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## Acquisition and Long-term Shareholder Value of Acquiring Firm in Chinese Pharmaceutical and Biotechnological Industry: Empirical Evidence Based on Motive Information

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**Abstract:** The previous empirical research did not give consistent evidence on the relationship between acquisition and shareholder value of acquiring firm by examining acquisitions as a homogeneous group without further classification into subgroups with different motives. And most of the research was based on data in the USA and UK from 1950s to 1990s. There is little evidence in the emerging market like China. In this article, the event study was applied to examine the effects of acquisitions with different motives on long-term shareholder value of acquiring firms based on public information in China. For a sample of 151 acquisitions in Chinese pharmaceutical and biotechnological industry from 2004 to 2008, the changes of shareholder value of acquiring firms were estimated in three years following the acquisitions. The empirical study found that acquisitions had positive effects on long-term shareholder value of acquiring firms on average. The same result was found in acquisitions motivated by synergy and there is a two-year time lag for the increase of shareholder value of acquiring firms. Acquisitions with motive of acquiring market share, acquisition of specific assets and to acquire growth had nearly no effects on shareholder value of acquiring firms in the long term.

**Key words:** M&A, motive, pharmaceutical and biotechnological industry, shareholder value

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### INTRODUCTION

Mergers and acquisitions (M&A) continues to be a highly popular development strategy for firms (Cartwright and Schoenberg, 2006). Paralleling the practical importance, M&A has increasingly become a focus of study in several academic fields such as management, finance, economics and sociology. In recent years, the management and finance fields have generated the bulk of published acquisition research. But the actual performance of most M&A didn't live up to the expectations of the acquirers in practice. Managers' subjective evaluation reveals that only 56% acquisitions are satisfied (Schoenberg, 2006).

The phenomenon that M&A performance appears to a paradox to their popularity has attracted the attention of researchers in strategic management and finance. The goal of studies in finance literature is to assess the market-based performance of events related to M&A such as the first public disclosure of a possible merger on shareholder wealth using daily stock data mostly. Most of the research into M&A in strategic management field has concentrated on the effects of M&A on firm performance, measured mainly in terms of profitability, productivity and the impact on share

prices one year or longer after the transactions. Consistent results are not found in these two fields. Most empirical research appearing in the finance literature suggests the average change in market value of acquiring firms varies closely around zero and that many acquirers experience negative returns (Gregory, 1997; Rau and Vermaelen, 1998; Andrade *et al.*, 2001). In contrast, the findings of studies appearing in the strategic management literature tend to be that M&A, or certain types of M&A, may improve the performance of the acquiring firm (Lubatkin, 1983). For example, study based on resource-based view finds positive returns to the acquirer (Capron and Pistre, 2002).

The contrast results are not surprising. Studies on the same phenomenon by researchers on both sides are often from different perspectives due to different research paradigm and methodology. Event study method has become popular as the tool of measuring the impact of M&A on shareholder value both in finance and strategic management fields. Because it doesn't need to analyze accounting-based measures of profit, which are often not good indicators of the true performance of firms due to managers' manipulation of accounting procedures (Benston, 1982). In addition, share prices are supposed to reflect the true value of firms owing to that they can not

be manipulated by managers and shareholders (McWilliams and Siegel, 1997). However, using the event study method, the evidence on the effect of M&A on shareholder value of acquiring firm is less conclusive from literature in both fields.

Most of the evidence accumulated through event studies on returns to shareholder of acquiring firm is for the short term, based on the event window of less than 150 days around the M&A announcement. There are studies report positive cumulative abnormal returns (Uhlenbruck *et al.*, 2006; Arnold and Parker, 2007). However, there are also comparative studies report negative cumulative abnormal returns (Gregory and McCorrison, 2005; Schoenberg, 2006; Kuipers *et al.*, 2009). There is relatively less evidence on long-term cumulative abnormal returns to shareholder of acquiring firm, based on the event window of one year or longer after the announcement or completion of M&A. The results of these studies are still less conclusive. Evidence on slightly positive returns (Lubatkin, 1987) and significantly positive returns for tend offer (Loughran and Vijh, 1997) to acquirers was found. There was also evidence that the returns to acquirers tend to be negative (Gregory and McCorrison, 2005; Sudarsanam and Mahate, 2006).

In summary, empirical research has not provided consistent direction to managers confronted with M&A opportunities who wish to maximize their shareholder value and to investors who wish to get long-term returns from M&A. Halpern (1983) observed that M&A are usually examined as a single and homogeneous group without further classification into subgroups with different motives. Consequently, reported results are for “average” M&A and may distort different effects when M&A occur for dissimilar motives. Therefore, it may prove useful to classify firms into subgroups according to their motives for M&A (Amit *et al.*, 1989). But the research on M&A by classifying firms into subgroups with different motives was very limited. And the classification is hard to be used directly by individual investors in stock market due to its strong theoretical characteristics. The researchers predicted the motive of M&A activities either by identifying the types of M&A or by analyzing the capital structure of the acquiring firm based on theories related to M&A (Halpern, 1983; Amit *et al.*, 1989). And a huge proportion of the research about the relationship between M&A and shareholder value is based on transactions from 1960s to 1990s collected from advanced markets such as the USA and UK. There is very few evidence on the effects of M&A on shareholder value in emerging markets like China in recent years.

