

Performance of Mergers and Acquisitions based on the Event Study Method

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Abstract - All the M&A events which targets are ST companies in the A-share market of Shanghai and Shenzhen stock from 2007 to 2011 are selected as the research samples. This study applies event study method to calculate cumulative abnormal returns (CAR) which are to measure the short-term market performances of companies which M&A targets are ST companies. First, in this paper, the result shows that the short-term market performance of the companies which conduct the M&A activities is rising for the first time in the event announcement five days before and after. Further, comparing the short-term market performance of state companies and non-state companies, the result shows that the short-term market performance of state companies is significantly better than non-state companies.

Index Terms - M&A performance; event study; the ST companies

1. Introduction

In recent decades, with the rapid development of Chinese economy and the relevant supporting policies complemented by government, the capital market becomes more mature. Many enterprises prefer to expand scale through merger and acquisition, but the fact is that not all the M&A activities can be successful and achieve the anticipated goals, they only enable companies to expand the scale which can not bring benefits for the companies. So it is necessary to measure performance of M&A in order to determine the M&A decision correctly or not. The chose of acquisition targets is correct or not directly affecting the success of mergers and acquisitions and even related to the improvement of performance among many other factors. Few studies on M&A performance consider the listed companies that face delisting risks as the acquisition targets. Although those companies are suffering the financial crisis, but compared to other non-listed companies are stronger with more resources which is more likely to create benefits for the companies with a successful M&A. In order to study the performance of M&A events which the acquisition targets are the delisting companies, this article try to explore the market performance of M&A events through event study method.

2. Theory and hypothesis

Performance refers to results of companies engaged in specific business activities, often can be seen as the realization of strategic objectives. Currently, there are two main methods to measure the M&A performance, financial indicators and event study method. Financial indicators method is based on the indicators selected from four aspects, like the profitability, solvency, operational capabilities and growth ability, then

using factor analysis method comprehensive analysis on M&A performance.

But Boateng and Bi figure out that the financial indicators of Chinese listed companies are difficult to accurately reflect the actual performance[1]. Because regulations for financial disclosure of Chinese securities market with a problem of false information are not enough. So many scholars have measure the M&A performance using event study method. For example, Shu, Yang and Tang by using event study method find out that M&A event has short-term speculative value[2]. Khanal, Mishra and Mottaleb evaluate the acquisition performance of American bio-fuels industry through event study method, the study shows that M&A events have positive impact on bio-fuels industry[3]. This paper select the M&A events as samples which acquisition targets are ST companies, although ST companies refer to suffering warning processing of delisting risks due to continuous losses, the potential value of listed companies can not be ignored. Therefore, this article proposes the following hypothesis 1.

Hypothesis 1 : The cumulative abnormal returns (CAR) calculated by events study method measure the performance of M&A events which targets are ST companies, performance continues to rise within five days before and after the M&A announcement for the first time.

Capital market is developing not too long in China, just like other developing countries. Many listed companies are restructured from state-owned enterprise, so there is a natural connection between the listed companies and government which enables the government involved in the production and operation activities. So there are scholars divide the samples into state-owned and non-state companies to explore the differences between this two type of companies. Li, Yu and Tan find that the M&A performance of private companies are superior to state-owned companies[4]. Aiming at companies which acquisition targets are ST companies, to discuss whether the performance of state-owned companies is better than the non-state companies. Based on the above analysis, this paper puts forward the following hypothesis 2.

Hypothesis 2 : The performance of State-owned companies is superior than non-state companies in the M&A events which the acquisition targets are ST companies.

3. Research Design

A. Sample Selection and Data Sources

Objects of this study are listed companies that acquisition targets are ST companies in M&A activities. The New Accounting Standards has been implemented in China after

January 1, 2007, so we choose listed companies which M&A targets are ST companies as study samples, and finally we get 72 M&A events as the samples to study the performance of M&A events. According to the standards for ST system of the Shanghai and Shenzhen Stock Exchange, we define the companies with negative net profit as companies faced ST companies, eventually getting 72 samples. And all the related data are from the CAMAR database and East Money network (<http://www.eastmoney.com/>).

