work of the candidate.

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Asst.Prof. Dr Nopphon Tangjitprom, Advisor

Date:

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February, 2018

## **Abstract**

This study aims to test whether the information can be transmitted by distribution cash dividends. The data of Shanghai Composite Index and Shenzhen Composite Index from the Yahoo Finance were collected during January 2014 to November 2016 daily closing price to test the cumulated average abnormal return by event study method, including average abnormal return, t-test, p-value test. The results from these test indicate that there are no significant of abnormal returns after announcement day by distribution cash dividend, and the result is not supports the signaling theory in this research.

The finding of this research is attributed to investors to make more sensible investment and also is helpful for policymakers to regulate the stock market.

**Keywords:** event study, cumulated average abnormal return, cash dividend, signaling theory, Chinese stock market.

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# CHAPTER I

## GENERALITIES OF THE STUDY

### 1.1 Background of the Study

In mature capital markets, the listed company's dividend policies generally can be divided into four dividend payment methods, there are cash dividend, stock dividend, liability dividend and property dividend, in which the use of cash dividend is the most common method.

After fifty years of development, the dividend policy changed the traditional theory to the modern theory. To this day, the economic community has not formed a unified view on dividend theory.

With the development of China's stock market, dividend theory has become a hot topic in Chinese economics. But unlike the mature stock markets, the results are inconsistent when studying the signaling role of dividend policy in China's capital market.

The dividend payment methods in Chinese stock market: Stock dividend, cash dividend and property dividend. After more than 10 years of development, Chinese stock market has begun to take shape. By the end of April, 2017 the total market values of two stock markets of Shenzhen and Shanghai reached 5 billion 868 million yuan with the total number of listed companies of 3,186. The cash dividend distribution of listed companies has been received attention, just like any other rising stock markets in the world, Chinese stock market also has some defects, such as imperfect legal system, instability government policy and nonstandard action, which led to speculations in the market.

Because of the long-term existence of the problems listed above, whether there is consistency of investor's investment view and dividend policy to deliver information is the main research.

However, China's current stock market, information asymmetry is serious

phenomenon. Due to the difficulty of investor knowledge and experience compared to the company's management in deficiencies, grasp the information and analyze information, provides an opportunity for the company to give false information. Especially, some companies with relatively poor economic benefits are prefer to disclose untrue information, which will lead to more companies with relatively high economic benefits to increase the cost of information in order to gain the favor of investors.

In 2000, the listed companies in China without dividend payment become even more common. At that time this situation has seriously aroused the dissatisfaction of investors and the concern of regulators. If do not deal with this problem, the rights of shareholders cannot be guaranteed, investors will reduce confidence in the capital market, the long-term stability of the company's future development is also unfavorable. In October 2008, the China Securities Regulatory Commission issued relevant policies, not only to encourage listed companies to establish long-term dividend measure, but also guide listed companies to increase cash dividends.<sup>1</sup>

Since the China Securities Regulatory Commission promulgated the relevant policies in 2008, more and more listed companies have chosen the dividend policy with cash dividend as the distribution method, management pays more attention to transmitting corporate information to investors through the company's dividend policy. In this context, whether the dividend policy of Chinese listed companies has the effect of signaling and how to discipline the dividend policy of listed companies has gradually become one of the focuses of Chinese experts and scholars.

As a result of the distribution of the Chinese dividend policy of listed companies on profit after tax, therefore, Chinese dividend policy is not a single, some companies have mixed dividend policy. That means concurrent payment stock dividend and cash dividend. It involves the listed company itself, shareholders, creditors, government and many other interest subjects. The establishment of a reasonable and effective

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<sup>1</sup> "In the "Guide the articles of association of listed companies (2006 Revision)" an increase of 155th, as the second paragraph: "note: the company shall specify the cash dividend policy in the articles of association, the profit distribution policy should maintain the continuity and stability."

dividend distribution policy is beneficial to the sustained and stable development of the company itself, and will maximize the interests of the shareholders, reduce the losses of creditors and promote the healthy development of Chinese stock market.

However, the dividend policy of Chinese listed companies is characterized by short-term, discontinuity and instability. The current situation of dividend policy will have an adverse effect on shareholders, creditors, government, the listed company itself and the securities market. Therefore, in view of the present situation of Chinese listed companies, we need to explore the cause of dividend policy, which combined with their own situation, formulate a reasonable policy, put forward reasonable suggestions, so that the dividend policy of listed companies to get the real standard and perfect

## **1.2 Statement of the Problem**

The developed capital market has proved that dividend policy has the function of signaling, but in China, a social market economy with Chinese characteristics, especially in the study of dividend payment, there is a great deal of disagreement about whether the dividend has the signaling, therefore, this study focuses on whether cash dividend policy has the role of signal transmission.

## **1.3 Research Objectives**

- ◆ Whether the cash dividend can transmit the information to the investors.
- ◆ Whether the listed companies increase the cash dividend per share can lead to the cumulative abnormal return increase.
- ◆ Whether listed companies reduce the cash dividend per share can lead to the cumulative abnormal return decrease.

## **1.4 Research Questions**

In this study, through the empirical study of cash dividend distribution of Top 100 listed companies in Shanghai Stock Exchange and Shenzhen Stock Exchange in 2017, we discuss whether the dividend policy of Chinese listed companies has the effect of signaling.

### **1.5 Scope of the Research**

This study based on the signaling theory of cash dividends, employing event study methodology to test whether cash dividend policy has the role of signal transmission.

The data of Shanghai Composite Index and Shenzhen Composite Index from the Yahoo Finance were collected during January 2014 to August 2016.

### **1.6 Limitations of the Research**

There are some limitations to this study.

Firstly, the Chinese stock markets trade Class A shares and Class B shares market separately. The difference between Class A shares and Class B shares: Class A shares are denominated in Renminbi and only for Chinese citizens; Class B shares are traded in US dollars or Hong Kong dollars for foreign investors. These two markets are effective segments of the market and can be studied separately (David Bailey, 1994)

Secondly, we chose CSI 100 index (Top 100 listed companies in Shanghai stock market and Shenzhen stock market) but not all data are used, and the lack of data will lead to an increase in the error of the results.

Therefore, the results of this study have some limitations. But the results can still inspire managers and investors alike.

### **1.7 Significance of the Study**

To study the listed companies on the signal theory, in order to promote the company's reasonable dividend policy, and to help investors to correctly view the dividend policy information.

- 1) For company managers, is it possible to send information about the company's business status and prospects through dividend payments to investors in the company? This study will empirically analyze the impact of the dividend policy issued on the company itself through a variety of direct or indirect factors. So as to provide some guidance for the rational dividend policy of listed companies.
- 2) For investors, the results of the study can help investors to understand the intentions of listed companies through the dividend policy issued by listed companies, and provide suggestions for the future development of company.

## **1.8 Definition of Terms**

**Dividend-** Dividend refers to the part of the retained earnings of listed company distributed to the shareholders. Dividends are the part of proceed of the shareholder's investment in the company (the other is capital gains) and is the return of the capital investment.

The current common dividend distributions are: cash dividends, stock dividends, debt dividends: property dividends. Among them, cash dividends and stock dividends are the most common forms of dividend distribution.