This study attempted to provide evidence regarding the effects of acquisitions on long-term shareholder value of acquiring firms in Chinese pharmaceutical and biotechnological industry, where acquisition activities occur frequently and little evidence is available. Firstly, the change of shareholder value was estimated by testing all sample in one group made up of acquisition announcements of the firms listed in Shanghai Stock Exchange and Shenzhen Stock Exchange in pharmaceutical and biotechnological industry. Subsequently, referring to previous theoretical research about the common motives of M&A, the sample was disaggregated into four subgroups based on public information on motives of acquisitions to examine the effects of acquisitions on shareholder value of acquiring firms, which composed of acquisitions driven by 4 different motives. All samples were collected from 2004 to 2008. A number of insights emerge from this study. First, an analysis of long-term abnormal returns after the acquisitions raises questions about the time lag of the effect of M&A on shareholder value. Investors in stock market are able to anticipate how long a merger or acquisition can destroy or create shareholder value. Second, an analysis of the effects of acquisitions driven by different motives on shareholder value sheds light on the decision making for shareholders confronted with M&A opportunities proposed by managers and for individual investors after reading the public information on M&A. Third, the classification of acquisition motive based on public information provides the ideas and basis for the design of financial database and investment decision support system based on text/web mining.

## MATERIALS AND METHODS

**Data:** The data on acquisitions were collected from the RESSET Financial Research Database provided by Beijing Gildata RESSET Data Tech Co., Ltd. The RESSET Financial Research Database collects information on acquiring shares or assets of the target firm in the semi annual report and annual report disclosed by the firms listed on Shanghai Stock Exchange and Shenzhen Stock Exchange. 371 acquisitions involving 84 firms in Chinese pharmaceutical and biotechnological industry (SIC-code C8) were found from 2004 to 2008. Then the motive information of the 371 acquisitions was checked from China Securities Journal, Shanghai Securities News, Securities Times, the official websites of Shanghai Stock Exchange and Shenzhen Stock Exchange. Considering the usability of the sample for the research, some records on acquisitions were cut off as follows:

- Acquisitions missing the information of transaction date (9 records)
- Motive information of acquisitions can not be found (36 records)
- Acquiring firms were listed on Shanghai/Shenzhen Stock Exchange less than 40 months prior to the first announcement of the acquisition transaction (53 records)
- Firms experienced successive losses before acquisitions or had not completed share reform when acquisition transactions began. The stock ID of these firms were titled with ST, \*ST, S (14 records)
- Small size acquisitions (19 records). Taking some small transactions with important effects into account, the small size acquisition is defined as follows. The acquiring firm acquires less than 5% of the target firm's share and can not become the holding company after the acquisition. Or the trading volume of acquisition of the target firm' asset is less than RMB 1,000,000
- The share of acquiring firm was suspended for trading for more than one month or the acquired firms or assets acquired were sold by acquiring firm in the event window (+3, +38). And the acquisition was terminated before its completion (3 records)
- Acquisitions with confounding effects (86 records). The study only kept the largest sum transaction if the acquiring firm is bidding for the target firm from its different shareholders within three months. The acquisitions three months following or followed by another acquisition or other significant events such as restructuring, investment and sale of assets were also excluded. These procedures can make a relative clean data sampling ensure that the acquisition is isolated event and the parameters estimated for the market model reflect only the influence of a single acquisition (Choi and Philippatos, 1983)

This reduction left a study group of 151 acquisitions made by 68 firms. Then referring to previous theoretical research about the common motives for M&A (Cooke, 1986; Trautwein, 1990; Cartwright and Cooper, 1995; DePamphilis, 2005), the study group was divided into four subgroups according to the motive information of acquisitions. The four subgroups represent acquisitions with motives of "Synergy", "To acquire growth", "Acquisition of specific assets" and "Acquiring market share", respectively. The classification rules of subgroups with different motives are as follows. The motive information of the acquisition in announcements or news stories in "Synergy" subgroup contain words or information on reasons of acquisitions: achieve synergy,

achieve economies of scale or scope, improve operating efficiency, acquire vertically to extend industrial chain, such as acquiring a customer, supplier or competitor to integrating sources and lower cost, etc. The acquisition announcements or news stories in "To acquire growth" group contain words or information on reasons of acquisitions: position the firm in higher-growth products or markets, strategic investment in other industries, diversification, etc. The acquisition announcements or news stories in "Acquisition of specific assets" subgroup contain words or information on purpose of acquisitions are as follows: intangible assets, new products, patent, technology, product license, brand, the assets of a bankrupt firm, production facilities, acquire assets for plant or production base such as industrial land, real estate, access to R&D resource, etc. The acquisition announcements or news stories in "Acquiring market share" subgroup contain words or information on reasons: increase market share, the target firms possess important markets, expand market in some areas or overseas, increase export/sales, etc. Finally, 30 acquisitions motivated by synergy (19.87%), 25 motivated by to acquire growth (16.56%), 45 motivated by acquisition of specific assets (29.80%) and 15 motivated by acquiring market share (9.93%) were found. The other 36 acquisitions with various reasons left could not be divided into any subgroup above and their effects on shareholder value of acquiring firms were not analyzed separately in this study.

