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Empirical evidence on acquisition activities

Abstract

This study focuses on takeover activities on the Stock Exchange of Thailand (SET) and predominantly examines their effects on target and bidding firms. Even though there is more consensus about the net shareholders’ wealth, especially nearly all of prior studies report the target firm shareholders’ wealth gains, the evidence on bidding firm’s shareholder returns is mixed. Thus, this research has been undertaken to explore this issue in a Thai context: whether or not takeovers result in positive or negative impact on the event firms’ shareholders and subsequently their total gains. It is known that event study results are sensitive to the metrics used and therefore, the study investigates a long-window excess return, or during a period of twelve months before and after the announcements by means of a number of metrics. For example, the zero-one model was used to estimate the returns for the bid period, the cumulative abnormal excess return, or during a period of twelve months before and after the announcements by means of a number of known that event study results are sensitive to the metrics used and therefore, the study investigates a long-window three parametric test statistics: standardized-residual test, standardized cross-sectional test and conventional return (CAR) and buy-and-hold abnormal return (BHAR) were applied for the measurement of the returns, and the

Introduction

Mergers and acquisitions do not guarantee success for all business combinations. Past studies show that successful firms that combine businesses can benefit from economies of scale or economies of scope, but diversification for other reasons tends to be less successful (e.g., Besanko, Dranove, Shanley & Schaefer, 2004; Cole, Fatemi & Vu, 2006; Denis & McConnell, 2003; Hitt, King, Krishnan, Makri, Schijven, Shimizn & Zhu, 2009; Shleifer & Vishny, 1989). Some studies suggest that corporate transactions and valuations can be affected by the business cycle (Bouwman, Fuller & Nain, 2009; Ma & Ukhov, 2011; Shleifer and Vishny, 2003). Forms of the event study methodology has been the predominant method used to measure stock price responses to merger or takeover announcements, and most studies suggest that takeovers create shareholder wealth (e.g., Akbulut & Matsusaka, 2010; Beitel, Schiereck & Wahrenburg, 2002; Bruner, 2002; Campa & Hernando, 2004; Jensen, 2006; Kuipers, Miller & Patel, 2002).

However, surveys reveal that studies show that target firm shareholder returns are on average significantly positive; meanwhile, the evidence on bidding firms is far less conclusive (e.g., Bruner, 2002; Campa & Hernando, 2004; Datta, Pinches & Narayanan, 1992). Jensen and Ruback (1983) and some others, such as Sudarsanam and Ashraf (2003), Eckbo (2009) and Martynova and Renneboog (2008a) show that the results are divided between those studies that report negative and positive or zero returns to bidding firm’s shareholders.

Consequently, even though surveys, such as Betton, Eckbo and Thorburn (2008a), Burkart and Panunzi (2006), Eckbo (2009), Martynova and Renneboog (2008a); and most of the studies, such as Berkovith and Narayanan (1993), Cummins and Weiss (2004), Leeth and Borg (2000) and Martynova and Renneboog (2011) report positive total abnormal returns, or total gains; some argue that takeovers have negative effects; for example, Aktas, Bodt and Declerck (2002) find negative combined returns of event firms, which are similar to part of results reported by Akbulunt and Matsusaka (2010), Firth (1980) and Varaiya (1985); or create little or no value, such as Beitel, Schiereck & Wahrenburg, (2002), Houston, James & Ryngaert (2001) and Langetieg (1978). Therefore, the results are mixed, though they suggest that anticipated wealth creation can be viewed as the likely rationale behind merger and acquisition decisions.

Thus, this research has been undertaken to explore this issue in a Thai context: whether or not takeovers result in positive or negative effects on target and bidding firms’ shareholders and subsequently their total gains. The study primarily based on a sample of successful tender offers. The analysis emphasized abnormal performance measurement by using monthly stock price data. Several metrics were used. These include the zero-one model which was employed for the abnormal return estimation for the long-term (bid period), the cumulative abnormal return (CAR) and buy-and-hold abnormal return (BHAR) were used for the measurement of the returns to the target and bidding firms. Moreover, three parametric statistics tests were also applied.
This study provides evidence that the takeovers, occurring in the Thai stock market result in considerably positive total gains to the event firms. The study enriches the financial literature on emerging markets in terms of greatly enhancing variety results and provides a further comparison with developed stock markets.