The dividend policy refers to the listed company's policy on whether to pay dividends to shareholders, how much dividends distribute to shareholders and when to distribute dividends. (Keim, 1985)

**Liability dividend-** When a company short of cash, they usually paid dividend with a type of debt, such as a bond. (Cheng, 1980)

**Property dividend-** An alternative to cash or stock dividend. A property

dividend can either include share of a subsidiary company or physical assets such as inventories that the company holds. The dividend is recorded at the market value of the asset provided. (Akhigbe, Madura, 1993)

**Cash dividend-** A share in the profit of a publicly-traded company or another investment vehicle that is distributed to each shareholder in cash in proportion to the percentage of ownership in the company each shareholder has. Cash dividends contrasts with automatic dividend reinvestment, whereby companies and investment vehicles enter into agreements with shareholders to automatically buy more shares with dividends. They also differ from dividends that are paid in the form of stocks or bonds. Companies tend to pay more in cash dividends when they do not wish to reinvest profits into expanded operations. (Jensen, 1978)

**Stock dividend-** A dividend that is paid in stock or bonds rather than cash. A stock dividend may be declared when the company is cash poor and cannot afford a dividend otherwise. They are generally not considered desirable because one must pay capital gains tax on stock dividends, even though there is no cash gain for the shareholder. It is also called a scrip dividend. See also: Payment-in-kind bond. (Foster, Vickrey, 1978)

**CSI index-** CSI 100 consists of the largest 100 stocks in CSI 300. CSI 100 aims to comprehensively reflect the price fluctuation and performance of the large and influential companies in Shanghai and Shenzhen securities market. CSI 100 Total Return Index (CSI 100 TRI) reflect returns due to both price changes and dividend income, whereas the price index CSI 100 reflect only the price movements of the underlying shares. (Li, Chen, 2006)

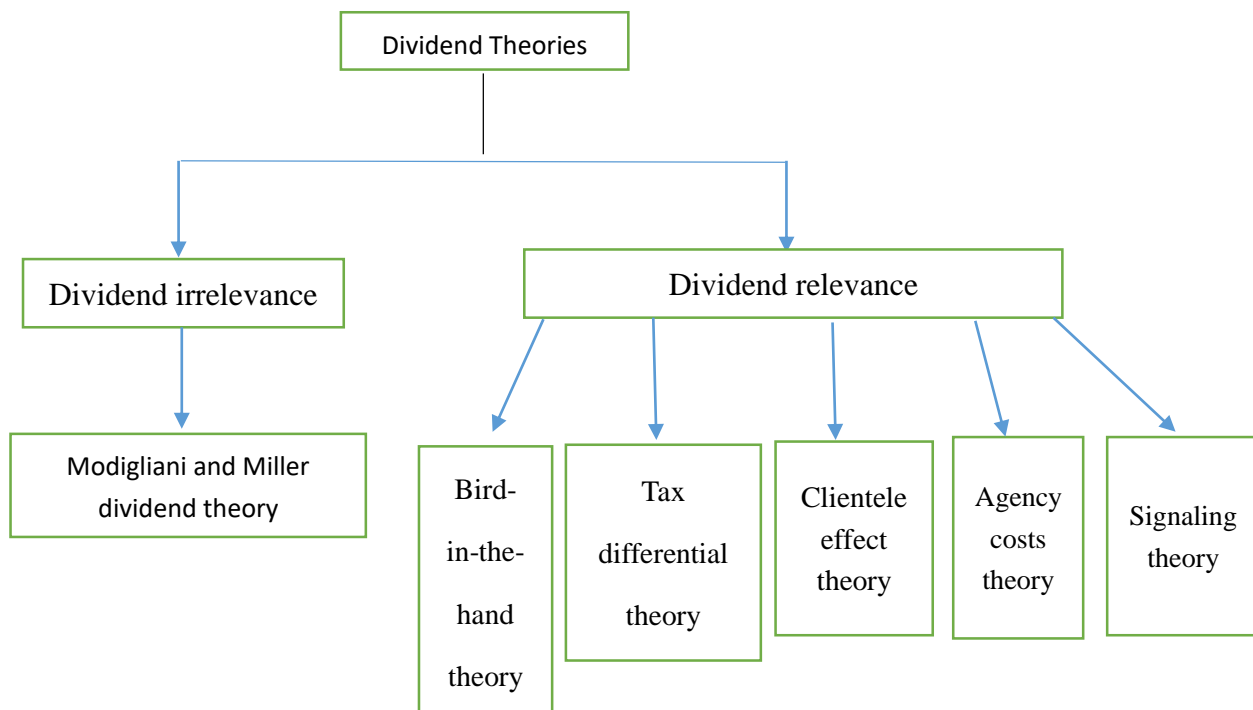
**CHAPTER II**  
**REVIEW OF RELATED LITERATURE AND STUDY**

The objective of this chapter is to review the related literature and studies related to dividend policy. The first part explains the definitions of dividend and dividend policy. The second part reviews the literature related to dividend theories. And the last part reviews the signaling theory and some empirical studies on signaling theory.

**2.1 Theoretical Review**

The most important issue of dividend policy is how to realize the balance relationship between profit distribution and retained earnings under the premise of maximizing the value of enterprise. On the question of whether the enterprise value is affected by dividend policy, there are two main types of dividend theories, there are dividend irrelevance and dividend relevance. As shown in Figure 1.1

**Figure1.1 Structure of dividend theory**



### 2.1.1 Dividend Irrelevance

The dividend irrelevance policy was proposed by Modigliani and Miller (1961) for the first time, that they argued that the dividend policy would not affect the value of the firm. They thought the value of this firm is determined by the profitability of this firm instead of the decision on the dividend policy of this firm.

There are four main hypothesis of dividend irrelevance theory:

1) Perfect capital market: For future investment opportunities, investor and managers have the same information, and all shareholders can grasp the accurate information of the company.

2) Rational behavior: There is no personal tax or corporate income tax, for investors, regardless of the receipt of dividends or capital gains are undifferentiated.

3) Perfect certainty: There is no any fee of stock issuance and trading.

4) Complete contracting possibilities: The Company's investment policy is independent of its dividend policy.

Dividend irrelevance policy consider that:

1) Investors do not care about distributed dividend.

If the company retains more profits and use to reinvest which leads to the stock price increase, even at that time the dividends is lower but the investors who need cash can sell the stock they hold. And if the company distributed more dividends, the investors can buy more stocks in order to expand the scale of investment. That means investors have no preference for dividends and capital gains.

2) The dividend payment ratio does not affect the value of the company.

In this case investors do not care about distribution of dividend, the value of the firm is entirely determined by its investment policy and its profitability. The firm distributed dividend or retain all earnings does not affect the value of the firm.

To sum up, investors will not pay attention to the dividend payment, the company's investment ability and profitability can completely determine the value of the company.



The distribution of the company's earnings between dividends and retained earnings does not affect the value of the company, even after the company has distribution a high dividend, it has the opportunity, the company can raise capital by issuing new shares, because investors know and agree about the investment decisions of the company.

### **2.1.2 Bird-in-the-hand Theory**

This theory is proposed by Gordon (1961) and the name of the theory from the proverb “A Bird in the hand is worth than two in the Bush.” This theory considers that the enterprise has many uncertain factors in the management process, shareholders believe that realistic cash dividends are more reliable than future capital gains and would prefer dividend gains. Therefore, the capital gains like the birds in the forest, although it looks a lot, but not necessarily caught, but cash dividends are like the bird in the hand, when the shareholders can grasp and have the real income on time. To this end, investors are more willing to buy a lot of high dividend stocks, thus result in stock prices increase. According to the "bird in the hand" theory reflects the choice of income and risk preferences, shareholders prefer cash dividends rather than capital gains, tend to choose stocks that paid high dividends. When the firm increase dividend payout ratio, the less revenue risk to the shareholders,

This shows that the dividend policy will have an impact on the value of shareholders, and "one bird in the hand" theory is emphasized in order to achieve the goal of maximizing the value of shareholders, companies should implement a high dividend payout ratio of dividend policy.