**Method:** The event study method, estimating a market model for each firm and then calculating abnormal returns as the standard approach (McWilliams and Siegel, 1997), now a conventional approach in finance (Fama, 1991; Kuipers *et al.*, 2009) and management (Lubatkin, 1987; Arnold and Parker, 2007; Papadakis and Thanos, 2010), is employed to assess the market impact of acquisitions. Although the BHAR model is also used for long-term event study (Sudarsanam and Mahate, 2003), the market model has probably been the most popular benchmark employed in event studies (Strong, 1992). The market model is broadly employed to examine the short-term and long-term effects of M&A on firm performance, security price and shareholder value in a huge body of literature in the fields of management and finance in the last thirty years (Lubatkin, 1987; Anand and Singh, 1997; Kuipers *et al.*, 2009; Papadakis and Thanos, 2010). Because the market model results in smaller variances of abnormal returns (relative to raw returns), leading to more powerful statistical tests and produces smaller correlations across security abnormal returns giving closer conformity to standard statistical tests (Beaver, 1981).

According to Kothari and Warner (1997), using an equally-weighted index leads to more powerful tests than using a value-weighted index, equally-weighted index was used as scholars did in previous research (Lubatkin, 1987; Kothari and Warner 1997; Kuipers *et al.*, 2009). Considering strategic events cannot be dated precisely because they represent the outcome of a series of related event, the short time horizon employed when using daily returns data may not capture the full series of strategic event-related returns (Lubatkin and Shrieves, 1986). The monthly returns are popular used in the long-term event studies for M&A (Lubatkin, 1987; Gregory and McCorrison, 2005).

For ease of comparison with previous research, the market model using monthly returns data was employed to estimate the changes in shareholder value of acquiring firms. The market model was estimated as:

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

Where:

$R_{it}$  = The monthly rate of return on the shares of firm  $i$  in month  $t$  collected from RESSET Financial Research Database

$R_{mt}$  = The monthly rate of return on a market portfolio of stocks in month  $t$  (the equally-weighted index collected from RESSET Financial Research Database)

$\alpha_i$  = The intercept term

$\beta_i$  = The systematic risk of stock  $i$

And

$\varepsilon_{it}$  = The error term, with  $E(\varepsilon_{it}) = 0$

From estimation of Eq. 1, the monthly Abnormal Returns (AR) for the  $i$ th firm using the following equation:

$$AR_{it} = R_{it} - (a_i + b_i R_{mt}) \quad (2)$$

where,  $a_i$  and  $b_i$  are the Ordinary Least Squares (OLS) parameter estimates obtained from the regression of  $R_{it}$  on  $R_{mt}$  over an estimation period of 36 months (-40, -5) beginning 40 months prior to the acquisition announcement month.  $AR_{it}$  was calculated over 36 months event window (+3, +38) after the acquisition announcement month.

The Cumulative Abnormal Returns (CAR) for event windows were calculated by summing the monthly abnormal returns:

$$CAR_{i\tau} = \sum_0^{\tau} AR_{it} \quad (3)$$

where,  $CAR_{i\tau}$  is the cumulative abnormal returns on the shares of firm  $i$  over event window  $T$ .

Average Cumulative Abnormal Returns (ACAR) across  $N$  acquisitions is:

$$ACAR_{\tau} = \frac{\sum_{i=1}^N CAR_{i\tau}}{N} \quad (4)$$

The test statistic used is:

$$t = \frac{ACAR_{\tau}}{\sqrt{\frac{\text{Var}(ACAR_{\tau})}{N-1}}} \quad (5)$$

Where:

$$\text{Var}(ACAR_{\tau}) = \sum_{i=1}^N (CAR_{i\tau} - ACAR_{\tau})^2 / N \quad (6)$$

## RESULTS AND DISCUSSION

For all sample in one study group, it was found that the group experienced slightly negative ACAR the 3rd month following the acquisition, and positive ACAR for the period from the 4th month to the 38th month following the acquisition. The ACAR for the period from the 6th month to the 8th month and from the 32nd month to the 38th month following the acquisitions were statistically significant. The results were reported in Table 1. In recent years, researches tended to find negative effect of M&A on long-term shareholder value of acquiring firms based on M&A transactions between 1980s and 1990s in the UK (Gregory and McCorrison, 2005; Sudarsanam and Mahate, 2006). The results above showed acquisitions could lead a positive effect on shareholder value of acquiring firms in the long term, which is consistent to some early empirical studies based on M&A transactions between 1950s and 1980s in the USA (Lubatkin, 1987; Loughran and Vjih, 1997). What's the result for acquisitions with different motives? Do all acquisitions can increase shareholder value of acquiring firm?