1. Review of prior studies

Prior studies show that the stock prices of target firm significantly increase at and around the announcement of a takeover. These studies include studies that examine the takeover activities occurring prior to 1980 and during the 1980s and 1990s (e.g., Mandelker, 1974; Ellert, 1976; Eckbo, 1983; Bradley, Desai & Kim, 1988; Frank, Harris & Titman, 1991: Schwert, 1996) and more recent studies (e.g., Bhagat, Dong, Hirshleifer & Noah, 2005; Martijn, Vinay & Kose, 2009). Similar evidence is suggested by surveys, such as Datta, Pinches & Narayanan (1992), Jarrell, Brickley & Netter (1988) and Jensen & Ruback (1983); and more recent surveys, such as Bruner (2002), Burkart & Panunzi (2006), Campa & Hernando (2004); and Martynova & Renneboog (2008a).

Work on non-USA and European stock markets gives further support; see, for example, King (2009) in a Canadian study; Da Silva Rosa, Izan, Steinbeck, and Walter (2000) in an Australian study; Firth (1997), in a New Zealand study; Kang, Shivdasani, and Yamada (2000), in a Japanese study, all report that the target firm shareholders benefit significantly from takeover announcements.

Meanwhile, the evidence on bidding firm’s shareholder returns is inconclusive. Datta, Pinches, and Narayanan (1992) cite some contrary evidence to that reported in Jensen and Ruback (1983) and Jarrell, Brickley, and Netter (1988). In particular, they find that the bidding firm’s shareholders do not gain at all; whether successful or not.

Bruner (2002) summarizes the findings of 44 studies and 13 of 20 studies report significantly negative returns varying between -1% and -3%. Similarly, Campa and Hernando (2004) summarize the findings of 17 studies, 10 of these studies report negative abnormal returns which vary between less than 1% and -5%, and in most cases are significantly different from zero. Seven more studies report zero or positive abnormal returns ranging from zero to 7%. Additional support, but different views, from some other studies; for example, Brown and Da Silva Rosa (1998) report that acquisitions increase bidding firm shareholders’ equity value, which are similar results reported in studies of Beitel, Schiereck & Wahrenburg (2002), Eckbo & Thorburn (2000), Floreani & Rigamonti (2001), Fields, Fraser & Kolari (2007), Goergen & Renneboog (2004), Ghosh (2001), Ghosh (2004), Herman & Lowenstein (1988), Parrino & Harris (1999).

Even though there is more consensus about the net shareholder wealth effect of takeovers, some other studies report different results. Most studies report positive combined returns, but relatively small ranging from less than 1% to 5% (e.g., Campa & Hernando, 2004; Fan & Goyal, 2006; Goergen & Renneboog, 2002; Holmen & Knopf, 2004; Houston, James & Ryngaert, 2001; Kuipers, Miller & Patel, 2002; Moeller, Schlingemann & Stulz, 2005; Mulherin & Boone, 2000); except for studies by Bradley, Desai, and Kim (1988), Healy, Palepu, and Ruback (1992), Lang, Stulz and Walkling (1989), and Smith and Kim (1994) report positive combined returns, ranging from 7.43% to 11.30%. Meanwhile, Varia (1985) finds negative combined returns of -3.90%. Aktas, Bodt and Declerck (2002) report both positive and negative combined returns, varying from -0.61% to +5.89%, which are similar to those reported by Akbulut and Matsusaka (2010).

Whilst most of the previous studies have focussed on US and European events, only a small number of merger studies have examined developing or emerging stock markets (e.g., Estrada, Kritzman & Page, 2006; Fernandes, 2005). Moreover, there have been a very small number of studies investigating Thai mergers. Lins and Servaes (2002) assess the value of corporate diversification in seven emerging markets, including the Thai stock market, and find that diversified firms experience a discount of approximately 7% when compared with single-segment firms. Claessens, Djankov, Fan, and Lang (1998) suggest that whilst firms in more developed stock markets are successful in vertical diversification; in less developed stock markets, firms in Indonesia, Korea, Taiwan and Thailand appear to suffer significantly negative effects from vertical integration, but gain significantly benefits from complementary expansion. Fauver, Houston, and Naranjo (2003) report that in high-income countries, there is a significant diversification discount, but in lower-income and segmented countries, there is either no diversification discount or diversification premium. Khanna and Palepu (2000) suggest that diversification is more valuable in emerging markets than in more developed economies. The evidence is therefore inconclusive.

Obviously, most studies have focused on stock returns over short-time periods (a few days or a few months) around the takeover announcements, including Thai merger studies. In addition, they have been predominantly analyzing a target or bidding firm’s
performance rather than examining total takeover effects, or total gains of the event firms. These Thai studies used daily stock price data, examined short-window abnormal returns and applied only the market model plus a limited range of statistical tests. We know that event study results are sensitive to the metrics used. Thus, a more comprehensive study of merger and acquisition performance on the Thai stock market is timely and justified.

