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Announcement Effects of Capital Increases during the 2008 Global Financial Crisis

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Abstract

The usual ways to increase the capital in a corporation are convertible debt offerings, rights issues and new shares issues, which make the announcement effects in the financial market. This paper focuses on the announcement effects of new shares issues during the financial crisis, and event study is used to analyze the announcement effects. The data are collected from 100 firms in Shanghai stock exchange market and Nyse stock exchange market in 2008 to show the announcement effects of new shares issues existed during this crisis period. In addition, the reasons of the announcement effects during the crisis period are discussed in these two different financial markets.

keywords: Announcement Effects, New Shares Issues, Financial Crisis, Event Study.

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1 Introduction

In order to maintain or enhance the competitive advantage, the corporation often needs more capital to invest on its production scale. If its internal funds are not enough, the corporation can choose different financial instruments to increase the capital from outside. Traditionally the methods are to offer convertible debt, to issue new shares and to issue rights in the stock market. These three different ways are included in seasoned equity offering.

Fama (1970) proposed the famous efficient market hypothesis to assume that the financial markets are information efficient. According to this hypothesis the information of seasoned equity offering is reflected by the stock prices on the announcement date, therefore the prices of stocks can not be influenced. However, many empirical researches have showed the opposite results. Schwartz (1970) doubted the market efficiency in terms of Fama's formulation. Mahomed et al. (2018) ascertained the market reacted positively and significantly during the crisis period in Indonesia. Kilincarslan (2021) found that the dividend stability was affected by the financial crisis in the UK and Marshall et al. (2019) displayed the stock prices fluctuated in the UK surrounding the global financial crisis of 2008.

In this paper, the announcement effects of new shares issues are the focus point. In the real financial market, to issue new shares is the way that one corporation uses mostly to increase the capital, so the announcement effect of new shares issues is considered the same as the announcement effect of capital increases in the paper. The Pecking Order theory (Myers and Majluf 1984) demonstrates there may be positive or negative reaction to the announcement of capital increases. Though most empirical studies showed the announcement of capital increases caused the reduction of stock prices in the announcement period, that is to say, the negative announcement effect (Hansen 1988; Eckbo and Masulis 1992; Levis 1995; Kooyul et al. 1996; Gajewski and Ginglinger 2002), some studies presented the different outcomes (Kang and Stulz 1996; Tsangarakis 1996). In addition, Guenther (2002) proved the financial instruments have the impact on the result as well. Prowse (1998) and Claessens et al. (2002) discussed how the corporate governance influenced the evaluation of one corporation. Therefore, the corporate governance can be one crucial cause for the different announcement effects. In order to compare the announcement effects of new shares issues under the different circumstances during the crisis period, United States is chosen to represent the developed countries with better corporate governance and China represents the developing countries in this paper.

The fist objective in this paper is to test whether the announcement effects of new shares issues existed in both financial markets by calculating the abnormal return in the announcement period during the financial crisis. The second objective is to inspect the major theories regarding the reasons for the announcement effects of capital increases. The major theories discussed in this paper are made up by two parts: the theories based on the inefficient market and the theories of corporate governance.

In Section 2, the major theories are reviewed. Section 3 provides the details of the proposed model and the hypothesises. In Section 4, the proposed method is applied to the data to examine the announcement effects of new shares issues in the two different

financial markets respectively.The hypotheses are tested in all 100 sample firms to check whether the variables induced by the main theories can explain the announcement effects during the crisis period. In Section 5, there is the conclusion.

2 Review of Major Theories

Asquith and Mullins(1986) divided the announcement effects of capital increases into three categories: no price effect, negative price effect and positive price effect. They proved any real financial markets cannot meet the conditions of no price effect because fixed investment policies and efficient capital markets are not consistent in the market. So no price effect is excluded in this paper. In this sections the major theories and hypotheses regarding the announcement effects of capital increases are discussed.

2.1 Theories Based on the Inefficient Market

Jensen and Meckling (1976) proposed the agency cost theory. Based on this theory the agency cost hypothesis was introduced to represent the situation that the agency cost increases when one corporation announces to issue new shares. It is derived that the fluctuation degree of one stock price is positively related with the scale of the shares. They also discussed the behavior of the manager. The manager may make the decisions that maximize his own utility without considering the investors. Especially when the scale of the new shares issues is larger than needed, the surplus money from the new shares issues can be abused by the manager for his own interest. Jensen (1986) mentioned the agency cost increases because of the interest conflicts between the manager and the shareholders.

Sholes (1972) proposed the downward sloping demand curve hypothesis and the transaction costs hypothesis. The first one shows that each stack is unique and the demand curve of each stock is downward sloping, therefore the stock price has the negative relationship with the quantity demanded; the second one displays the transaction costs are positively related with the scale of the new shares issues. Both hypotheses imply the stock price decreases after the announcement of capital increases and the change in the price has the positive relationship with the scale of the new shares issues, so they are also considered as the price pressure hypothesis.

Ross (1977) proposed the Modigliani-Miller theorem and showed one corporation could increase its evaluation by changing the size of its leverage. DeAngelo and Masulis (1980) developed the optimal leverage model and Masulis (1983) extended their model to indicate the change in the stock price is positively related with the leverage change. Masulis and Korwar (1986) studied the leverage-related information hypothesis to prove in the announcement period the abnormal returns have the positive relationship with the leverage change.

The signaling hypothesis explains the negative price effect reaction to the announcement of capital increases, and the core of signaling hypothesis is the information asymmetry theory. Many empirical researches support the signaling hypothesis. For examples,

Leland and Pyle (1977) pointed out when the manager decides to increase the capital by issuing new shares, this is a bad signal for the investors and the stock price decreases. They believed the signaling equilibrium did not exist. Myers and Majluf (1984) and Miller and Rock (1985) showed that usually the asymmetric information between the manager and the investors leads to the ineffective investment.