From Table 1, it was found that the ACAR of the acquisitions with motive of synergy were positive for the period from the 3rd month to the 38th month following the acquisition. And for the period the 6th, the 17th and from the 25th to the 33rd month following the acquisitions, the ACAR are statistically significant. The result showed acquisition motivated by synergy could increase long-term shareholder value of acquiring firm. The explanation for the result might be that, acquiring firms in Chinese pharmaceutical and biotechnological industry achieved operating synergy. Synergy is often the name give to the concept by which two firms combine and increase their value, which is considered to be a

Table 1: ACAR and t-test of the sample of acquiring firms with different motives for acquisitions from 2004 to 2008

Sample	All sample	Synergy	To acquire growth	Acquisition of specific assets	Acquiring market share
Number	151	30	25	45	15
ACAR(+3, +3)	-0.002	0.020	0.018	-0.007	-0.027
t-test	(-0.19)	(0.94)	(0.65)	(-0.41)	(-0.69)
ACAR(+3, +4)	0.011	0.037	0.054	-0.040*	0.031
t-test	(0.79)	(1.16)	(1.20)	(-1.77)	(0.65)
ACAR(+3, +5)	0.024	0.051	0.054	-0.010	0.05
t-test	(1.45)	(1.64)	(1.09)	(-0.30)	(0.96)
ACAR(+3, +6)	0.040**	0.078*	0.093**	0.007	0.033
t-test	(2.13)	(1.82)	(2.10)	(0.20)	(0.52)
ACAR(+3, +7)	0.039*	0.062	0.105	0.009	-0.036
t-test	(1.94)	(1.46)	(1.71)	(0.27)	(-0.54)
ACAR(+3, +8)	0.041*	0.080	0.111*	-0.006	0.001
t-test	(1.96)	(1.56)	(1.82)	(-0.20)	(0.02)
ACAR(+3, +9)	0.032	0.077	0.075	-0.006	-0.063
t-test	(1.50)	(1.31)	(1.31)	(-0.16)	(-0.93)
ACAR(+3, +10)	0.028	0.074	0.087	-0.004	-0.055
t-test	(1.22)	(1.13)	(1.66)	(-0.11)	(-0.68)
ACAR(+3, +11)	0.024	0.068	0.051	0.013	-0.081
t-test	(1.02)	(1.02)	(0.99)	(0.38)	(-1.02)
ACAR(+3, +12)	0.005	0.041	0.047	-0.035	(-0.060)
t-test	(0.19)	(0.67)	(0.88)	(-1.03)	(-0.82)
ACAR(+3, +13)	0.014	0.017	0.032	0.012	(-0.080)
t-test	(0.55)	(0.27)	(0.58)	(0.31)	(-1.03)
ACAR(+3, +14)	0.030	0.072	0.065	0.009	-0.035
t-test	(1.09)	(1.04)	(1.19)	(0.23)	(-0.47)
ACAR(+3, +15)	0.029	0.071	0.038	0.005	-0.031
t-test	(1.05)	(1.01)	(0.67)	(0.12)	(-0.38)
ACAR(+3, +16)	0.038	0.113	0.037	0.016	-0.048
t-test	(1.29)	(1.46)	(0.60)	(0.34)	(-0.59)
ACAR(+3, +17)	0.035	0.150*	0.029	-0.001	-0.043
t-test	(1.11)	(1.73)	(0.41)	(-0.02)	(-0.53)
ACAR(+3, +18)	0.046	0.127	0.068	0.040	-0.099
t-test	(1.37)	(1.48)	(1.01)	(0.78)	(-1.20)
ACAR(+3, +19)	(0.030)	0.123	0.054	0.024	-0.101
t-test	(0.87)	(1.48)	(0.76)	(0.47)	(-1.01)
ACAR(+3, +20)	0.032	0.096	0.056	0.027	-0.086
t-test	(0.91)	(1.12)	(0.80)	(0.45)	(-0.84)
ACAR(+3, +21)	0.025	(0.120)	0.050	0.010	-0.083
t-test	(0.69)	(1.34)	(0.63)	(0.16)	(-0.80)
ACAR(+3, +22)	0.055	0.126	0.057	0.044	-0.031
t-test	(1.42)	(1.43)	(0.68)	(0.68)	(-0.27)
ACAR(+3, +23)	0.051	0.128	0.044	0.018	-0.009
t-test	(1.31)	(1.54)	(0.55)	(0.29)	(-0.08)
ACAR(+3, +24)	0.053	0.131	0.060	0.020	-0.023
t-test	(1.39)	(1.59)	(0.73)	(0.32)	(-0.20)
ACAR(+3, +25)	0.049	0.161*	0.035	0.014	-0.048
t-test	(1.24)	(1.89)	(0.38)	(0.22)	(-0.41)
ACAR(+3, +26)	0.062	0.178*	0.007	0.027	-0.031
t-test	(1.48)	(2.02)	(0.07)	(0.39)	(-0.25)
ACAR(+3, +27)	0.053	0.164*	0.026	0.033	-0.031
t-test	(1.24)	(1.89)	(0.23)	(0.48)	(-0.23)
ACAR(+3, +28)	0.065	0.180**	-0.001	0.036	0.009
t-test	(1.46)	(2.22)	(-0.01)	(0.48)	(0.07)
ACAR(+3, +29)	0.065	0.174**	0.018	0.035	0.062
t-test	(1.49)	(2.11)	(0.17)	(0.46)	(0.44)
ACAR(+3, +30)	0.066	0.171**	0.045	0.015	0.048
t-test	(1.47)	(2.06)	(0.44)	(0.18)	(0.34)
ACAR(+3, +31)	0.061	0.161*	0.035	0.011	0.020
t-test	(1.31)	(1.84)	(0.28)	(0.13)	(0.14)
ACAR(+3, +32)	0.083*	0.183**	0.038	0.049	0.028
t-test	(1.76)	(2.15)	(0.28)	(0.59)	(0.20)
ACAR(+3, +33)	0.077*	0.144*	0.093	0.072	-0.047
t-test	(1.66)	(1.77)	(0.72)	(0.84)	(-0.34)
ACAR(+3, +34)	0.090*	0.120	0.087	0.115	-0.009
t-test	(1.91)	(1.47)	(0.61)	(1.40)	(-0.06)
ACAR(+3, +35)	0.093*	0.107	0.080	0.108	0.064
t-test	(1.96)	(1.27)	(0.57)	(1.30)	(0.41)