### **2.1.3 Tax Differential Theory**

The tax differential theory is proposed by Litzenberger and Ramaswamy (1979). The theory assumes that there is no tax on the dividend policy, but cash dividends and capital gains tax are not only present in reality, but also show differences. In general,

the cash dividend income tax rate is higher than the capital gains tax rate, therefore, the theory holds that it is better for investors to retain earnings rather than pay dividends, or that shareholders who pay taxes on these two incomes tend to choose capital gains rather than cash dividends. In addition, the capital gains tax is deferred until the stock is actually sold (that is, when any capital gains are realized), taking into account the time value of the currency, this tax extension offers another benefit to capital gains.

Sometimes, investors can also completely avoid paying capital gains tax, such as donate securities which has appreciated to charity. Thus, payout dividends stock firms should provide a higher expected pre-tax rate of return than do not pay dividends stock firms in order to compensate the tax liability to shareholders for the loss of value.

#### **2.1.4 Clientele Effect Theory**

Clientele effect theory was first proposed by Modigliani and Miller (1961). This theory is the expansion of tax differential theory. Clientele effect theory to study the differences attitudes in distribution dividend among investors at different tax levels. They consider that investors are not only prefer on capital gain and dividends, even the investors, because of their different levels of marginal tax rate, the preference for corporate dividend policy is also different.

The difference in the marginal tax rate of investors leads to differences in attitudes towards of dividend policy. Investors with high marginal tax rates will choose stocks with a low dividend payout ratio, and investors with low marginal tax rates will choose stock with high dividend payout ratio There investors choose their selection based on themselves marginal tax rate is called the “Clientele effect theory”.

Therefore, the clientele effect theory thought that when the company in the formulation or adjustment of dividend policy should not neglect the shareholders of the demand for dividend policy; the company should have kinds of dividend policies based on different investors; for low-income groups and risk aversion investors,

because of their low tax burden and preference for cash dividends, they want the company to pay more cash dividends, so the company should implement a high cash dividend ratio of dividend policy; for high-income groups and risk-preferred investors, because they have a high tax burden and prefer capital growth, they want the company to pay less cash dividends due to the appropriate tax avoidance of capital gains, the company should implement a low cash dividend ratio, even does not pay cash dividends.

### **2.1.5 Agency Costs Theory**

Agency Costs are defined by Jensen and Meckling (1976). The shareholders, creditors, managers, and many other shareholders in the enterprise do not have the same goal, when a group pursuit of biggest interest may damage others' interest. These conflicts of interest are reflected in the different forms of agency costs in the process of dividend distribution decisions.

The main conflicts of interest are:

#### 1) Shareholders and creditors

Corporate shareholders are making investment and financing decisions, it is possible to increase the risk of creditors in order to increase themselves' wealth, such as shareholders pay dividends instead of invest in net present value project. When there is agency conflict between shareholders and creditors, creditors in order to protect their own interests hope that enterprises to take low dividend payout rate, through retained income and pay low dividends to prevent difficulties in debt payments from beginning.

#### 2) Managers and shareholders

When the company has more free cash flow, the managers of the company probably invest low-return project rather than high-return project in order for

themselves profit like extra allowances. Therefore, high dividend payout ratio in favor of reduced free cash flow agency costs due to the interest's conflict with managers and shareholders. With high distribution dividends and low retained profits not only in favor of reduce the agency costs due to at managers' disposal free cash flow, but also in favor of meet the dividend gains of shareholders.

### 3) Controlling shareholders and common shareholders

One of the salient features of the firm structure is that all control is concentrated in the one or a few major shareholders (controlling shareholders). The controlling shareholders in order to hold the controlling power lead to conflict with common shareholders. It makes dividend policy remarkable. In investment with the perfect legal system country, the clashed between controlling shareholders and common shareholders are not serious. Effectively reducing the agency costs of major shareholders and encourage companies to implement a more reasonable dividend policy.

#### **2.1.6 Signaling Theory**

Signaling theory was first proposed by Ross and Leland (1977) which is one of the main theories of the nature of dividend policy, which holds that dividend can signal corporation's future earnings level to investors effectively.

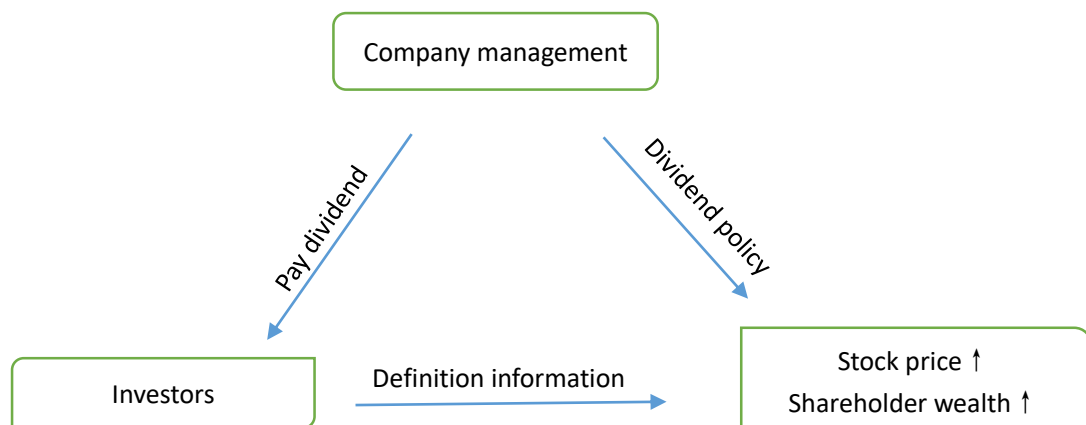
According to signaling theory, there is information asymmetry between the managers and investors. Therefore, the dividend can convey the company's future profitability of the information, so the dividend on the stock price has a certain impact: When the company's dividend payment level rises, the company's share price will rise; when the company dividend payment level decline, the company's share price will decline.

In general, the more relevant information can effectively improve the professional and correctness of decision. Due to the different conditions such as social

division of labor and principal-agent relationship, the economic status of the economic agents are unequal, and the economic agents decision of the economic entities are based on the information they have, it makes the economic agents have the need to collect information. Because existence of information costs, and have different level of get information, this determines the existence of information asymmetry phenomenon. That is, in the course of the transaction between the two sides have different information. Asymmetry of information caused by the distortion of the market allocation of resources, also known as adverse selection. The dividend signal mainly studies the problem of adverse selection.

When the price cannot fully reflect all the information when there is information asymmetry, the company may convey the corresponding information to the market by adjusting the dividend policy. As shown in Figure 1.2

**Figure1.2 signaling theory**



Dividend policy becomes an effective information transmission medium, which must be based on the authenticity of accounting information, especially dividend information.

- 1) The information issued by the company must be true.
- 2) The cost of sending a signal needs to be high enough so that the success of the company's signal cannot be easily mimicked by non-successful companies

- 3) The signals sent by the company must be related to observable events, such as higher dividend payments, often accompanied by more net cash inflows
- 4) The signal transmission method is the lowest cost. There is no lower way than signal transmission.

## **2.2 Literature Review**

The mature stock market has verified the signaling theory of dividend policy. However, scholars got the results are not consistent of signaling theory in Chinese stock market.

### **2.2.1 Previous Studies in Chinese Stock Market**

Many scholars have studied the dividend signaling theory of Chinese stock market.

Research shows that cash dividend signaling theory has no significant or no signal transmission:

Chen, Chen, Ni (1998) chose the companies listed before 1998 in Shanghai and Shenzhen stock markets as samples of study, and samples were selected, of which 86 listed companies paid dividends for the first time used the cumulative abnormal return method to study if the cash dividend, stock dividend and mixed dividend deliver the information to investors. The results showed both cash dividend, stock dividend and mixed dividend can lead to positive excess earnings in the first payment of dividend. But the significant level of cash dividend was lower than stock dividend and mixed dividend in this study.