Unlike prior Thai studies, I examine both firms and use monthly stock price data to investigate long-time period effects around the takeover announcements, or during a period (-12, +12) months before and after the takeovers. Specifically, in addition to including more sample data by covering a longer period from 1992 to 2002, this study investigates target and bidding firms and their total gains using several research methodologies including the zero-one model, the CAR and BHAR methods and the simple and weighted average methods. This contributes to the understanding more of Thai takeover effects on the event firms, and enriches financial literature in terms of greatly enhancing the existing literature given the limited number of prior studies involved and the variety of their results.

A majority motivation for this study is to examine whether or not different samples, markets and methodologies result in different outcomes. This is the first comprehensive study of Thai mergers, focusing both target and bidding firms. This study extends the literature and permits an international comparison of merger and acquisition effects on the Thai stock market.

2. Data

This study uses stock price data rather than accounting data for the takeover performance measurement. There are four significant sources of data set out as follows. The list of total companies listed on the SET at any point of time during the period of 1991-2003, the list of delisted companies and the list of companies traded under the rehabilitation sector or “REHABCco” were obtained from the SET. All tender-offer statistics between August 1992 and October 2002 were obtained from the Securities and Exchange Commission, Thailand (SEC).

3. Research methodology

Past studies show evidence that market reaction to news is not always completed over short-time periods, such as Loughran & Vijn (1997) and Rosen (2006). Similarly, several more studies document abnormal returns spread over the long-term post-event period of time, for example, studies by Baker & Limmack (2001), Fama (1998), Hou, Olsson & Robinson (2000), Kothari (2001), Kothari & Warner (1997), Schwert (2002). However, there have been studies concentrate on merger and acquisition activities on developed stock markets, for example, Brown and Warner (1980 and 1985), Campbell and Wasley (1993), Dumontier and Pettit (2002), Dyckman, Philbrick, Stephan and Hicks (1984), Fields, Fraser, and Kolari (2007) and Goergen and Renneboog (2002), among others. Most of them have examined abnormal returns measured on a particular day or cumulated over some months. There are an increased number of recent studies that have focused more on long-term performance examination, but they have emphasized more on target firms rather than bidding firms, and very less on total gains of the event firms. Even though Martynova and Renneboog (2008a) suggest that to determine the success of a takeover, one can take several perspectives, such as evaluating M&As from the perspective of the target’s or bidder’s shareholders, or calculating the combined shareholder wealth effects, Cybo-Ottone and Murgia (2000) argue that looking only at the target and bidder separately would give a distorted interpretation of the market reaction to the announcement.

Thus, I evaluate the target’s and bidder’s total gains resulted from the takeover announcements over the bid-period by using the simple average and weighted average methods, which are similar to those applied in Jensen and Ruback (1983) and Akbulut and Matsusaka (2010), respectively. Nevertheless, by comparison, with a limitation number of studies examining takeover effects either on developing markets or the Thai market, nearly all of them have given priority to short-term performance investigation, used daily stock price data and applied the limited ranges of research methods and statistical tests.

An interest of this research is examining long-term bid-period abnormal return behavior of target and bidding firms. This consequently results in total gains of the event firms responded to takeover announcements on the SET. This study uses monthly stock price data to investigate the effects around the takeover announcements, or during a period (-12, +12) months before and after the takeovers. Specifically, in addition to including sample data by covering a longer period from 1992 to 2002, this study investigates target and bidding firms and their total gains using research methodologies. For example, I apply the zero-one model, the CAR and BHAR methods for abnormal return measurement; and the three significance statistic tests: standardized-residual test, standardized cross-sectional test and conventional t-tests are also used.

This study is largely based on a sample of successful tender offers. The analysis emphasizes abnormal performance measurement by using monthly stock
price data. The firm’s stock price reaction to the takeover announcement was estimated as the rate of abnormal return to the shareholders of the target and bidding firms. The abnormal return was defined as the difference between the realized return observed from the market and the benchmark return over the period around the takeover announcements. Also, it was defined “at the announcement of takeovers” or “around the takeover announcements” as the event-window of the examination.

The event period was the bid period or (-12, 0, +12) months, month ‘0’ was defined as the event month, and the event month was defined as the submission month of the tender offer by the bidder to the SEC, or the month that the proposal was filed at the SEC. The analysis is based on the tender offer statistics obtained from the SEC between 1992 and 2002. The sample firms were classified according to whether they were involved as a target or bidder ones.