Table 1: Continue

Sample	All sample	Synergy	To acquire growth	Acquisition of specific assets	Acquiring market share
ACAR(+3, +36)	0.109**	0.157	0.074	0.128	0.080
t-test	(2.19)	(1.67)	(0.52)	(1.45)	(0.52)
ACAR(+3, +37)	0.111**	0.146	0.125	0.128	0.070
t-test	(2.21)	(1.48)	(0.82)	(1.47)	(0.47)
ACAR(+3, +38)	0.135***	0.176	0.145	0.149*	0.107
t-test	(2.68)	(1.69)	(1.01)	(1.70)	(0.69)

ACAR stands for the average cumulative abnormal returns during the event windows. \*, \*\*, \*\*\*represent significance at 10%, 5% and 1% levels for two tailed t-test, respectively

value-maximizing motive (Cartwright and Cooper, 1995). Operating synergy can stem from improving operating efficiency through economies of scale or scope by acquiring a customer, supplier, or competitor and from the knowledge transfers (Trautwein, 1990), which is important determinants of shareholder wealth creation supported by empirical studies (Houston *et al.*, 2001; DeLong, 2003). Some fixed costs of firms such as depreciation of equipment, normal maintenance spending, obligations and taxes can not be altered in the short term. Take acquiring a competitor to expand production scale for an example, lower unit costs may be achieved at a higher level of capacity. For a given scale or amount of fixed expense, the dollar value of fixed expenses per dollar of revenue decreases as output and sales increase. Through learning effects, specialization of men and machines may also lead to economies of scale (Cooke, 1986). Economies of scope refers to using a specific set of skills or an asset currently employed in producing a specific product or service to produce related products or services. They are often found when it is cheaper to combine two or more product lines in one firm than to produce them in separate firms (DePamphilis, 2005). For example, firms in pharmaceutical and biotechnological industry can acquire producers of the active pharmaceutical ingredients they need to lower their operating costs.

It was also found that there was a two-year time lag for sustained significant positive ACAR appeared after the acquisitions motivated by synergy. The reason for that might be the challenges of integration. The synergy through the creation or combination of capabilities can sometimes prove to be extremely difficult which has been emphasized by some case studies (James, 2002). The case studies emphasize that whatever synergies are planned for, a large share of the value emerging from acquisitions is based on the integration ability of the acquirer. The acquirer should have the ability to manage the integration process flexibly and make the best of serendipitous linkages between the acquired business and its new parent (Mintzberg, 1987). The acquirers in pharmaceutical and biotechnological industry may need about two years to integrate resources of the target firms.

From Table 1, it was found that the ACAR of the acquisitions motivated by to acquire growth were positive

for the period from the 3rd month to the 27th month and from the 29th month to the 38th month following the acquisitions. The slightly negative ACAR only appeared the 28th month following the acquisitions. The significant positive ACAR only appeared for the period the 6th and 8th month following the acquisitions. To acquire growth is often a motive for acquisition. The target firm may be in a growth industry which seems attractive to the acquiring firm. It may be cheaper to acquire growth rather than to develop into new areas. The q-ratio is the ratio of the value of a firm's shares to replacement costs of its assets (Anand and Singh, 1997). When this ratio is less than 1, it may be appropriate to acquire a firm in a growth industry at a premium, rather than invest in assets. And diversification strategy can position the firm in higher-growth products or markets (DePamphilis, 2005). In practice, firms often acquire others in order to diversify their operations either to increase returns or to lower risk (Cooke, 1986). Through horizontal diversification, firms facing slower growth in their current markets may attempt to achieve higher growth rates by developing or acquiring new products and selling them into familiar current markets. Through conglomerate diversification, firms can develop new products for sale in new markets.