Chen and Yao (2000) collected 403 samples from the Shanghai stock market between 1998 and 1999 used cumulative abnormal return method find

signal transmission effects of stock dividend is more significant than cash dividend. The conclusion of the research is that because Chinese stock market is underdeveloped, the payment of cash dividends lacks continuity and stability, and investor's lack rational thinking. Thus lead to the role of cash dividend is undervalued, the role of signal transmission is insignificant.

Li and Shen (2001), chose the companies listed before 1994 in Shanghai and Shenzhen stock markets as samples of study, the data from 1995 to 1998 which paid dividend, used sign test and regression analysis to test the relationship among cash dividend changes, current profits and future earnings change symbols. The results showed that cash dividend has the function of information transfer, dividend change is positively related to stock price changes, and is related to the company's current profits. However, there was no evidence that changes in dividends can convey information about the company's future earnings.

Tang and Cai (2002), collected all listed company in Shanghai and Shenzhen stock markets until end of 2000, through multiple stepwise regression analysis and logistic regression model to study the factors of Chinese listed companies dividend policy. The results showed that dividend per share is positively related to earnings per share, but it cannot prove the significance of cash dividends

Kong and Yu (2003), collected 183 stocks in Shanghai and Shenzhen stock markets the sample size in this study is 400. Used the cumulative abnormal return method to test if cash dividend and stock dividend can transmit of information by distribution dividend. The results show that the signal transmission of cash dividend is lower than that of stock dividend, and the cash dividend policy cannot transmit the company's future earnings information.

Xu and Bao (2005), chose 264 listed companies in Shanghai stock market during 2000 to 2005, used the cumulative abnormal return method. The results is cash dividend policy cannot transmit the company's future earnings information. Although the dividend distribution of listed companies has a certain relationship with the earnings per share of the company in the same year, but through the symbol test, there is no relationship between cash dividend changes and the future earnings of the company.

Xie (2005), studied the signaling theory of cash dividends in Chinese pharmaceutical listed companies. Collected the pharmaceutical listed companies in Shanghai and Shenzhen stock markets as sample, used cumulative abnormal return method. The results showed that there is a significant negative correlation between cash dividends and excess returns of listed companies in the pharmaceutical industry, and the market is not responsive to the cash dividend of the pharmaceutical industry.

Peng and Kong (2006), collected the listed companies in Shanghai stock market only distribution cash dividend and not distribution dividend in 2003 as samples. To use cumulative abnormal return method to research, the results showed that Chinese investors do not care in whether the company will distribute dividends and how much the amount is allocated. It means that the transfer of the signaling of dividend policy is very limited.

Research shows that cash dividends signaling theory has significant:

Zhang and Han (1997) collected 350 dividend distributed with Shanghai stock market listed companies during 1992 to 1996, studied and compared its cumulative excess return and had concluded that cash dividend are more significant than stock dividend.



Wei (1998), researched 124 listed companies in 1994. The announcement date stock price as 0, before and after 5 trading days [-5, 5] this interval as the period to calculate average excess return. The results showed that the excess return of listed companies with cash dividends is significantly high than that of not distribution companies; if the listed company explains the allocation plan in detail, the excess return rate is higher

Li (1999), assumed that dividend level of listed companies with the current year profit level; the change of price depends on the dividend; the change of dividend policy and the change of future profits that can transmit information through dividend.

Wei (2000), researched 644 listed companies in Shanghai and Shenzhen stock markets from 1992 to 1997, used regression analysis to study. The results showed that the rational investors would like to learn more about the company dividend policy. And then adjust the profitability of the company's expectations.

Xu and Zhang (2007), collected listed companies in Shanghai and Shenzhen stock markets from 1997 to 2004 and used cumulative excess return method had concluded that listed companies can send certain information to the market through dividend policy, and 25% of the cash dividend changes are positively related to the cumulative excess earnings and current profits.

Jia, Wen, Dong (2010), collected Chinese automobile industry as the research samples, selected 43 issued a cash dividend announcement of listed companies in 2008, used event study method and the results: Chinese automobile industry listed company's cash dividend has the function of signal transfer.

### **2.2.2 Previous Studies in Other Stock Markets**

The signaling theory was first proposed by Lintner (1956), which is the classical study of dividend policy. He interviewed the representative company managers at that time, one of the basic findings of the interview is that most managers try to maintain a stable and normal dividend policy. Lintner believed that unexpected changes in dividends should be expected to cause unexpected fluctuations in share of stock price.

Pettit (1972), was the earliest scholar who proposed that dividends can transmit information. He believed that the cause of the financial statements disclosed by the company are historical information, a clear profit expectation will bring great pressure to the company. Therefore, dividend policy has become a tool for companies to convey invisible profit information to investors.

Charest (1978), collected all dividend changes for a set of 625 New York Stock Exchange listed companies from 1947 to 1968, used cumulative abnormal return method to study. It was found that changes in cash dividends can transmit the companies' information.

Michael, Thaler, Womack (1990), collected all New York Stock Exchange listed companies from 1964 to 1988, used excess return calculations method to get the results that the nature of dividend signals is more important than changes in dividends. Because they believed that the nature of the signal: the increase or decrease of dividends, the signal is good news or bad news, is to determine a message or to make the message more obscure, is the key to changes in stock prices.

Jame A Brickley (1983), collected 165 companies listed on the New York stock exchange distribution special dividend (extra and year-end dividend) from 1969 to 1979 as the data, compared the dividends differences before and after the dividend announcement proved that special dividends can produce significant abnormal returns, and supports the theory of signaling.

Konstantins and Nikolopoulosl (2011), employed a sample of 991 dividend announcements of United Kingdom listed at the London Stock Exchange from 2006 to 2010, used cumulative abnormal return method. The results found that dividends can transmit positive information during economic prosperity and stability, but in the economic downturn, signaling is less significant.

## **CHAPTER III**

### **RESEARCH METHODOLOGY**

The chapter consist of two sections, the first sections is the illustration of the event study and data use, the second sections is the explanation of the methodology of this study.

#### **3.1 Sample Selection**

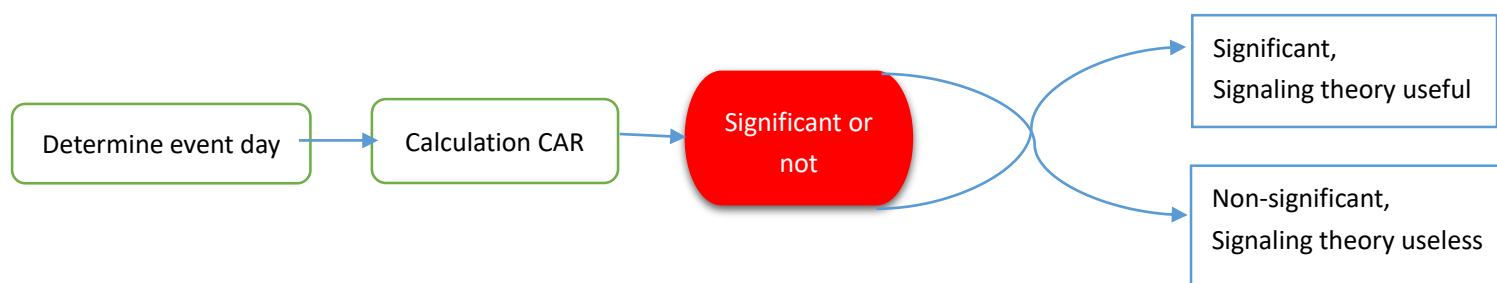
This study selects Top 100 listed companies in Shenzhen and Shanghai stock markets from 2014 to 2016 as the basis of dividend distribution policy since listing, chooses the cash dividend payment event, calculate the average daily rate of return before and after the dividend announcement date, and show the impact of cash dividends on the stock price.