B. The empirical method

The purpose of this paper is to measure the market performance of companies M&A activities. Tian, Han and Li explore that Chinese stock markets has been passed the weak effective inspection[5]. In this paper, we choose cumulative abnormal returns (CAR) to measure market M&A performance.

According to Cai and Sevilir[6], Tian, Han and Li[5], event study method has been employed for assessing the impact of acquisition on the wealth of the acquiring company shareholders. The reason for applying event study is that it measures the impact of a specific unanticipated event related to a company on the wealth of its shareholders. To calculate the cumulative abnormal returns for exploring the market reaction to the announcement of acquisition, an estimation period is selected for computing the parameters (α and β) of the market model. In this paper, the estimation period used here is $t=-180$ to $t=-30$, relative to the first public announcement date of an acquisition ($t=0$), the event periods used are $t=-15$ to $t=+30$ and $t=-5$ to $t=+5$.

First, according to the data of estimation period to compute parameters as follows:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad (1)$$

Where $R_{i,t}$ presents the actual return of the security i when $R_{m,t}$ is zero, $R_{m,t}$ is the return on market index, using the CSMAR database integrated A-share market to consider the cash dividend reinvestment of weight average method to calculate earnings as the whole market returns; $\varepsilon_{i,t}$ captures the effect of variables more specific to the prospects of a security i .

By least squares regression equation to estimate the α_i and β_i , then the abnormal returns in the event period for a security i on day t is calculated as follows:

$$AR_{it} = R_{it} - \alpha_i - \beta_i R_{mt} \quad (2)$$

Where $AR_{i,t}$ is the abnormal return of a particular company; $R_{i,t}$ is the real return. Daily abnormal returns for each company are calculated over the interval $t=-15$ to $t=+30$ and $t=-5$ to $t=+5$.

Further, daily abnormal returns have been averaged over n companies and computes as follows:

$$AAR_t = \sum_{i=1}^n AR_{it} / n \quad (3)$$

Where AAR_t is the average abnormal daily return on day t and n is the number of companies.

Further, cumulative average abnormal returns (CAR) are derived by summing the AAR_t over various time intervals. For example, CAR for a particular time interval t_1 to t_2 is derived as follows:

$$CAR(t_1, t_2) = \sum_{t_1}^{t_2} AAR_t \quad (4)$$

4. Empirical Results and Analysis

A. Full sample M&A trend analysis of performance

Figure 1 shows the full samples' AAR and CAR in the event period $t=-15$ to $t=+30$, AAR has less volatile in the event period, but it rises relatively large around a day before and after the first time announcement, especially the next day after the announcement AAR achieving the maximum 0.0125. Indicating that M&A announcement in the short-term has great impact on companies earnings. And figure 1 also shows the CAR has been rising continued after the day $t=-15$, it means that the M&A activities have been acknowledged by markets, then at the day $t=+4$, CAR has achieved the highest point to 0.066 with the fluctuation around the relatively high position. It declines at the day $t=+23$ that means M&A events' influence on the companies is declining. Over all, CAR is rising in the event period, especially in the event period $t=-5$ to $t=+5$. Figure 2 shows the comparing results of CAR between state companies and non-state companies.