In the time selected, the takeovers on the SET involved 151 tender offers (151 targets and 74 bidders). From this database, a sample was set up according to the following criteria:

1. A tender offer was classified as being successful if the bidder increased its holding of the target shares or purchased at least some1 of the outstanding target shares that were tendered for. Thai security legislation defines a proportion above 25% of the target shares’ holdings as a ‘strategic shareholder’ and the bidder is required to tender an offer for the total remaining outstanding shares of the target.
2. Any tender offer was excluded from the sample when it occurred with the purpose of a delisting2. Some cases were also deleted when the tender offer was cancelled later or the target firm was in the process of delisting.
3. The survivorship period of time required in this study is the period over (-48, +16) months, due to the limitation of available stock price data.

These selection criteria reduced the initial sample from 151 tender offers to 52 tender offers (52 target firms) and 28 tender offers (42 bidding firms).

3.1. Measurement of abnormal returns. 3.1.1. The zero-one model. To examine the effect of the event on each stock, i, control is made for the normal relation between the return on stock i during month t, and the return on the market index $R_{mt}$:

$$R_i = \beta_i R_{mt} + \epsilon_i,$$  

(1)

where $R_i$ is the return of stocks, $R_{mt}$ is the return of market index, $\beta_i$ is the systematic risk of stocks and $\epsilon_i$ is the error term.

The zero-one model was selected as an expected return model and the OLS (ordinary least squares) regression was used in regression of the stock return over three years of the estimation period against the return on the valued weighted SET index for the corresponding calendar months. Month 13 (or 0) was determined as the event month and calculated 25 abnormal returns on each stock over the period around the takeover announcements, from month 1 (-12) through to month 25 (+12). This interval is the event window for the bid period investigation of this study. The impact of the event on stock returns was examined through a number of stocks that were affected by the takeover announcements at the event time. The abnormal returns (ARs) were averaged as

$$AAR_i = 1/n \sum_{t=1}^{n} \epsilon_i,$$  

(2)

where n is the number of stocks.

The accumulated effect of the event was examined using the cumulative abnormal return (CAR) measure. The values of the AARs were continuously cumulated for every month from $T_1$ (month 1 or -12) to $T_2$ (month 25 or +12) as

$$CAAR = \sum_{t=T_1}^{T_2} AAR_t.$$  

(3)

The buy-and-hold abnormal return (BHAR) approach was also used. A stock’s BHAR was defined as the product of one plus each month’s abnormal return, minus one. To obtain a holding-period buy-and-hold abnormal return ($BHAR_{iT}$), the abnormal returns were calculated as

$$AR_i = R_i - \alpha_i - \beta_i R_{mt},$$  

(4)

$$BHAR_{iT} = \prod_{t=0}^{T-1} [1 + AR_{it}] - 1,$$  

(5)

where t = 0 is the event month or the beginning period and T-1 is the period of investment (in months).

Abnormal performance ($BHAR_{it}$) was defined as the cross-sectional average of the buy-and-hold abnormal return of the number of stocks (n). That is the abnormal return ($BHAR_{iT}$) was averaged as

$$BHAR_{iT} = 1/n \sum_{i=1}^{n} BHAR_{iT}.$$  

(6)
3.2. Significance tests of abnormal returns. To test the null hypothesis that the mean cumulative or BHAR is equal to zero for a sample of n firms, I employed three parametric test statistics.

**Standardized-residual test**

\[
t = \frac{\sum_{i=1}^{N} SR_{iE}}{\sqrt{\sum_{i=1}^{N} (T_i - 2) / (T_i - 4)}}
\]

or \( t = \sum_{i=1}^{N} SR_{iE} / \sqrt{N} \)

where \( SR_{iE} \) is the standardized residual, \( T_i \) is the number of days (months) in security \( i \)'s estimation period and \( N \) is the number of firms in the sample.

**Standardized cross-sectional test**

\[
t = \frac{1}{N} \sum_{i=1}^{N} \frac{SR_{iE}}{\sqrt{1/N(N-1)}} \times \frac{1}{N} \sum_{i=1}^{N} \left( SR_{iE} - \frac{\sum_{i=1}^{N} SR_{iE}}{N} \right)^2.
\]

**Conventional t-tests**

\[
t_{CAR} = \frac{\overline{CAR}_{it}}{(\sigma(CAR_{it}) / \sqrt{n})},
\]

\[
t_{BHAR} = \frac{\overline{BHAR}_{it}}{(\sigma(BHAR_{it}) / \sqrt{n})}
\]

where \( \overline{CAR}_{it} \) and \( \overline{BHAR}_{it} \) are the sample averages and \( \sigma(CAR_{it}) \) and \( \sigma(BHAR_{it}) \) are the cross-sectional sample standard deviations of abnormal returns for the sample of \( n \) firms.

