INVESTORS' REACTION TO MERGER ANNOUNCEMENTS ON THE POLISH STOCK MARKET

Abstract

Merger or acquisition can be a method of enlarging a company. Stock market listed companies’ activities are assessed by investors, who, taking into account the significance of every event connected with a company, evaluate the share price of the company. Among transactions assessed by investors there are also transactions of firm combination. The aim of this study is to check how investors reacted on the information about a merger of companies listed on the Warsaw Stock Exchange. The results of the earlier research on how mergers influence share prices of merger parties are ambiguous. The conclusions of that research indicate that the shareholders of the target companies usually benefit from mergers, however, it cannot be undoubtedly stated whether mergers are profitable for the bidding companies. The main hypothesis of this study states that the announced mergers are motivated mainly by managerial motives. The hypothesis could be confirmed by negative investors’ reaction, which could be noticed as a share price fall for shares of companies taking part in the transaction. The method used in the research is the event study method which allows measuring influence of some events or disclosing pieces of information on company's value.

Key words: Asset Pricing (G12); Mergers, Acquisitions, Restructuring (G34)

Introduction

Firm combination is one of the methods of firms’ growth. Managers claim that the aim of firm combination is improvement of situation of firms, and as a consequence, improvement of shareholders’ situation. However, shareholders suspect that the managers who want fast growth for their firms wish to improve their own situation. Those shareholders' dilemmas reflect in share prices of joining companies. Information on preparation to a merger or to a takeover try generates some price moves of merging firms' shares. If investors think that transaction will influence positively the future firm’s profits then share price rises. However, if investors believe that the transaction will result in deterioration of earnings, then share price falls after the information about the merger is published. The aim of this study is to check how investors reacted on the information about the merger of companies listed on the Warsaw Stock Exchange. Positive investors' reaction means that they trust the management that the transaction will cause growth of the company’s profits. Negative investors' reaction, in turn, may mean that they think that managers act with the intention to gain their own advantages. That case of Polish stock market behavior will be compared with investors' reactions on different markets. The main hypothesis of this study states that the announced mergers are motivated mainly by managerial motives. The hypothesis could be confirmed by negative inves-
tors' reaction, which could be noticed as a share price fall for shares of companies taking part in the transaction.

The method used in the research is the event study method which allows measuring influence of some events or disclosing pieces of information on company's value (Fama et al., 1969). These events could be: the analysts' opinions, changes in the board of directors, dividend announcements, mergers and acquisitions notices, earnings forecasts and many other. Very frequent use of event study is the use connected with financial results of companies. The influence of earnings announcements is researched in studies of: Beaver (Beaver, 1968), Patell (Patell, 1976), Grundy and McNichols (Grundy, McNichols, 1989), Dontoh and Ronen (Dontoh, Ronen 1993), or Bamber and Cheon (Bamber, Cheon, 1995). The above mentioned publications study influence of some events on abnormal rates of return, which would not exist if the event had not happened. The method is also used with such events as merger and acquisition announcements or tender offers: (Mandelker, 1974), (Lang et al., 1978), (Dodd, 1980), (Jensen, Ruback, 1983), (Jarrell, Poulsen, 1989), (Roller et al., 2001), (Goergen, Renneboog, 2003), (Piecek, 2004), (Perepeczo, Zarzecki, 2006), and others.

The event study method uses cumulative abnormal returns (CAR) or buy-and-hold abnormal returns (BHAR). The present research uses cumulative abnormal return (CAR) which is the sum of differences between real and "expected" rates of return, which could be if no extraordinary event happened. Methods of statistical description were applied to analyze the CAR results.

The research was conducted taking into account merger announcements, which resulted in a stock market delisting done by one of the transaction parties in years 2004-2008. In that period there were 10 transactions fulfilling the above mentioned criteria, which means that there were 20 companies involved.

Motives of mergers

The neoclassical economic theory assumes that the goal of a producer is profit maximization (understood also wider, as shareholders' wealth maximization). However, at present, firms are most frequently administered by rented managerial personnel, which can have different goals from those intended by the owners. Both the desire of profit maximization, as well as the desire of maximization of utility from a bundle of managerial goals can influence on firm's activity, particularly on firms' consolidation.

Motives for firm combination can be grouped into three categories:
1) motives related to market,
2) motives related to costs,
3) managerial motives.