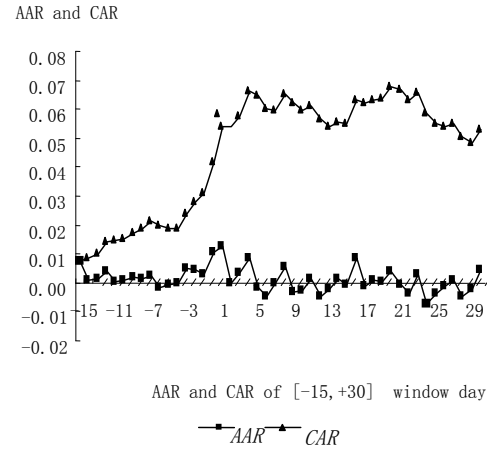


Fig. 1 distribution of AAR and CAR

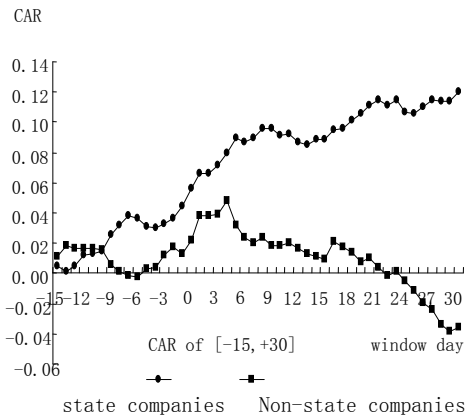


Fig. 2 *CAR* distribution of state and non-state companies

It is clearly drawn that the performance of state companies is superior to non-state companies, and the *CAR* of state companies is rising until getting the peak at the day $t=+30$, it indicates that at least in the event period the state companies have obtained good acquisition performance. The comparison of the non-state company's *CAR*, it reach minimum -0.002 between the day $t=-6$ to $t=+15$, but after that *CAR* is rising reached the highest point of the entire event period 0.048 at the day $t=+4$; *CAR* subsequently continue to decline after the day $t=+24$ until below zero and reach the lowest point -0.037 in the whole event period. In the event period of $t=-5$ to $t=+5$, the *CAR* of state companies and non-state company are rising substantially. Therefore, it can be clearly seen from figure 2, the state company's performance is significantly better than the non-state company's.

B. Full sample M&A performance statistical test

According to the cumulative average abnormal returns, using spss16.0 to calculate the all samples' univariate statistical results of cumulative average abnormal returns at different event window, as showed in Table 1.

From Table 1, *CAR* all samples in the two event periods are in the 1% level significantly; *CAR* of state companies and non-state companies are in the 1% level significantly, and mean value of state-owned companies in the event period of $[-15, +30]$ is 0.072, is significantly greater than in the event period of $[-5, +5]$ which *CAR* mean value is 0.057; by contrast, the non-state-owned companies' s mean value is 0.009 in the event period $[-15, +30]$, which is significantly less than the mean value in the events period $[-5, +5]$ which is 0.026; in table 1, *CAR* of state-owned company at the 1% level significantly greater than the non-State-owned companies.

Table 1 statistical tests of Short-term performance

	[-5,+5]		[-15,+30]		sample
	<i>CAR</i>	<i>T</i>	<i>CAR</i>	<i>T</i>	
(1)full samples	0.044***	7.907	0.045***	15.172	72
(2)state companies	0.057***	8.703	0.072***	13.106	41
(3)non-state companies	0.026***	5.709	0.009***	3.555	31
Mean difference(2)-(3)	0.031***	8.924	0.064***	9.347	72

Notes: *** p-value<0.01, ** p-value<0.05, * p-value<0.10.

5. Conclusion

It is clear that M&A activities have significant impact on companies and the stock markets. In this paper, all the M&A events which target is ST companies in the A-share market of Shanghai and Shenzhen stock from 2007 to 2011 are selected as the research samples. This study applies event study method like the cumulative abnormal returns (*CAR*) to measure the short-term market performances of companies which M&A target is ST companies. First, the result shows that the short-term market performance of the companies which conduct the M&A activity which target for the first time in the event announcement five days before and after is rising. Further, comparing the short-term market performance of state companies and non-state companies, the result shows that the short-term market performance of state companies is significantly better than non-state companies.

Above all the conclusions, merger and acquisition strategy is the major issues of the enterprise for the future development, but some companies often did not gain benefits from M&A activities and even suffer the loss of wealth because they expand blindly. In this paper, the research of short-term performance shows that though the ST companies are facing financial risk and even delisting risk, but at least they have made good performance in M&A events, so aimed at ST companies in mergers and acquisitions maybe a quick and safe development path for enterprise.

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