To ensure that the results of the study are comparable, we will consider several aspects of the selection of sample data: only chooses the effects of cash dividends; remove the year in which distribution dividend more than once a year; do not take into account the year of abnormal market volatility.

The cash dividend of China's Top 100 companies is a single sample event, to test if it can bring in abnormal returns, and we can infer whether the Chinese Top 100 companies though distribution cash dividend can carry the messages of company to the market or not.

The checking procedure is shown in the figure:

**Figure2. Checking procedure**



First of all, determine the event day. In this study we take the announcement day as 0 and the 3 days before and after (-3, 3) this interval as the period of abnormal returns in the market. Therefore, in this study, before and after the announcement of the 3 trading days (including the announcement, if the announcement to suspend trading in the shares, was postpone 1 day).

Second, use the abnormal return (AR) to calculate the average abnormal return (AAR). Finally use the CAR model to calculate the cumulative abnormal return (CAR).

Finally, use the T-test to test the results of CAR. If the results are significant, that means the signaling theory in this study are useful. If the results are non-significant, that means the signaling theory in this study are useless.

### **3.2 Research Hypothesis**

Because of the asymmetric information in China's capital market, investors' understanding of information is different, who have sufficient information are often in a favorable position, while who have less information are at a disadvantage. It will be adverse selection<sup>2</sup> means that one party is not fully aware of the other side of the

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<sup>2</sup> It is proposed by George Akerlof (1970), The Market for Lemons.

transaction, and the parties are in an unequal position. Accordingly the hypothesis of this study is as follows:

*H<sub>1</sub>: The change of cash dividend can lead to the change of cumulative abnormal return before and after the dividend announcement, and can transmit the signal.*

*H<sub>2</sub>: When the listed companies increase the cash dividend per share, the cumulative abnormal return will increase.*

*H<sub>3</sub>: When the listed companies reduce the cash dividend per share, the cumulative abnormal return will decrease.*

### **3.3 Event Window**

Generally, the stock price of listed companies will fluctuate in a certain period after the dividend announcement.

If we want to truly reflect the cumulative abnormal return of stock price changes, we should not consider only the changes in stock prices during the announcement period. Therefore, in this study, the dividend announcement date was chosen as the day when the dividend distribution scheme was published in the China Securities journal. The changes in stock prices during this period are largely influenced by the company's dividend distribution. In consideration of the current information disclosure of China's capital market is not standardized and the speed of information dissemination, we take the announcement day as 0 and the 3 days before and after (-3, 3) this interval as the period of abnormal returns in the market. Therefore, in this study, before and after the announcement of the 3 trading days (including the announcement, if the announcement to suspend trading in the shares, was postpone 1 day) the closing price as the effects of this announcement on stock price.

Although only selected 3 days before and after the transaction data the accuracy of the analysis results may be affected, however if chooses longer selection period, the results probably be influenced by contingencies and macroeconomic factors on the company's stock price.

### 3.4 Abnormal Return Calculation

The Cumulative Abnormal Return method is the actual daily rate of return in the period of announcement (3 days before and after the announcement), which is compared with the expected normal daily rate of return and normal daily rate of return in the announcement period, according to the balance to determine whether there is abnormal returns, and to determine whether the cash dividend policy has a signal transmission role, and affect the wealth of the company's shareholders.

If abnormal returns exist, it shows that dividend announcements have signaling effects. Otherwise, it indicates that the market has no response to the dividend announcement.

So, before we calculated Cumulative Abnormal Return, we should calculated abnormal return.

According to Stocks return= normal return + abnormal return, and we selected 30 day average dividend announcement before the rate of normal rate of return:

Abnormal return= actual return – normal return

The Cumulative Abnormal Return is the accumulation of excess earnings during the sample study period.

The formal of daily return is

$$r_{it} = \frac{(p_{it} - p_{i,t-1})}{p_{i,t-1}} \quad (1)$$

Where,

$r_{it}$  is stock i earnings on trading day t

$p_{it}$  is the close price on trading day t

$p_{i,t-1}$  is the close price on trading day t-1

Then according to Stocks return= normal return + abnormal return, calculated the normal return  $E(r_{it})$ .

We can calculate abnormal return:  $AR=r_{it}-E(r_{it})$ . For each sample population, the average abnormal return (AAR):

$$ARR_t = \frac{1}{n} \sum_{i=1}^{it} AR_{it} \quad (2)$$

n is the total number of samples for each classification sample.

In order to reflect the whole process of affecting stock prices before and after the announcement, to measure the market reaction, the cumulative abnormal return (CAR) should be calculated:

$$CAR_t = \sum_{t=k}^t AAR_t \quad (3)$$

Where,

k is start day and t is expiry day.

We also test is performed to determine the statistical significance of the AARs and CARs.

$$t_{(AAR)} = \frac{AAR_t}{\sigma_{AAR} / \sqrt{n}} \quad (4)$$

(5)



$$t_{(CAR)} = \frac{CAR_{it}}{\sigma_{AAR} / \sqrt{d}}$$

Where,

$t_{(AAR)}$  is the t-test statistic of AAR

$t_{(CAR)}$  is the t-test statistic of CAR

$\sigma_{AAR}$  is the estimated standard deviation

n is the number of day in the sample

d is the total number of days for which CAR is calculated

## CHAPTER IV

### PRESENTATION AND CRITICAL DISCUSSION OF RESULTS

This chapter illustrates the descriptive statistics and empirical results. The first section cross the even study and p-value to examine whether the singling theory useful. The second section shows the hypotheses testing.

#### 4.1 Descriptive Statistics

Table 4.1 shows the number of firms, mean, median, minimum, maximum and standard deviation of stock return for event period of three years.

In the event period of 2014, total number of firms are 41. Increase the payout ratio companies in this year are 23 and reduce payout ratio companies are 18. The mean stock return of increase companies (0.11 percent) are higher than stock return decrease companies (0.03 percent). But the stock return decrease companies (0.07 percent) median are higher than stock return increase companies (0.05 percent). The interval of increase payout ratio is from -0.303 percent to 0.614 percent, and the interval of decrease payout ratio is from -0.338 percent to 0.360 percent.

In the event period of 2015, the total number of firms are same to in the event period of 2014 (41 companies), 25 of them are increase payout ratio companies and 16 of them are decrease payout ratio companies. The interval of increase payout ratio is from -1.436 percent to 1.378 percent when the average of stock return increase payout ratio is 0.165 percent. And the interval of decrease payout ratio companies are from 1.455 percent to 1.556 percent when the average of decrease payout ratio is 0.098 percent. On median, increase payout ratio and decrease payout ratio are 0.126 percent and 0.11 percent.

In the event period of 2016, it is a good year. In that year, total 46 companies pay cash dividend. And the number of increase payout ratio (26)

is most than other years. The increase payout ratio has a mean of -0.035 percent where the range of that is from -0.672 percent to 0.999 percent. And the decrease payout ratio has a mean of -0.498 percent where the range of that is from -0.245 percent to 0.371 percent.

Table 4.1 Summa of Stock Return in Event Window

Year	Payout ratio	Number of firms	Mean	Median	Min	Max	Std.
2014	Increase	23	0.0011221	0.00052268	-0.0030386	0.0061489	0.002228
	Decrease	18	0.0003204	0.00071255	-0.0033813	0.0036074	0.0019543
2015	Increase	25	0.0016553	0.00126783	-0.0143644	0.013708	0.0081223
	Decrease	16	0.0009831	0.00110912	-0.0145585	0.0155616	0.0065549
2016	Increase	26	-0.000353	-0.0001779	-0.0067246	0.0099983	0.0036857
	Decrease	20	-7.07E-05	-0.0004983	-0.0024587	0.0037133	0.0019713

## 4.2 Event Study and Abnormal Returns

The results of the average abnormal return (AAR) and cumulative abnormal return (CAR) from the dividend announcement shows in Table 4.2.