The empirical result showed that acquisitions motivated by to acquire growth could not increase long-term shareholder value of acquiring firms after the 9th month following the acquisitions. One explanation for the result might be that, it's hard for a firm in Chinese pharmaceutical and biotechnological industry to acquire a firm at a premium because the average q-ratio of firms in the whole manufacturing industry in China is greater than 1 (Xu and Shi, 2009). The result could also be explained by diversification theory. From the subgroup of acquisitions motivated by to acquire growth, it could be found that the acquiring firms expanded their product lines or markets into product lines or markets that have higher growth prospects through diversification strategy. Access to a higher growth business might provide higher returns to shareholders of acquiring firms at the beginning. But either selling current products in new markets or selling new products in current markets, acquiring firms will be in an unfamiliar market with higher risk (DePamphilis, 2005). And acquiring firms expanding their business to unrelated

industries, for example, investing in real estate or mining industry, can not gain economies of scale or scope. If an acquisition does not provide synergistic or risk reduction benefits that are unattainable through individual portfolio construction, the acquisition will not enhance profitability and shareholder value in the long term (Jensen and Ruback, 1983). There is a school of thought which argues that diversification by firms is of no value to shareholders, since the latter may diversify their own portfolios more cheaply than can be achieved by firms (Cooke, 1986). Empirical studies also support the conclusion that investors do not benefit from unrelated diversification (DePamphilis, 2005).

From Table 1, it was found that the ACAR of acquisitions motivated by acquisition of specific assets varied closely around zero before the 18th month following the acquisitions. And the ACAR were positive for the period from the 18th month to the 38th month following the acquisitions. Only the negative ACAR appeared the 4th month following the acquisitions and the positive ACAR appeared the 38th month following the acquisitions were significant at 0.1 statistical level. Acquisition of specific assets is also a motive for acquisitions. The target firm may have a specific asset, for example, a patent or good R&D facilities and team that may be utilized more efficiently and effectively by acquiring firm. And acquiring capabilities to adapt more rapidly to environmental changes than could be achieved if developed internally is well supported by strategic realignment theory (DePamphilis, 2005). Taking the accelerating pace of technological change as the example, acquisition is usually viewed as a way of rapidly exploiting new products and industries made possible by the emergence of new technologies. It usually consumes huge resources to develop new products and bring them to the market internally for a firm. Firms often do not have enough time to innovate with shortening products life cycles. Consequently, firms, especially in high-tech industries, pursue acquisition as a fast and sometimes cheaper way to achieve new technologies and proprietary know-how to fill gaps in their current product offering or to entirely new businesses.

The empirical result meant that acquisitions aiming at some specific assets could not increase long-term shareholder value of acquiring firms, at least within 3 years following the acquisitions. This could also be explained by the q-ratio theory. As mentioned earlier in this study, the average q-ratio of firms in the whole manufacturing industry in China is greater than 1 (Xu and Shi, 2009). It's hard for firms in Chinese pharmaceutical and biotechnological industry to get

excess returns by acquiring some assets at a cheaper price. A second possibility might be that, it's difficult for firms in Chinese pharmaceutical and biotechnological industry to acquire really competitive technologies. A production license or technology/know how of a competitive product can bring sustained returns for its owner. Even the firms owning competitive intangible assets plan to sell them, there will be many bidders. The price the acquiring firm bids finally is probably close to the cash flow the acquirer will get in the future. And it also needs a relatively long term for firms to complete the construction of production base on the industrial land they acquired and to integrate the production line into their current production.

Acquiring market share is another motive for acquisitions. Through increasing market share by acquisitions, the firms can improve their monopoly power to set prices above competitive levels, which is explained by the market power theory (DePamphilis, 2005). And increased market share usually means the increase of sales performance. According to the previous theoretical research, acquiring market share is considered to be a managerial or non-value-maximizing motive for M&A (Cartwright and Cooper, 1995). But the goal of most acquisitions motivated by acquiring market share is maximizing shareholder value of acquiring firms, which is often stated in financial reports and acquisitions announcements of acquiring firms. From Table 1, it was found that, the ACAR of acquisitions with motive of acquiring market share varied closely around zero for the periods from the 3rd month to the 8th month and from the 28th month to the 38th month following the acquisitions. For the period from the 9th month to the 27th month following the acquisitions, the ACAR were slightly negative. The ACAR were insignificant within three years following the acquisitions.

The empirical result meant that acquisitions motivated by acquiring market share had no effects on shareholder value of acquiring firms. Through acquiring market share, firms can improve their sales performance. However, some previous studies looking for M&A-drivers could not find evidence that sales performance has been a real motive (Higgins and Rodriguez, 2006; Danzon *et al.*, 2007). An acquisition may be motivated by agency problems, hubris, managerial entrenchment, or empire building by self-interested managers (Amihud and Lev, 1981; Malatesta, 1983; Roll, 1986). And there is very little empirical support for monopoly power theory. Many recent studies conclude that increased acquisition activity is much more likely to contribute to improved operating efficiency of combined



firms than to increased market power (DePamphilis, 2005). Considering the implementation of the drug retail price control policy by Chinese government in late 2000 (Meng *et al.*, 2005), even if the firms in Chinese pharmaceutical and biotechnological industry could improve their monopoly power through acquiring market share, they still could not set a satisfying price.