Different researchers study the announcement effects of capital increases from the different aspects, so there are many other hypotheses induced by their theories, such as the investment opportunities hypothesis (Miller and Rock 1985) and the growth opportunities hypothesis (Ambarish et al. 1987). However, most hypotheses center on the same points revealed by the agency cost hypothesis, the price pressure hypothesis, the leverage-related information hypothesis and the signaling hypothesis. Therefore these four hypotheses are used to define the variables in the proposed model in the next section.

2.2 Theories of Corporate Governance

When some corporations are taken as random samples in different countries, the differences of corporate governance can play an important role in the analysis of the announcement effects of capital increases. So besides four hypotheses mentioned above, three major characteristics of corporate governance are discussed.

Berle and Means (1932) separated the ownership from the control in the corporation. The owner structures can connect with the information asymmetry theory. Guenther (2002) showed the owner-controlled non-financial companies had higher positive abnormal returns than the manager-controlled companies. Chen (2001) found there is a significant correlation between ownership concentration and corporate performance and revealed the ownership structure is affected and constrained by the legal and regulatory environment in that country. In China, the state is the largest shareholder in many corporations, but this does not happen often in the United States. So when the ownership structure is used as a variable in the regression line, its type needs to be considered.

Zahra and Pearce (1989) found that the performance of the supervisory board and the board of directors depends on two factors: the ownership structure and the size of two boards. Byrd and Hickman (1992) published their findings about the relationship between the abnormal return and the board of directors. Yermack (1996) suggested that there was the negative relationship between the firm value and the size of two boards by analyzing 452 American industrial corporations. Chen (2001) tested the data from the companies listed in Taiwan and found that the size of the board of directors has the negative impact on the firm performance, while the size of the supervisory board has the significantly positive impact. Note that the relationship between the size of two boards and the abnormal stock returns is ambiguous according to the studies in the United States, but in Asian countries most empirical evidences showed certain kind of relationship between them.

The stewardship theory (Davis et al. 1997) proved chief executive officer (CEO) duality can maximize the interest of shareholders. The principal-agent problem proposed by Jensen and Mecking (1976) showed that CEO duality did not violate the objective function of one corporation. Daily and Dalton (1994) showed CEO duality reduces

the information asymmetry. However, Dayton (1984) indicated CEO duality has the incentive to control the board of directors, so the board loses its independence and the monitoring mechanism of the corporation loses its effectiveness as well.

3 Methodology and Data

In this section the stock price reactions to announcement effects of capital increases are measured in American financial market and China financial market. First, the abnormal returns during the announcement period are calculated to demonstrate whether the announcement effects of capital increases exist in these two financial markets, then the results are compared to show whether the announcement effects of capital increases are significantly different in two markets. The event study methodology and T-test are used for this analysis. Second, the reasons of the announcement effects are analyzed. All samples are divided by the four main hypotheses (agency cost hypothesis, price pressure hypothesis, leverage-related information hypothesis and signaling hypothesis) and corporate governance (CEO duality, ownership structures, board of directors and supervisory board), then the data are tested to explain the announcement effects of capital increases. Furthermore, the analysis of the reasons in each market is also done in the multiple regression model.

3.1 Methodology

Traditionally there are two ways to calculate the expected stock return. One is the capital asset price model (CAPM) and the other one is single-index model (William Sharpe 1963). Because the relevant parameters of abnormal returns by two different ways are not significantly different, the conclusions are the same. In this paper, the latter way is used and the abnormal return of the corporation i on the day t is the actual stock return subtracted by the relative stock index on the same day as follows:

$$AR_{it} = R_{it} - R_{mt} \tag{3.1}$$

The average abnormal return on day t is defined as the sum of the abnormal returns of all samples on day t divided by the sample size N.

$$AR_t = \frac{1}{N}\sum_{i=1}^{N} AR_{it} \tag{3.2}$$

The cumulative abnormal return from the day t1 to the day t2 is the sum of average abnormal returns during this period.

$$CAR(t1, t2) = \sum_{t=t1}^{t2} AR_t \tag{3.3}$$

The hypotheses are developed by the theories in the last section. The abnormal return and the cumulative abnormal return in the event period are tested to ascertain

the existence of the announcement effects of capital increases. For the abnormal return the hypothesis is as follows:

$$\mathrm{H}_0 : AR_t = 0 \qquad \mathrm{H}_1 : AR_t \neq 0$$

For the cumulative abnormal return,

$$\mathrm{H}_0 : CAR(t1, t2) = 0 \qquad \mathrm{H}_1 : CAR(t1, t2) \neq 0$$

The samples are dividend by their scales of new shares and the degrees of stock price fluctuations according to the price pressure hypothesis. $AR_{s,t}$ denotes the average abnormal return of the corporations with the small scale of new shares, and $AR_{l,t}$ denotes the average abnormal return of the corporations with the large scale of new shares; $AR_{f,t}$ is the average abnormal return of the corporations with the higher degree of stock price fluctuations, and $AR_{n-f,t}$ is the average abnormal return of the corporations with the relative lower degree of stock price fluctuations. In this paper, median is the cutting point.

$$\begin{aligned} \mathrm{H}_0 : AR_{l,t} = AR_{s,t} \qquad & \mathrm{H}_1 : AR_{l,t} \neq AR_{s,t} \\ \mathrm{H}_0 : AR_{f,t} = AR_{n-f,t} \qquad & \mathrm{H}_1 : AR_{f,t} \neq AR_{n-f,t} \end{aligned}$$

According to the agency cost hypothesis, too much free cash flow causes the non-monetary desire of managers and overinvestment action. $AR_{m,t}$ is the average abnormal return of the corporations which collect more capital from the investors, and $AR_{n-m,t}$ is the average abnormal return of the corporations which collect less capital from the investors.

$$\mathrm{H}_0 : AR_{n-m,t} = AR_{m,t} \qquad \mathrm{H}_1 : AR_{n-m,t} \neq AR_{m,t}$$

$AR_{h,t}$ means the average abnormal return of the corporations whose debt ratio is high, and $AR_{n-h,t}$ is the average abnormal return of the corporations whose debt ratio is low. This separation is based on the leverage-related information hypothesis. When the ratio of debt to asset is higher, the possibility of wealth transaction from the shareholders to the creditors is higher, so the stock price decreases more.