From the Table2 the dividend announcement produces -0.0495% AAR on the event date. On the first day rises to +0.0092%, and second day decreases to -0.0066%, but on the third day increases sharply to +0.3353%.

Compared before the event day previous three days, the announcement produces -0.0021% on the third day before the event day and increases to +0.0270% on the second day before the event day. Although the first day before the event day decreases to +0.0102%.

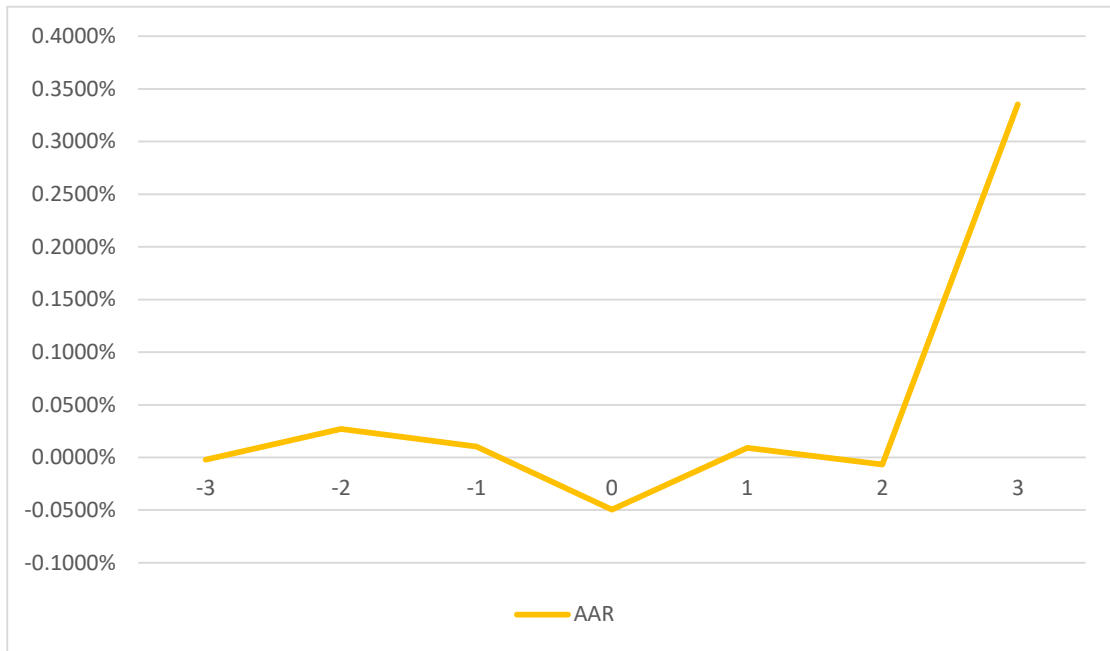
**Table 4.2** AAR and CAR from Dividend Announcement

Day 0 is the dividend announcement day. Day -3 to -1 is the period before the announcement day. Day 1 to 3 is the period after the announcement day. P-values significantly form zero at a significance level of 10%, 5% and 1% are marked \*, \*\*, and \*\*\* respectively.

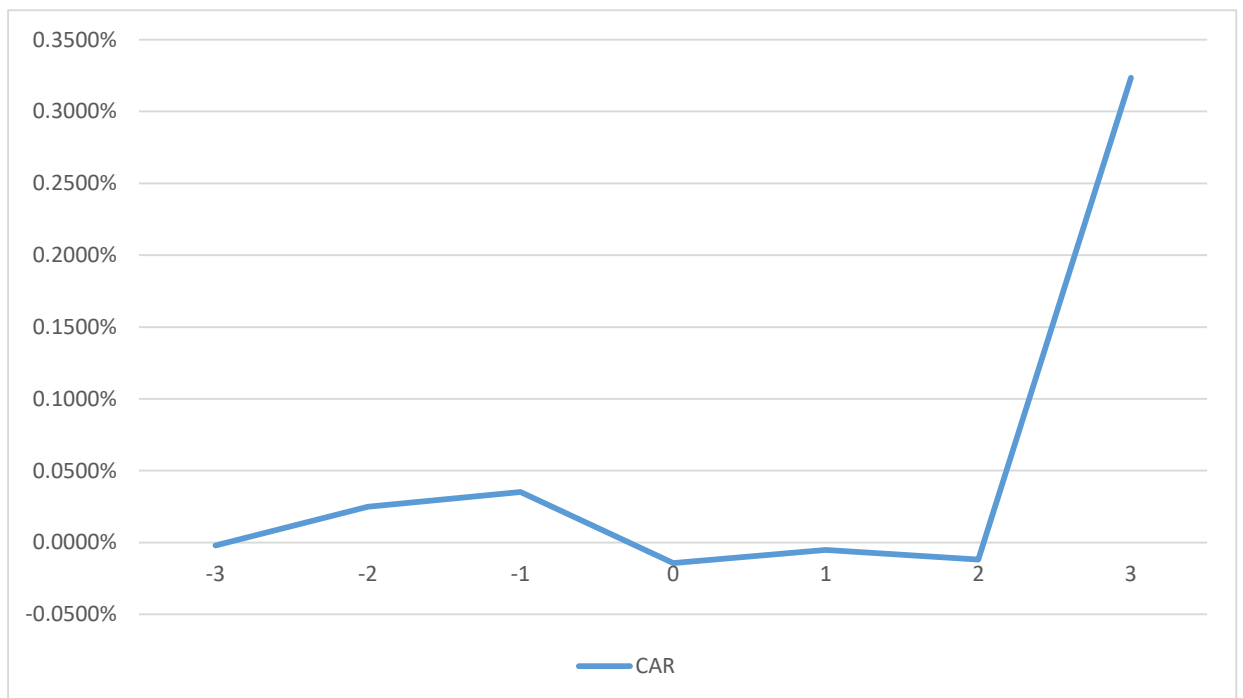
Event day	AAR	CAR	Std. dev	t-statistics	P-value
-3	-0.0021%	-0.0021%	1.8952%	-0.0078	0.9938
-2	0.0270%	0.0249%	1.7607%	0.1083	0.9142
-1	0.0102%	0.0351%	2.1470%	0.0337	0.9732
0	-0.0495%	-0.0144%	2.0908%	-0.1674	0.8677
1	0.0092%	-0.0052%	2.1887%	0.0297	0.9764
2	-0.0066%	-0.0118%	2.2082%	-0.0213	0.9831
3	0.3353%	0.3235%	1.8659%	1.2706	0.2099

For the t-test, none of them are significant different from zero at level with 1%, 5% and 10%. And there are great gaps between the p-value. Therefore the market cannot adjust to the news.

Figure 4.1 shows the trend of average abnormal return of sample share price during -3 days before event day to 3 days after the event day. From the Figure 4.2 shows the change of the cumulative abnormal return during -3 day before event day to 3 day after the event day.



**Figure 4.1. AAR from 3 days before the event day to 3 days after event day.**



**Figure 4.2. CAR from 3 days before the event day to 3 days after event day.**

By contrast, the trend of AAR and the trend of CAR are similarity: before the event day the AAR and CAR fluctuation within a narrow range, but after event day especially the second day to the third day fluctuation violently.

In summer, from the table1, figure3 and figure4, even after event day the average abnormal return and cumulate abnormal return increase violently, the distribution cash dividend in this sample also have non-signification negative abnormal return.