4. Results

The zero-one model was used for the estimation of abnormal returns for the target and bidding firms’ shareholders. The CAR and BHAR were applied for the return measurements. The results are presented and explained in the following section in terms of the performances of the average abnormal returns of the event firms and their total gains. The main issues are the size and signs of these abnormal returns and whether or not they are significantly different from zero. The details of the results are shown in Table 1.

Table 1. Summary of results estimated from the zero-one model for target and bidding firms (bid period) investigations

<table>
<thead>
<tr>
<th>Sample</th>
<th>CAARs (%12,0)</th>
<th>% of stocks with positive CAARs</th>
<th>Average % of stocks with positive CAARs</th>
<th>Zero-one model (-12, +12)</th>
<th>ATSRS</th>
<th>AASRS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CAARs</td>
<td>ABHARs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Target firms (52 firms)</td>
<td>0.311 (NA)</td>
<td>71.15</td>
<td>58.77</td>
<td>0.470 (3.69)**</td>
<td>0.382 (1.94)</td>
<td>7.316 (0.98)</td>
</tr>
<tr>
<td>Bidding firms (42 firms)</td>
<td>0.294 (NA)</td>
<td>71.43</td>
<td>62.19</td>
<td>0.183 (1.65)</td>
<td>1.156 (1.00)</td>
<td>9.422 (1.41)</td>
</tr>
</tbody>
</table>

Note: CAARs are the cumulative average abnormal returns; ABHARs are the average buy-and-hold abnormal returns; ATSRS are the means of total or the sum of standardized residuals; AASRs are the means of the average event-period standardized residuals. The test statistics are provided in the parentheses below the values of the abnormal returns. According to the conventional t test, the results of the significance tests are the tests for the CAARs and ABHARs over the period (-12, +12) for the bid period investigation. * When excluded \( Q-10XYt \) which has the remarkable substantial stock price returns in the sample, the ABHARs are significant positive at 47.13% \( t = 2.12 \), *Significant at the 5% level. **Significant at the 1% level.

The takeover effects during the announcement month were investigated and the results show that the CAARs over the period (-12, 0), starting twelve months prior to and including the event month, of the target firms are positive at 31.10%. The total standardized residuals (TSRs) and the average event-period standardized residuals (ASRs) are significant and positive at 67.88 and 1.31, consecutively. The percentage of stocks with positive CAARs is 71.15% which are higher than the average of 58.77%. Meanwhile, the CAARs over the same period for the bidding firms are positive at 26.40%. The percentage of stocks with positive CAARs is 71.43% which are greater than the average of 62.19%.

For the purposes of measuring the full effect of the takeover and to strengthen the results, the CAARs prior to and post the announcement months were estimated, and in addition to using the CAR approach for calculating the return measurements, the BHAR approach was also used. Therefore, in this section these results were evaluated and explained relative to the two firms.

The CAARs over the period (-12, -1) for the target firms are significant and positive at 18.30%. The CAARs and ABHARs over the period (-12, +12) are significantly positive at 47% and 38.20%, respectively. Those over the period (-12, -1) for the bidding firms are substantially positive at 27%; while the CAARs and ABHARs over the period (-12, +12) are positive at 18.30% and 15.60%, respectively.

To measure the total gains of the target and bidding firms, in addition to using the simple average method, which is similar to that used in Jensen and Ruback (1983), the study uses the weighted average method, which is close to that applied in Akbulut and Matsusaka (2010). As a result, the total gains for the event firms are positive at 57.50% and 29%.
respectively, or approximately 43.25% on average, indicating takeovers increase shareholders’ wealth. The results are in line with those of most prior studies particularly in terms of return direction, even though of different magnitude perhaps due to larger or different event window (see Campa & Hernando, 2004, p. 50).

**Conclusion**

This study gives light to results which are robust. The findings are consistent with each other, especially in the aspect of the return direction, when comparisons are made between the CAR and BHAR methods and between the simple and weighted average methods. The results are thus internally consistent when compared within this study itself, and also with most of the findings of previous studies of the developed stock markets and the limited existing studies of emerging stock markets, with respect to the different samples, methods and time periods of the investigations.

This research contributes to understanding more of the impact of takeover effects on the target and bidding firms traded on the SET. The main findings suggest that a Thai takeover announcement results in substantial and positive abnormal returns to the target and bidding firms’ shareholders. The average total gains are approximately about 43.25% explaining takeovers increase values. The results add to the literature on emerging markets in terms of enhancing the existing literature, given the limited number of prior studies involved and international comparisons of takeover effects on the Thai stock market.

**References**