$$\mathrm{H}_0 : AR_{n-h,t} = AR_{h,t} \qquad \mathrm{H}_1 : AR_{n-h,t} \neq AR_{h,t}$$

$AR_{p,t}$ is the average abnormal return of the corporations whose subscription price is high, and $AR_{n-p,t}$ is the average abnormal return of the corporations whose subscription price is low. In the signaling hypothesis, the subscription price brings the information to the outside investors, and the low subscription price shows that the managers need much cash immediately for the debt or the company does not have enough internal capital, so low subscription price is considered as bad new and the stock price decreases more than that if the subscription price is high.

$$\mathrm{H}_0 : AR_{n-p,t} = AR_{p,t} \qquad \mathrm{H}_1 : AR_{n-p,t} \neq AR_{p,t}$$

$AR_{st,t}$ is the average abnormal return of the corporations which are owned by state, and $AR_{st,t}$ is the average abnormal returns of the other corporations. It is assumed that the state-owned corporations shows the worse performance.

$$\mathrm{H}_0 : AR_{n-st,t} = AR_{st,t} \qquad \mathrm{H}_1 : AR_{n-st,t} \neq AR_{st,t}$$

$AR_{i,t}$ is the average abnormal return of the corporations whose members in two boards are independent, and $AR_{n-i,t}$ is the average abnormal returns of the other corporations. It is assumed that the independence implies the better performance.

$$\mathrm{H}_0 : AR_{n-i,t} = AR_{i,t} \qquad \mathrm{H}_1 : AR_{n-i,t} \neq AR_{i,t}$$

$AR_{d,t}$ is the average abnormal returns of the corporations whose CEO and board chairman is the same person, and $AR_{n-d,t}$ is the average abnormal returns of the other corporations. It is assumed that the corporations with CEO duality have the worse performance.

$$\mathrm{H}_0 : AR_{n-d,t} = AR_{d,t} \qquad \mathrm{H}_1 : AR_{n-d,t} \neq AR_{d,t}$$

In order to get the cumulative abnormal return in (3.3) the event period is defined in the event study (Brown and Warner 1980). The day 0 is defined as the day of the formal announcement day of one given corporation i, -t represents t days before the event day (day 0) and t represents the day which is t days after the event day (day 0). The announcement period includes 136 daily return observations, which starts on the day -120 and ends on the day 15. The first 90 days which is from the day -120 to the day -31 is designated as the estimated period, and the period from the day -15 to the day 15 is designated as the event period. These points are shown in Figure 1. In order to keep the independence of the event period the estimated period does not end on the day -16 or more.

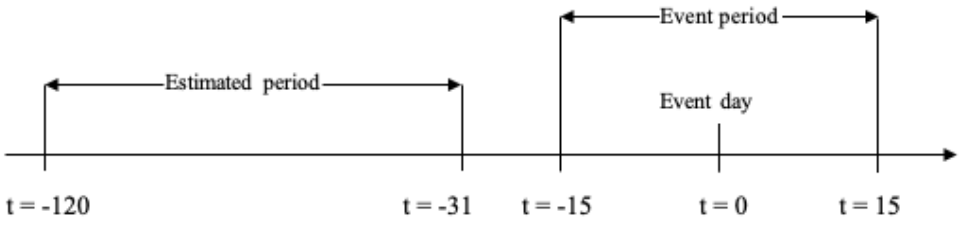

Figure 1: Announcement Period

According to the definitions of the estimated period, the average abnormal return of the corporation i is computed from the day -120 to they day -31 as follows:

$$AR_{i,t} = \frac{1}{90} \sum_{t=-120}^{-31} AR_{it} \tag{3.4}$$

So the grand standard deviation is as follows:

$$S(AR_{i,t}) = \sqrt{\frac{\sum_{t=-120}^{-31}(AR_{it} - AR_{i,t})^2}{89}} \tag{3.5}$$

Nine variables are introduced by the hypotheses and corporate governance. In the regression model these variables are assumed to be responsible for the cumulative abnormal returns in the different window periods. The expected relationships between each variable and the cumulative abnormal return in the multiple regression lines are shown in Table 1.

Table 1: Variables and Expected Relationships based on Theories and Hypotheses

Hypothesis	Variable	Expected Relationship
Price Pressure	SHRi	Negative
Price Pressure	VARi	Negative
Agency Cost	INVESTi	Negative
Leverage-related Information	DTOAi	Negative
Signaling	OFFERi	Positive
Ownership Structures	STATEi	Negative
CEO Duality	CEO-DUi	Unknown
Board of Directors	S-DIi	Positive (US)
		Unknown (China)
Board of Directors & Supervisory Board	BOARDi	Positive

In Table 1 SHRi is equal to the volume of new shares issues divided by the given total volume of outstanding shares in the market. From the price pressure hypothesis, the predicted sign is negative. In addition, the samples are divided by certain scale of new share. The numbers of SHRi show the scale of new shares, so the median of all SHRi is the point of demarcation. Then two groups are compared to analyze whether the magnitude of this variable affects the stock prices or not.

VARi is the standard deviation of the return rates for the corporation i from the day -120 to the day -1. The higher the volatility of the return rates in the estimated period is, the more risk premium the investors ask for. So the stock price should decrease and the scale of this reduction is related with the expected risk-compensation in the future. The median of all VARi segments samples to inspect $H_0 : AR_{n-f,t} = AR_{f,t}$.

INVESTi is calculated by the proposed maximum aggregate offering price over the evaluation of the outstanding shares in the stock market. The evaluation of the outstanding shares for one corporation is equal to the close price on event day times the volume of outstanding shares. Meanwhile all samples are divided by the median of all INVESTi to examine the hypothesis $H_0 : AR_{n-m,t} = AR_{m,t}$.

DTOAi is the dummy variable. When the ratio of the total debt to the equity is less than the median of all ratios, DTOAi = 0; otherwise DTOAi = 1. Two groups are compared to check the hypothesis $H_0 : AR_{n-h,t} = AR_{h,t}$.