### **4.3. Hypothesis Test Results**

To test *Hypothesis 2* and *Hypothesis 3* base on the change of dividend payout ratio it is classified into two groups, increase payout and decrease payout. Increase payout group means the dividend payout ratio increase gradually every year whereas decrease payout group is the dividend payout ratio decrease gradually every year..

**Table 4.3****AAR and CAR During Event Window for Increase Payout**

Panle A shows the AAR and CAR of companies which dividend payout ratio increase gradually every year. Day 0 is the dividend announcement day. Day -3 to -1 is the period before the announcement day. Day 1 to 3 is the period after the announcement day. P-values significantly form zero at a significance level of 10%, 5% and 1% are marked \*, \*\*, and \*\*\* respectively.

Event day	Panle A: Increase Payout				
	AAR	CAR	Std. dev	t-statistics	P-value
-3	-0.1040%	-0.1040%	2.3999%	0.3670	0.7152
-2	-0.3921%	-0.4962%	1.8232%	-0.5317	0.5973
-1	0.3283%	-0.1678%	2.3043%	0.5805	0.5642
0	0.0011%	-0.1668%	2.0578%	-0.8119	0.4208
1	0.1009%	-0.0658%	2.3285%	-0.4413	0.6609
2	0.0991%	0.0332%	2.3396%	-0.2273	0.8211
3	0.5703%	0.6035%	1.9102%	1.6942	0.0966 *

In Table 4.3 panel A, the results for the positive earnings portfolio is presented. On the event day, the AAR is 0.0011%. On the day 3, the third day after the event day, the AAR is 0.5703% which is statistically different from zero at 10% level (marginally significant). And in the first day and second day after the announcement, the average abnormal return is not statistically different from zero. Form the results the AAR marginally significant at the third day after the event day, and the first day and second day do not have the abnormal return.

In sum, the result do not support Hypothesis 2: find no significant in average abnormal return when the listed companies increase the cash dividend per share.

**Table 4.4****AAR and CAR During Event Window for Decrease Payout**

Panel B shows the AAR and CAR of companies which dividend payout ratio decrease gradually every year. Day 0 is the dividend announcement day. Day -3 to -1 is the period before the announcement day. Day 1 to 3 is the period after the announcement day. P-values significantly form zero at a significance level of 10%, 5% and 1%

Panel B: Decrease Payout					
Event day	AAR	CAR	Std. dev	t-statistics	P-value
-3	0.1508%	0.1508%	0.9374%	0.7196	0.4805
-2	0.6556%	0.8064%	1.5115%	1.9397	0.0674 *
-1	-0.4669%	0.3395%	1.3178%	-1.5844	0.1296
0	-0.1254%	0.2142%	1.9846%	-0.2825	0.7806
1	-0.1284%	0.0858%	1.8990%	-0.3023	0.7657
2	-0.1652%	-0.0794%	2.3722%	-0.3114	0.7589
3	-0.0172%	-0.0966%	1.5896%	-0.0485	0.9619

In Table 4.4 panel B, the results for the negative earnings portfolio is presented. On the event day, the AAR is -0.1254%. On the day -2, the second day before the event day, the AAR is 0.6556% which is statistically different from zero at 10% level (marginally significant). And in the days (day1 to day3) after the announcement, the average abnormal return is not statistically different from zero. From the results the AAR marginally significant at the second day before the event day, and after the event day none of them are significant and have negative abnormal return.

In sum, the result do not support Hypothesis 3: find no significant in average abnormal return when the listed companies reduce the cash dividend per share.



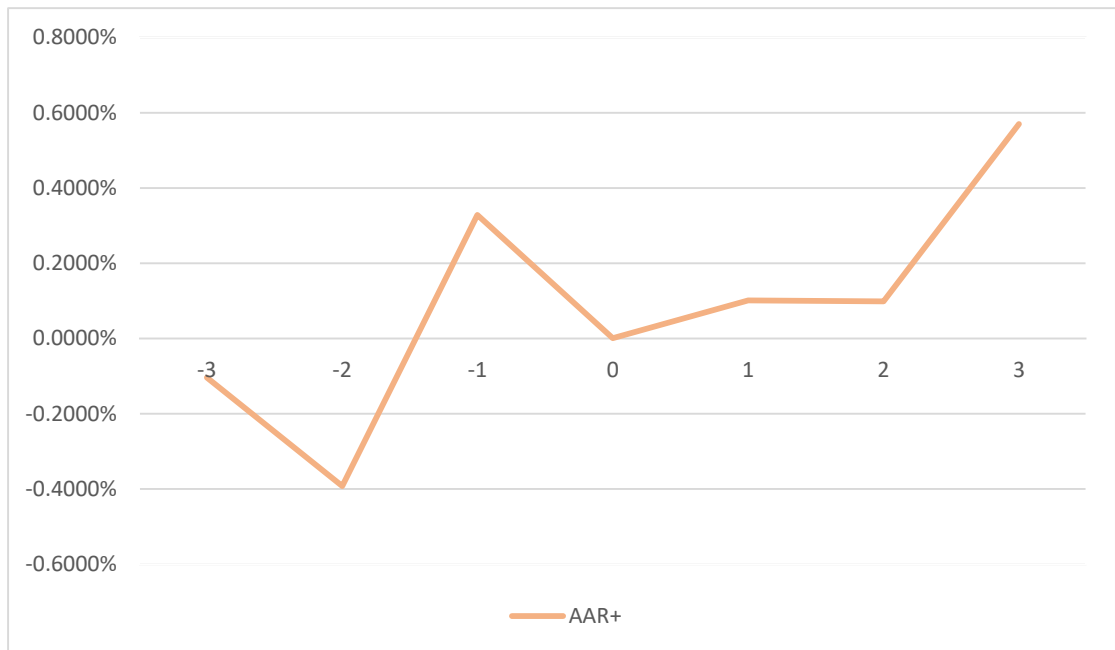
Even there are not significant abnormal return from the panel A and the panel B, but compare the graph of them also have some differences.

Figure 4.3 shows the trend of average abnormal return of sample panel A share price during -3 days before event day to 3 days after the event day. After event day the average abnormal return rises from event day to end of the study as market reacts to the event day.

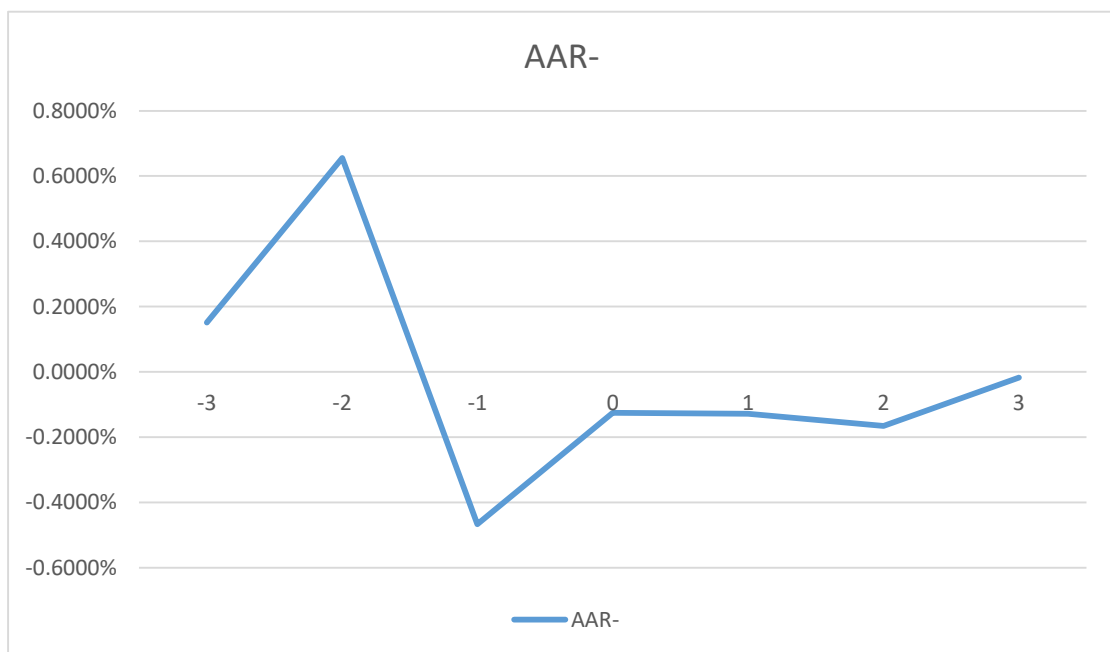
Figure 4.4 shows the trend of average abnormal return of sample panel B share price during -3 days before event day to 3 days after the event date. Before the event day it fluctuate sharply. After event date the AAR growth slightly.