## CONCLUSION

The objective of the research was to investigate the long-term effects of acquisitions with different motives on shareholder value of acquiring firms. Based on the public information on motive of acquisition, the effects of 151 acquisitions with four different motives on shareholder value of acquiring firms in Chinese pharmaceutical and biotechnological industry were examined from 2004 to 2008. Employing standard event study, with market model benchmark, the results of all sample in one study group showed that acquisitions had positive effects on shareholder value of acquiring firms in the long term at 0.1, 0.05 and 0.01 statistical levels. The sustained significant positive ACAR appeared since the 32nd month following the acquisitions. But not all acquisitions are value creators. Acquisitions with motive of synergy could increase shareholder value of acquiring firms in the long term. But there is a two-year time lag. Acquisitions motivated by acquiring market share, acquisition of specific assets and to acquire growth had no significant effects on shareholder value of acquiring firms in the long term.

The results have important implications for shareholders and investors in the stock market. For shareholders of acquiring firms, they need to think the proposal of acquisitions carefully before making the decision. An acquisition with the motive of synergy probably can increase the shareholder value of acquiring firms in the long term. The ultimate goal of almost all acquisitions stated by managers in the financial reports or announcements is increasing the shareholder value of acquiring firms in China. However, the effects of acquisitions, with motive of acquiring market share, acquisition of specific assets and to acquire growth, on shareholder value of acquiring firms may be unpredictable and uncontrollable by managers even with true value-maximizing motives. And the stated effects of an acquisition on shareholder value may have been announced to induce shareholders to endorse the deal (Ismail, 2011). For individual investors in stock markets, especially value investors, they can make the investment decision based on the public

motive information of acquisitions and the time lag for the changes of shareholder value of acquiring firms.

The contribution of this study has been to bring new evidence on the effects of M&A on shareholder value of acquiring firms in emerging markets like China. The study adds to the evidence that mergers and acquisitions can increase shareholder value of acquiring firms in the long term. The finding is consistent to some early empirical studies based on M&A transactions between 1950s and 1980s in the USA. And this study provides evidence on the effects of acquisitions with different theoretical motives on shareholder value of acquiring firms. This study is the first empirical study on the effects of acquisitions on shareholder value of acquiring firms through analyzing public information on motives of acquisitions. It provides a new perspective for investors to make investment decision and provides the ideas for the design of financial database and investment decision support system based on text/web mining.

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## REFERENCES

- Amihud, Y. and B. Lev, 1981. Risk reduction as managerial motive for conglomerate mergers. *Bell J. Econ.*, 12: 605-617.
- Amit, R., J. Livnat and P. Zarowin, 1989. A classification of mergers and acquisitions by motives: Analysis of market responses. *Contemp. Account. Res.*, 6: 143-158.
- Anand, J. and H. Singh, 1997. Asset redeployment, acquisitions and corporate strategy in declining industries. *Strategic Manage. J.*, 18: 99-118.
- Andrade, G., M. Mitchell and E. Stafford, 2001. New evidence and perspectives on mergers. *J. Econ. Perspectives*, 15: 103-120.
- Arnold, M. and D. Parker, 2007. UK competition policy and shareholder value: The impact of merger inquiries. *Br. J. Manage.*, 18: 27-43.
- Beaver, W.H., 1981. Econometric properties of alternative security return methods. *J. Account. Res.*, 19: 163-184.
- Benston, G.J., 1982. Accounting numbers and economic values. *Antitrust Bull.*, 27: 161-215.