OFFERi denotes the subscription price of new shares divided by the average adjusted close price in the 30 days before the event days. For China financial market if the price of new shares is not decided by the board of directors on the event day, the average of the highest price and the lowest price in the three days before event day is taken as the price of new shares. Samples are separated by the median of all OFFERi to examine the hypothesis $H_0 : AR_{n-p,t} = AR_{p,t}$.

Four variables left are about corporate governance. STATEi is the dummy variable. When one corporation is controlled by the state, STATEi = 1; otherwise STATEi = 0. The hypothesis $H_0 : AR_{n-st,t} = AR_{st,t}$ is inspected.

CEO-DUi is the dummy variable. If the chairman of the board of directors and CEO are the same person, CEO-DUi = 1; otherwise CEO-DUi = 0. And this variable separates samples to two groups to test the hypothesis $H_0 : AR_{n-d,t} = AR_{d,t}$.

S-DIi is the size of the board of directors. BOARDi is the proportion of shares held by the insiders and 5% owners. When it is less than the median, BOARDi = 1; otherwise BOARDi = 0, which represents the independence among the members in two boards. The media of those proportions is the dividing point to examine the hypothesis $H_0 : AR_{n-i,t} = AR_{i,t}$.

The multiple regression model is used to estimate the relevant factors in different financial markets as follows:

$$\begin{aligned} CAR(t1,t2) = {} & \alpha_0 + \alpha_1 \text{INVESTi } (or\ \alpha_2 \text{SHRi}) + \alpha_3 \text{OFFERi} + \alpha_4 \text{DTOAi} \\ & + \alpha_5 \text{STATEi} + \alpha 6 \text{BOARDi} + \alpha_7 \text{CEO-DUi} + \alpha_8 \text{S-DIi} + \alpha_9 \text{VARi} + \epsilon_i \end{aligned}$$

The error term ϵ_i follows the normal distribution with the zero mean and the unknown variance. Because INVESTi and SHRi are highly correlated in Table 2, they cannot become the independent variables at the same time. In this paper, (0, 1) and (0, 15) are taken as event windows.

3.2 Data

Pettengill et al.(1995) proposed the circumstance of stock exchange market can be measured by Market-adjust return, which is equal to the average of market rate of return reduced by the average of risk-free rate. In American stock exchange market 1-3 year Treasury Bond (SHY) is used as the risk-free rate; the saving return rate of the China central bank is used as the risk- free rate because there is no Treasury Bond or Treasury Bill. Market-adjust returns were negative in both stock change market during the crisis period, so it is assumed that the circumstances of two stock exchange markets were the same. Fifty Chinese stocks and fifty American stocks are randomly selected from Shanghai stock exchange market and Nyse stock exchange market respectively. All samples meet the following criteria:

1. The event day was in 2008.

2. Only the new common stock issues are considered.
3. If one corporation announced more than one time to issue new stocks during this period, all event days must be different.
4. In order to exclude other effects in the analysis, the corporations did not have any other kinds of announcements during the announcement period, such as dividend announcement, earning announcement and investment plan.
5. The stocks whose names begin with 'ST' are not selected because of their special characteristics in Shanghai stock exchange market.
6. The purpose of announcement of capital increases did not include the change of the amount of the debt.
7. All samples were from the listed corporations in Shanghai stock exchange market and Nyse stock exchange market during the crisis period.
8. The public issue other than preferential allotment or rights issue is considered as the way the corporations uses to increase their capital.

The S & P 500 index is used as the American market rate of return and the Shanghai 180 index is used as the Chinese market rate of return. The interquartile range (IQR) is applied to ascertain all ourliers are excluded. Note the date 01-May, 01-Octorber and 02-Octorber every year are "labor day" and "national day" in China, all China financial markets are closed. Therefore, the rate of the stock return in Shanghai stock exchange market is zero in these days. In order to avoid the multi-co-linearity the correlation test is done in Table 2 and it shows except INVESTi and SHRi the other variables are not highly correlated.

Table 2: Correlation among Varialbes

Variable	INVESTi	SHRi	OFFERi	DTOAi	STATEi	BOARDi	CEO-DUi	S-DIi	VARi
INVESTi	1								
SHRi	0.94	1							
OFFERi	-0.04	-0.03	1						
DTOAi	-0.20	-0.12	0.10	1					
STATEi	0.23	0.19	0.13	-0.31	1				
BOARDi	-0.29	-0.31	-0.11	0.40	-0.22	1			
CEO-DUi	-0.19	-0.18	0.12	0.25	-0.24	0.17	1		
S-DIi	-0.01	-0.02	0.17	0.12	-0.04	0.12	-0.09	1	
VARi	0.35	0.28	-0.02	-0.60	0.47	-0.51	-0.29	-0.10	1

4 Empirical Study

The analysis follows the steps mentioned in the last section, all samples are separated by the median of variables or the dummy variables to examine the hypotheses. Then the

multiple regression models are established to analyze the relationship between variables and the cumulative abnormal return.

4.1 Hypothesis Analysis

The abnormal returns of each sample are computed by (3.1), then the average abnormal return is calculated by (3.2), and (3.3) shows how to measure the cumulative abnormal return in the event period. CARt is equal to $CAR(-15, t)$. T-values of ARt on the day 0 and the day 1 are -11.058 and -2.297 which are significant at the 0.01 level and the 0.05 level respectively; T-values of the corresponding CARt are -2.149 and -2.642 which are significant at the 0.05 level and the 0.001 respectively. The announcement of capital increases negatively relates with the stock prices. Figure 2 confirms this point. ARt and CARt decreases suddenly on the event day and after that ARt returns and fluctuates around horizontal line while CARt keeps decreasing.