The AARs of increase payout group (AAR+) has positive abnormal return even they are not significant. But the decrease payout group's AARs (AAR-) has not significant negative abnormal return. For increase payout group, after event day the AAR sustainable growth, but for decrease payout group, the AAR decrease from the first day to second day after that increase slowly.

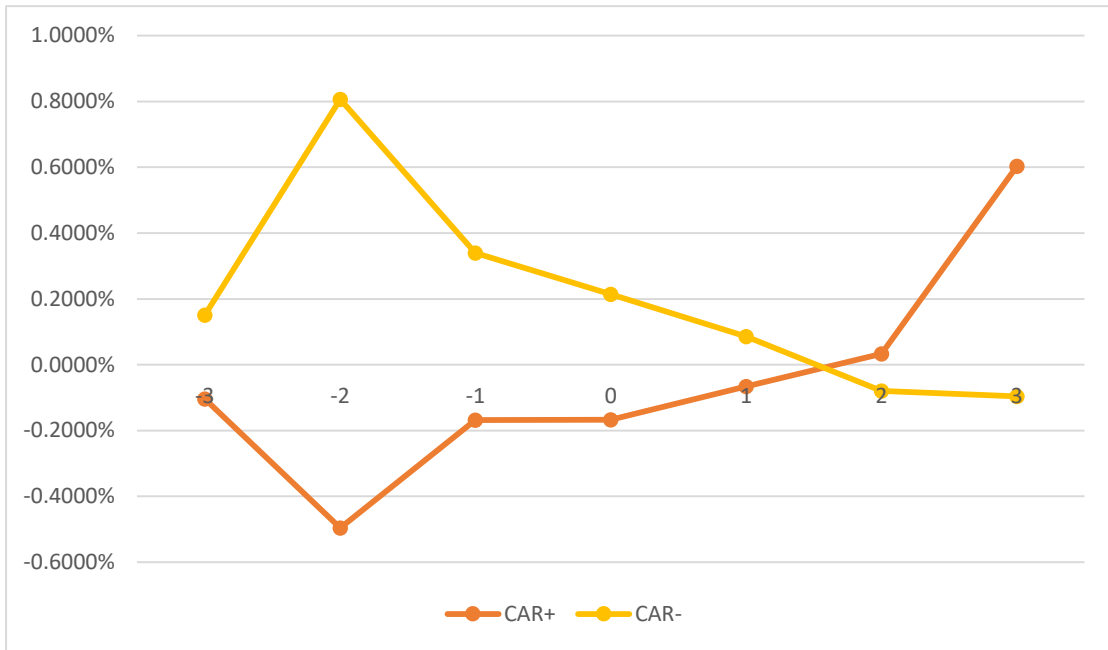
Therefore investors take different attitudes to the listed companies. With the increase dividend payout ratio companies investors have better respond than decrease dividend payout ratio companies.



**Figure 4.3. AARs of increase payout group from 3 days before the event day to 3 days after event day.**



**Figure 4.4. AARs of decrease payout group from 3 days before the event day to 3 days after event day.**



**Figure 4.5. CAR+ of increase payout group and CAR- of decrease payout group from 3 days before the event day to 3 days after event day.**

Figure 4.5 shows the cumulate abnormal return of increase payout group and decrease payout group. Accounting to the graph the when listed companies increase cash dividend per share the cumulated abnormal return increase, but the t-test is not significant. When the listed companies reduce cash dividend per share the cumulated abnormal return decrease also the t-test is not significant.

Before the event day the cumulated abnormal return of decrease payout group and increase payout group fluctuate sharply. After the event day the increase payout group cumulated abnormal return rises and the decrease payout group cumulated abnormal return decrees.

In sum, even the t-test are not significant both increase payout ratio and decrease payout ratio, but from the figure after the event day also effect the cumulate abnormal return: the increase payout ratio group cumulate abnormal return increase after announcement ; and the decrease payout ratio group cumulate abnormal return decrease after announcement. That trend different from before the announcement. But the trend change form -1 day before the event day. For this phenomenon, considerate the information leakage.

## CHAPTER V

### CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Conclusions

In this study contains only three years announcements form stocks in CIS 100 from the Yahoo Finance or the Shanghai stock market and the Shenzhen stock market of China. The total numbers of announcements are 128 with 50 stocks in criteria in 2014 to 2016 data from Yahoo Finance. The abnormal returns and cumulative returns are calculated by the Market Model. The results shows that the dividend announcement contain relevant information to investor, however before the announcement the cumulative abnormal returns reflect that there is possibly leakage of information before the announcement day.

The result of dividend announcement and market reaction on share price shows that in this study there are no significant of abnormal returns after announcement day. The result is not supports the signaling theory, consistent with the results of papers based on Chinese market, such as Chen and Yao (2000), Xie (2005).

This result is quite different with other research papers of developed contraries' stock market. Maybe it is because the listed companies in Chinses stock market do have a sound mechanism of distribution cash dividend: whether the profit is true and whether the company has a good prospects for development. Meanwhile, Chinese stock market is underdeveloped, the payment of cash dividends lacks continuity and stability, and investor's lack rational thinking, investors' return of investment hopes on improve capital gains, that leads cash dividend is ignored in Chinese stock market and different form developed stock market's signal transmission. Thus lead to the role of cash dividend is undervalued, the role of signal transmission is insignificant.

This study also examine the impact of change of dividend payout ratio, it is classified into two group base on the change of dividend payout ratios, increase payout

and decrease payout. Even the results the cumulated abnormal return of the two groups are not significant, but the trend of increase payout ratio increase and the trend of decrease payout ratio decrease. And market reaction of information is usually on three or four days, this is in contradiction with the semi-strong efficiency market. In order to understand the reason, need a further study on this topic.

## **5.2 Recommendations**

This study provides more evidences on cash dividend of TOP 100 Chinese listed companies from 2014 to 2016 the results can be used by investors, managers and academicians for their study or investment.

So that, there are two main suggestions and countermeasures in the next according to the results.

### 1) Improve the relevant legal system.

Due to the late establishment of China's capital market, the research on the securities market is still under exploration. There are relatively few laws and regulations related to the dividend policy of listed companies, and there are no relevant restrictions. Therefore, Chinese should make a series of laws and regulations that regulate the dividend policy purposefully and systematically by referring to the laws and regulations of foreign dividend policy and the specific circumstances of the listed companies in Chinese securities market.

### 2) Improve the transparency of information disclosure in capital markets

For the results of Figure 4.5, there are information leakage. So increasing the transparency of information disclosure in capital markets also allows investors in the securities market to trade more equitably and reduce insider trading. This is not only conducive to the stability of stock prices in the securities market, but also conducive to the stable and sustainable development of enterprises. Improve the transparency of information disclosure in capital markets so as to achieve the purpose of regulating the dividend policy in the capital market.

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