- Capron, L. and N. Pistre, 2002. When do acquirers earn abnormal returns? *Strategic Manage. J.*, 23: 781-794.
- Cartwright, S. and C.L. Cooper, 1995. *Managing Mergers, Acquisitions and Strategic Alliances*. 2nd Edn., Butterworth-Heinemann, Oxford, UK., ISBN-13: 9780750623414, pp: 20-21.
- Cartwright, S. and R. Schoenberg, 2006. Thirty years of mergers and acquisitions research: Recent advances and future opportunities. *Br. J. Manage.*, 17: S1-S5.
- Choi, D. and G.C. Philippatos, 1983. An examination of merger synergism. *J. Financial Res.*, 6: 239-256.
- Cooke, T.E., 1986. *Mergers and Acquisitions*. Blackwell, Oxford, UK., ISBN-13: 9780631147473, pp: 26-37.
- Danzon, P.M., A. Epstein and S. Nicholson, 2007. Mergers and acquisitions in the pharmaceutical and biotech industries. *Manage. Decis. Econ.*, 28: 307-328.
- DeLong, G., 2003. Does long-term performance of mergers match market expectations? Evidence from the US banking industry. *Financial Manage.*, 32: 5-25.
- DePamphilis, D., 2005. *Mergers, Acquisitions and other Restructuring Activities*. 3rd Edn., Academic Press, Waltham, MA., USA., ISBN-13: 9780080511436, pp: 6-13.
- Fama, E.F., 1991. Efficient capital markets: II. *J. Finance*, 46: 1575-1617.
- Gregory, A. and S. McCorriston, 2005. Foreign acquisitions by UK limited companies: Short- and long-run performance. *J. Empirical Finance*, 12: 99-125.
- Gregory, A., 1997. An examination of the long run performance of UK acquiring firms. *J. Bus. Finance Accounting*, 24: 971-1002.
- Halpern, P., 1983. Corporate acquisitions: A theory of special cases? A review of event studies applied to acquisitions. *J. Finance*, 38: 297-317.
- Higgins, M.J. and D. Rodriguez, 2006. The outsourcing of R&D through acquisitions in the pharmaceutical industry. *J. Financial Econ.*, 80: 351-383.
- Houston, J.F., C.M. James and M.D. Ryngaert, 2001. Where do merger gains come from? Bank mergers from the perspective of insiders and outsiders. *J. Financial Econ.*, 60: 285-331.
- Ismail, A., 2011. Does the management's forecast of merger synergies explain the premium paid, the method of payment and merger motives? *Financial Manage.*, 40: 879-910.
- James, A.D., 2002. The strategic management of mergers and acquisitions in the pharmaceutical industry: Developing a resource-based perspective. *Technol. Anal. Strategic Manage.*, 14: 299-313.
- Jensen, M.C. and R.S. Ruback, 1983. The market for corporate control: The scientific evidence. *J. Financial Econ.*, 11: 5-50.
- Kothari, S.P. and J.B. Warner, 1997. Measuring long-horizon security price performance. *J. Financial Econ.*, 43: 301-339.
- Kuipers, D., D. Miller and A. Patel, 2009. The legal environment and corporate valuation: Evidence from cross-border takeovers. *Int. Rev. Econ. Finance*, 18: 552-567.
- Loughran, T. and A.M. Vijh, 1997. Do long-term shareholders benefit from corporate acquisitions? *J. Finance*, 52: 1765-1790.
- Lubatkin, M. and R.E. Shrieves, 1986. Towards reconciliation of market performance measures to strategic management research. *Acad. Manage. Rev.*, 11: 497-512.
- Lubatkin, M.H., 1983. Mergers and the performance of the acquiring firm. *Acad. Manage. Rev.*, 8: 218-225.
- Lubatkin, M.H., 1987. Merger strategies and stockholder value. *Strategic Manage. J.*, 8: 39-53.
- Malatesta, P.H., 1983. The wealth effect of merger activity and the objective functions of merging firms. *J. Financial Econ.*, 11: 155-181.
- McWilliams, A. and D. Siegel, 1997. Event studies in management research: Theoretical and empirical issues. *Acad. Manage. J.*, 40: 626-657.
- Meng, Q., G. Cheng, L. Silver, X. Sun, C. Rehnberg and G. Tomson, 2005. The impact of China's retail drug price control policy on hospital expenditures: A case study in two Shandong hospitals. *Health Policy Plann.*, 20: 185-196.
- Mintzberg, H., 1987. Crafting strategy. *Harvard Bus. Rev.*, 65: 66-75.
- Papadakis, V.M. and I.C. Thanos, 2010. Measuring the performance of acquisitions: An empirical investigation using multiple criteria. *Br. J. Manage.*, 21: 859-873.
- Rau, P.R. and T. Vermaelen, 1998. Glamour, value and the post-acquisition performance of acquiring firms. *J. Financial Econ.*, 49: 223-253.
- Roll, R., 1986. The hubris hypothesis of corporate takeovers. *J. Bus.*, 59: 197-216.
- Schoenberg, R., 2006. Measuring the performance of corporate acquisitions: An empirical comparison of alternative metrics. *Br. J. Manage.*, 17: 361-370.
- Strong, N., 1992. Modelling abnormal returns: A review article. *J. Bus. Finance Account.*, 19: 533-553.
- Sudarsanam, S. and A.A. Mahate, 2003. Glamour acquirers, method of payment and post-acquisition performance: The UK evidence. *J. Bus. Finance Account.*, 30: 299-342.

- Sudarsanam, S. and A.A. Mahate, 2006. Are friendly acquisitions too bad for shareholders and managers? Long-term value creation and top management turnover in hostile and friendly acquirers. *Br. J. Manage.*, 17: S7-S30.
- Trautwein, F., 1990. Merger motives and merger prescriptions. *Strategic Manage. J.*, 11: 283-295.
- Uhlenbruck, K., M.A. Hitt and M. Semadeni, 2006. Market value effects of acquisitions involving internet firms: A resource-based analysis. *Strategic Manage. J.*, 27: 899-913.
- Xu, J. and X. Shi, 2009. Calculating Tobin's Q of China listed companies. *Proceedings of the International Conference on Management and Service Science*, September 20-22, 2009, Wuhan, China, pp: 1-4.