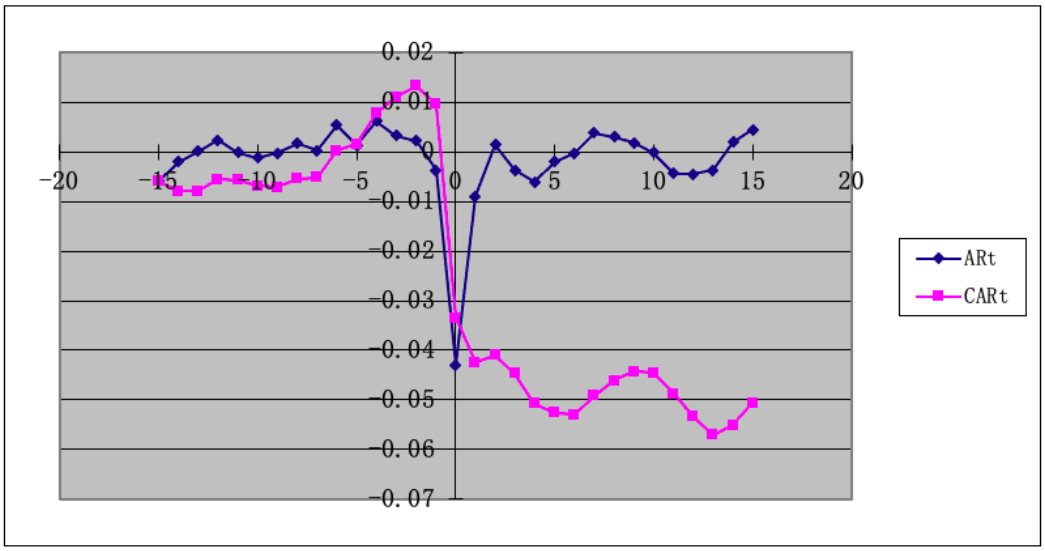

Figure 2: ARt and CARt of All Samples during Event Period

Since many characteristics of these two financial markets are different, the stock price response to the announcement of capital increases could be not the same. In other words, the number -11.0583 on the event day can be caused mainly by either market. T-test shows that the stock price respond to Shanghai stock exchange market is more significantly, so the change is mostly from Shanghai stock exchange market, and their T-values of ARt on the event day are -11.399 (significant at 0.01 level) and -1.850 (significant at 0.1 level) in two markets respectively; T-value of the difference between ARat (ARt in American financial market) and ARct (ARt in China financial market) is -9.706 (significant at 0.001 level). Figure 3 shows the tendency clearly. On the event

day, ARt and CARt decrease a lot in China financial market. Though they also decrease in American financial market, the scale of reduction is relatively smaller.

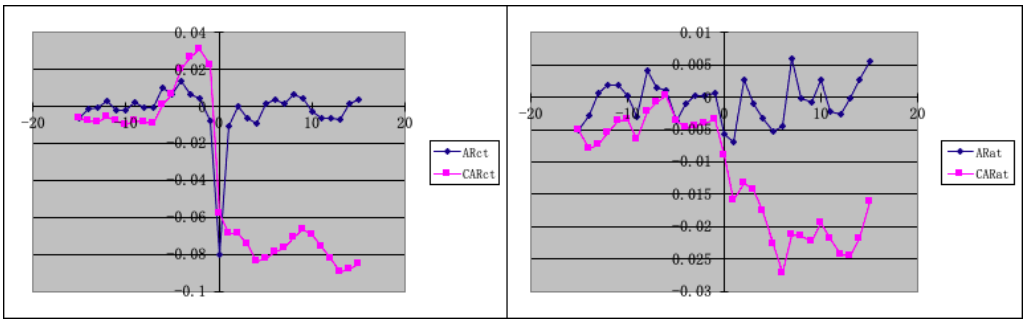

Figure 3: Compare ARt and CARt in the two financial markets during the Event Period, the Left one is for Shanghai stock exchange market and the right one is for Nyse stock exchange market .

In the following, except S-DIi all variables are used to divide the samples. The median of all SHRi is the dividing point of two groups, and in the first group each SHRi is smaller than the median. From Figure 4, AR2t(ARt in group 2) decreases much more than AR1t(ARt in group 1) on the event day and CAR2t(CARt in group 2) decrease more than CAR1t(CARt in group1) on and after the event day. The T-value of AR2t-AR1t on the event day is significant at 0.01 level and T-values of CAR2t-CAR1t on and in the five days after the event day are at least significant at 0.1 level.

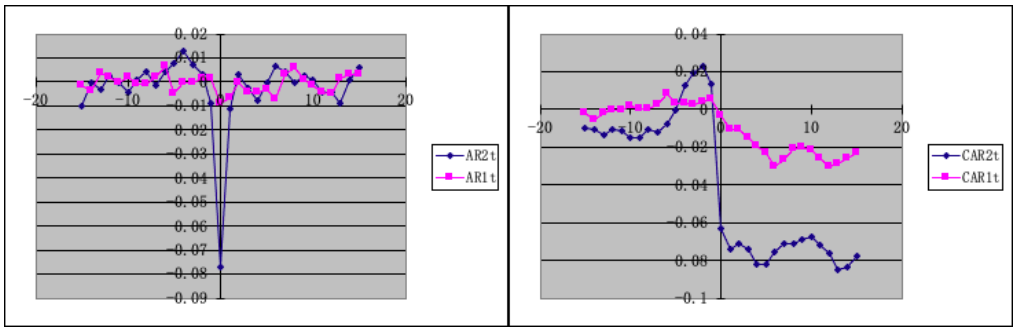

Figure 4: Compare the difference between ARt and CARt by SHRi

VARi divides all samples as S-DIi. Figure 5 demonstrates that after the event day both CARt decrease and both ARt return. T-value of the difference between AR2t and AR1t on announcement day is significant at 0.01 level; T-values of the differences between CAR2t and CAR1t on and after announcement day are significant at 0.1 level.

When all samples are dividend by the median of all INVESTi, the results of T-values are the same as the results induced by VARi, so Figure 6 is similar with Figure 5.

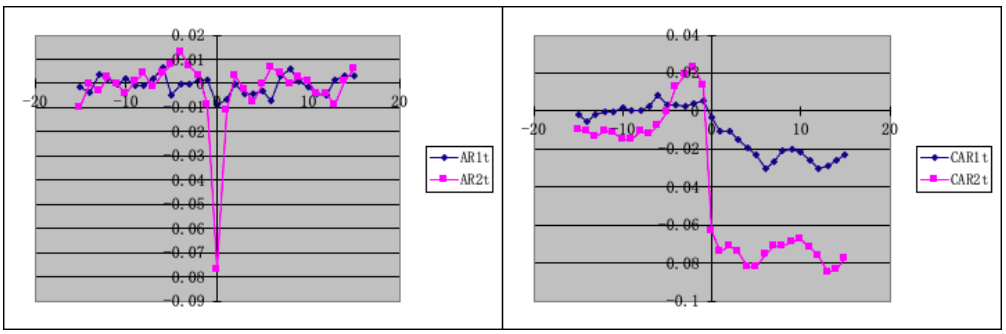

Figure 5: Compare ARt and CARt by VARi

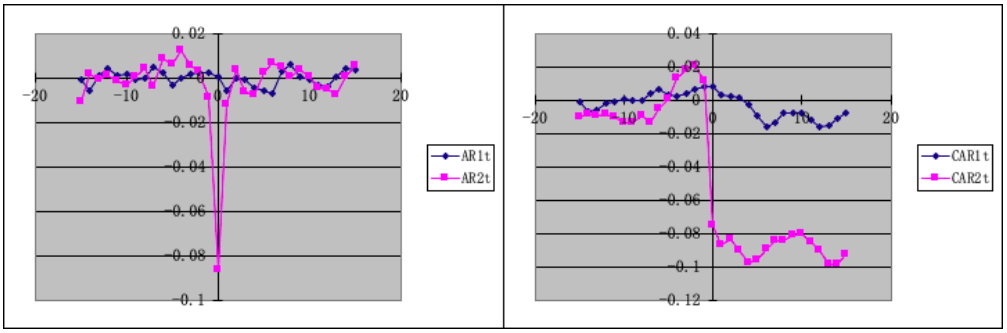

Figure 6: Compare ARt and CARt by INVESTi

When DTOAi=0, the corporation is in the group 1. All T-values are significant at the level 0.01, and Figure 7 shows the obvious differences on the event day. Note the difference of CARt between group 2 and group 1 is positive after the event day.

When OFFERi divides all samples, all T-values are not significant. Figure 8 displays that though on the event day both ARt and CARt decrease suddenly, their differences are not big; before the event day CAR2t is less than CAR1t, and this trend does not change after the event day.

When STATEi, CEO-DUi and BOARDi use the same way as DTOAi to divide all samples, Figure 9, Figure 10 and Figure 11 display the different tendencies of differences between CARt and ARt, but only their T-values of the difference between AR2t and AR1t on the event day are significant at the level 0.01.

4.2 Regression Analysis

Because the independent variables INVESTi and SHRi are highly correlated, they can not appear in a multiple regression model at the same time. One multiple regression model with INVESTi and one with SHRi are applied to all samples first. From Table 3, T-values of coefficients of INVESTi and DTOAi are significant. α_6 and α_9 are only

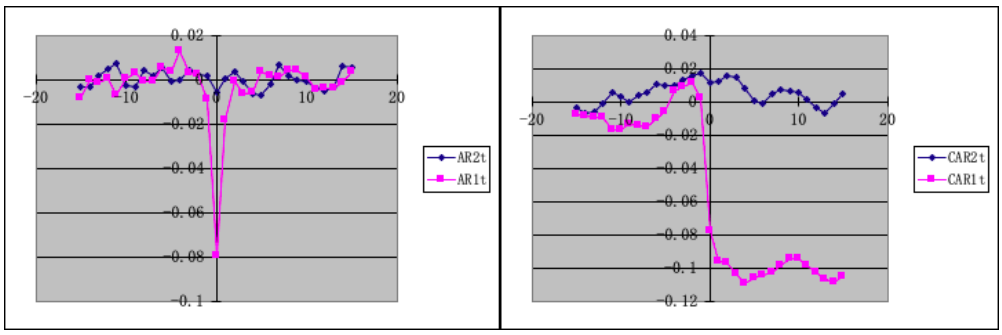

Figure 7: Compare ARt and CARt by DTOAi

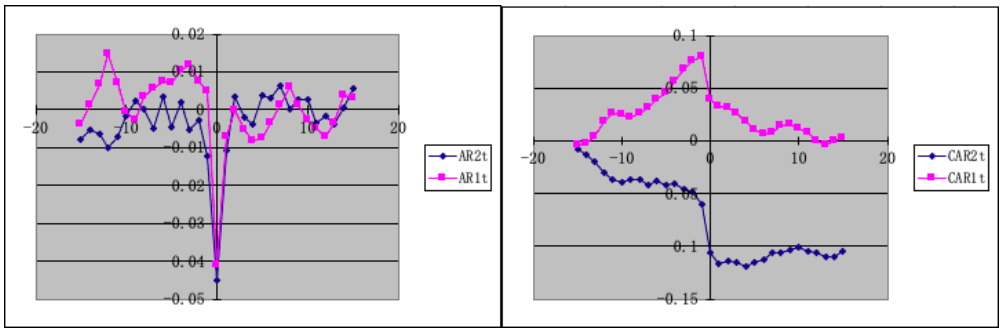

Figure 8: Compare ARt and CARt by OFFERi

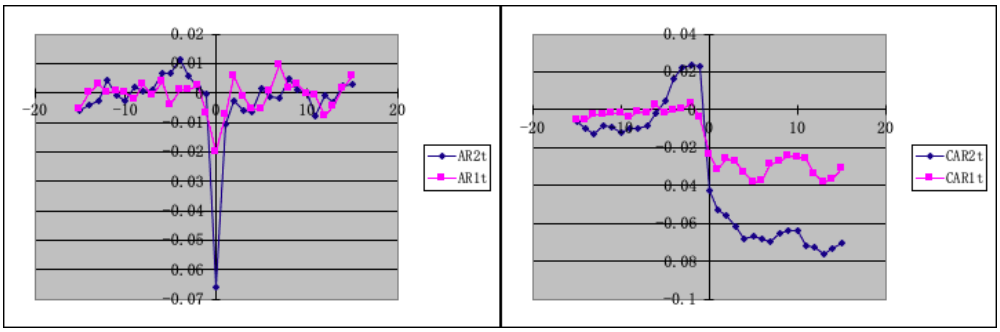

Figure 9: Compare ARt and CARt by STATEi

significantly different in one model.

Compared the actual signs of those independent variables with the expected relationships in Table 1, the signs of α_1, α_2, α_5, α_9 are the same as the expected relationships while the actual signs of α_3, α_4 and α_6 are opposite. Combined the signs of independent variables with their T-values, α_1 and α_9 follow the theories about announcement effect of capital increases. But the situation may change in different countries, so these multiple

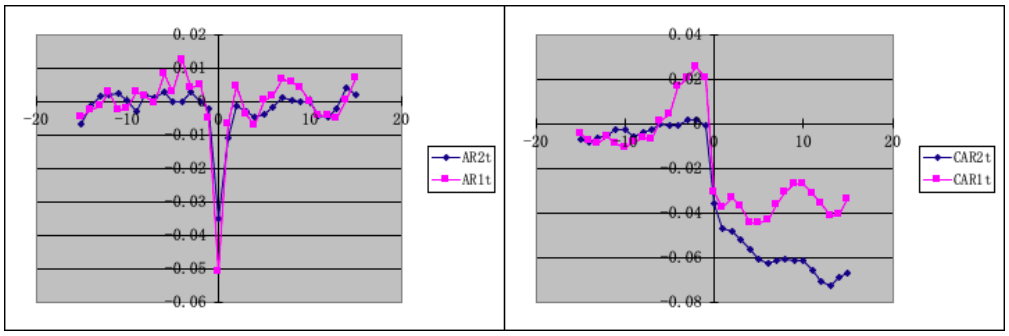

Figure 10: Compare ARt and CARt by CEO-DUi

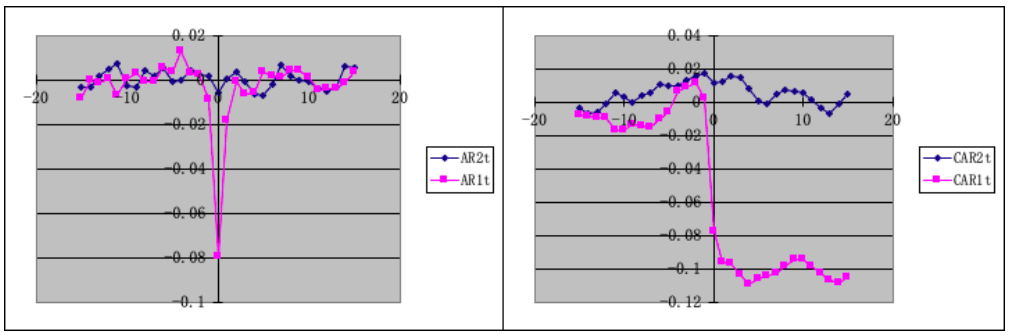

Figure 11: Compare ARt and CARt by BOARDi

regression models are also used to analyze two markets respectively in Table 4.

Table 3: Coefficients for All Samples with Event Window(0,1)

	α_0	α_2	α_3	α_4	α_5	α_6	α_7	α_8	α_9
Coefficient	0.074	-0.037	-0.001	0.070	-0.020	-0.040	-0.030	0.004	-2.5
T-value	0.898	-1.123	-0.055	2.180^{**}	-0.580	-1.470	-0.90	-0.588	-1.820^{*}
	α_0	α_1	α_3	α_4	α_5	α_6	α_7	α_8	α_9
Coefficient	0.074	-0.116	-0.002	0.073	-0.010	-0.050	-0.030	-0.003	-1.750
T-value	1.008	-4.039^{***}	-0.262	2.455^{**}	-0.370	-1.960^{*}	-1.140	-0.476	-1.360

*Significant at the 0.1 level **Significant at the 0.05 level ***Significant at the 0.01 level

For Nyse stock exchange market, only the coefficient α_4 is significantly different. In addition, CEO-DUi is negatively related with CARt in American financial market. And the signs of α_3, α_4, α_6 and α_9 do not follow the expected relationship in Table 1. Then by the same way, in Table 4 the actual signs of α_3, α_4 and α_6 are not consistent with the expected relationships in Table 1 for China financial market. And signs of α_7 and α_8 show CEO-DUi and S-DIi have negative influence on stock prices.

Table 4: Coefficients for Different Financial Markets with Event Window(0,1)

US	α_0	α_2	α_3	α_4	α_5	α_6	α_7	α_8	α_9
Coefficient	-0.040	-0.018	-0.001	0.029	-0.010	-0.010	-0.010	0.001	0.451
T-value	-1.151	-0.986	-0.532	2.033**	-0.470	-0.520	-1.090	0.607	0.580
US	α_0	α_1	α_3	α_4	α_5	α_6	α_7	α_8	α_9
Coefficient	-0.040	-0.019	-0.001	0.029	-0.010	-0.010	-0.010	0.001	0.448
T-value	-1.142	-1.027	-0.543	2.040**	-0.460	-0.530	-1.090	0.601	0.577
China	α_0	α_2	α_3	α_4	α_5	α_6	α_7	α_8	α_9
Coefficient	0.250	-0.059	-0.010	0.123	-0.030	-0.050	-0.050	-0.008	-5.150
T-value	0.868	-1.024	-0.045	1.777*	-0.620	-0.840	-0.580	-0.533	−1.680*
China	α_0	α_1	α_3	α_4	α_5	α_6	α_7	α_8	α_9
Coefficient	0.250	-0.157	-0.052	0.137	-0.020	-0.070	-0.050	-0.002	-4.220
T-value	0.908	−3.391***	-0.273	2.249**	-0.490	-1.350	-0.650	-0.185	-1.530

*Significant at the 0.1 level **Significant at the 0.05 level ***Significant at the 0.01 level

Combined the predicted relationships with T-values in Table 4, α_1 and α_9 confirm agency cost hypothesis and price pressure hypothesis in Shanghai stock exchange market. The signs of coefficients are the same in both markets except α_8 and α_9.

Table 5: Coefficients for Different Financial Markets with Event Window(0,15)

US	α_0	α_2	α_3	α_4	α_5	α_6	α_7	α_8	α_9
Coefficient	-0.123	0.040	0.001	0.048	-0.020	0.027	-0.030	0.005	0.550
T-value	-1.247	-0.746	0.122	1.168	-0.310	0.687	-0.810	0.805	0.244
US	α_0	α_1	α_3	α_4	α_5	α_6	α_7	α_8	α_9
Coefficient	-0.123	0.0272	0.001	0.048	-0.020	0.026	-0.030	0.005	0.597
T-value	-1.212	0.513	0.129	1.166	-0.320	0.679	-0.800	0.779	0.264
China	α_0	α_2	α_3	α_4	α_5	α_6	α_7	α_8	α_9
Coefficient	0.095	-0.079	-0.092	0.049	-0.060	0.029	-0.190	0.014	-3.510
T-value	0.269	-1.200	-0.381	0.619	-0.960	0.418	−2.110**	0.853	-1.010
China	α_0	α_1	α_3	α_4	α_5	α_6	α_7	α_8	α_9
Coefficient	0.095	-0.169	-0.133	0.059	-0.050	0.011	-0.190	0.019	-2.530
T-value	0.315	−3.147***	-0.605	0.836	-0.890	0.180	−2.310**	1.274	-0.790

*Significant at the 0.1 level **Significant at the 0.05 level ***Significant at the 0.01 level

The absolute values of all coefficients for China financial market are larger than those for American financial market, so stock prices are more sensitive to the announcement

of capital increases in China financial market during the crisis period.

Through the same steps, another event window (0, 15) is used in Table 5 and it shows that the signs of α_1, α_2, α_3 and α_9 in different financial market are different. The signs of α_1, α_2, α_5, α_6 and α_9 are the same as the predicted relationships in China financial market and the signs of α_3, α_5, α_6 and α_8 is the same as the predicted relationship in American financial market. In American financial market only T-value of α_4 is significant with event window(0, 1), and all coefficients of independent variables are not significantly different from zero in the same market with event window(0, 15); in China financial market with event window(0, 1) T-values of α_1, α_4 and α_9 are significant, but after event window becomes wider T-values of α_1 and α_7 are significant.

5 Conclusion

Many studies have shown that the announcements of capital increases affected the stock prices negatively, but some literature demonstrated the positive relationship between the announcement of capital increases and stock prices. This paper focuses only on the announcement effects of new shares issues during the 2008 global financial crisis, and event study is used to analyze and compare the announcement effects in China financial market and American financial market.

Before to find reasons of announcement effects of new share issues the existence of announcement effects in real markets during the crisis period is proved. In empirical example, data are collected from Shanghai stock exchange market and Nyse stock exchange market in 2008. The results show that on the event day T-values of the average abnormal returns are highly significant, and T-values of the cumulative average abnormal returns after the event day are significant. Therefore, $\mathrm{H}_0 : AR_t = 0$ and $\mathrm{H}_0 : CAR_{t_1,t_2} = 0$ are rejected.

More hypotheses are built by the theories and they are tested to show whether they can explain the announcement effects of new share issues during the crisis period in this paper. The theories consist of two parts: theories regarding the announcement effects and corporate governance. Eight hypotheses are examined and each hypothesis corresponds to an independent variable in the multiple regression model as follows:

1. $\mathrm{H}_0 : AR_{l,t} = AR_{s,t}$ is rejected. So the scale of new shares has the relationship with the announcement effects of new share issues. The corresponding variable is SHRi.
2. $\mathrm{H}_0 : AR_{f,t} = AR_{n-f,t}$ is rejected. So the fluctuations of stock prices have the relationship with the announcement effects of new share issues. The corresponding variable is VARi.
3. $\mathrm{H}_0 : AR_{n-m,t} = AR_{m,t}$ is rejected. The size of the capital collected from outside investors has the relationship with the announcement effects of new share issues. The corresponding variable is INVESTi.
4. $\mathrm{H}_0 : AR_{n-h,t} = AR_{h,t}$ is rejected. The ratio of debt to asset has the relationship with the degree of the announcement effects of new share issues. Its corresponding variable is DTOAi.

5. $H_0 : AR_{n-p,t} = AR_{p,t}$ is rejected. The size of subscription price has the relationship with the announcement effects of new share issues. The corresponding variable is OFFERi.
6. $H_0 : AR_{n-st,t} = AR_{st,t}$ is accepted. Ownership structures do not affect the stock prices significantly during the crisis period. The corresponding variable is STATEi..
7. $H_0 : AR_{n-d,t} = AR_{d,t}$ is accepted. Two boards do not relate with the stock prices during the crisis period. The corresponding variable is BOARDi.
8. $H_0 : AR_{n-i,t} = AR_{i,t}$ is accepted. The relationship between CEO and the board chairman does not change the stock prices significantly during the crisis period. The corresponding variable is CEO-DUi.

By implementing the multiple regression model it is shown that during the crisis period some signs of coefficients do not keep the consistence with the expected relationships in Table 1. It is worth to note that during this special period STATEi always had the positive impact on the stock prices. The further study is needed to develop new theories regarding the announcement effects during the crisis period. With both event windows, the absolute values of the coefficients of all independent variables for China financial market are larger than those for American Financial market, which uncovers that during the crisis period China financial market is more sensitive to the announcement of capital increases. When event window becomes wider, all coefficients of independent variables for American financial market are not significantly different and CEO-DUi has the significant influence on the stock prices in China financial market. So except CEO-DUi in Shanghai stock exchange market the other independent variables and the announcement had the smaller impact on both markets as time went on.

Conflict of Interest

The authors confirm that this article content has no conflict of interest.

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