Into the motives of mergers related to market one can include motives which result in increasing the market share (and, as a consequence, increasing the market power) or motives which are connected with marketing activity. Increase in market power can result in many advantages, the most important being:
- increase of bargaining power in relation to suppliers as well as customers,
- having control over demand on its products,
- the possibility of survival thanks to operating above the break-even point,
- improvement of profitability, thanks to widening the range of products.

For motives of mergers related to costs one can include motives which result in improvement of efficiency of functioning due to cost reduction. The most general motive is synergy between joining firms, and the more detailed motives are connected with the possibility of:
- reducing average costs of production (including long-term costs),
• reducing cost of capital (e.g. growth of the creditors' confidence),
• obtaining tax advantages,
• using assets which were used in an inefficient way.

And lastly, the managerial motives which are motives of joining firms when the goal of
the merger is not the profit maximization but a symptom of managers' ambition. The influence
of individual aims of managers on the goal of functioning of a firm was analyzed by
such authors as: Baumol (Baumol, 1958, 1972), Williamson (Williamson, 1963), or Yarrow
(Yarrow, 1976). The conclusion from the analysis of models, which can be found in the above
publications, is managers' natural desire to enlarge companies.

Managers' remunerations are usually connected with turnovers and the sizes of firms
because of greater complexity of large organizations. For this reason, management expect that
growth of size of their company will cause the growth of their salaries. They can also aim at
enlarging companies when their salaries are dependent on their firms' turnover. A greater size
of a firm entails not only the remuneration growth but also the growth of prestige, power and
discretion. Takeovers are used to satisfy the ambition of the management as they can afford
better office buildings, cars, and have possibility to be independent from shareholders because
of the dilution in the property, which results in the owners having less control over the manage-
ment.

To sum up, it can be said that motives of joining firms can be divided into two main
groups:
• motives connected with maximization of advantages of companies' owners (market power
increase, cost reduction)
• motives connected with maximization of advantages of managers (managerial motives).

Because managers are able to achieve their own advantages from joining firms, share-
holders observe those transactions with special attention. The value of a company is equal to
the discounted value of the future profits of a given company. If shareholders recognize that
given transaction does not lead to improvement in future profits, then share prices fall.

Mergers announcements and the changes in share prices

The analysis of the influence of some events on firm value can be performed by exam-
ing abnormal returns of a given share. It is important for conducting the analysis to assume
that market is efficient. The definition of efficient market states that share prices fully reflect
all accessible information (Fama, 1970).

The event study method consists in calculating "normal" rates of return of a share,
which should exist if no extraordinary event occurs and then comparing "normal" rates of
return of a share to the real ones. The comparison of "normal" returns to real ones gives the
"abnormal returns". To get "normal" rates of return it is necessary to have a model which al-
ows to count them. Such models can be divided into two main categories: statistical and eco-

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do-
\( a, b \) – parameter estimates obtained from the regression of \( R_t \) and \( R_{mt} \) over period preceding the event (McWilliams, Siegel, 1997, p. 628).

Summing abnormal returns for appropriate number of days gives cumulative abnormal return:

\[
CAR_{iT} = \sum_{t=1}^{T} AR_{it},
\]

where:

\( CAR_{iT} \) – cumulative abnormal return on \( i \) share obtained in the event window \( T \),
\( T \) – the event window (Perepeczo, 2006, p. 424).

The event study method enables the assessment of influence of different events on the value of a company. Those events can be: earnings announcements, changes of dividend policy or split announcements (Fama, 1969). Very frequent use of event study is the use connected with mergers and acquisitions notices.

Results of earlier research on how mergers influence share prices of merger parties are ambiguous. Jensen and Ruback published an article which constitutes a very thorough analysis and recapitulation of research conducted by many authors (Jensen, Ruback, 1983). They analyze over ten research programs of the influence of mergers and tender offers on companies’ values. In respect to mergers, Jensen and Ruback analyze the researches based on samples from 17 to 256 cases, published by: Dodd (Dodd, 1980), Asquith (Asquith, 1983), Ecbo (Ecbo, 1983), Asquith, Bruner and Mullins (Asquith et al., 1983), Malatesta (Malatesta, 1983) and Wier (Wier, 1983). Dividing companies on bidding and target firms during legal process of merging they concluded that bidding firm shareholders do not lose and target firm shareholders benefit. However, the gains of target firms in merger transactions are significantly smaller in comparison to the gains of target firms in tender offers. Roller, Stennek and Verboven conducted similar analysis (Roller et al., 2001) taking into account Jensen and Ruback’s article as well as newer investigations (Jarrell, Brickley and Netter (1988), Bradley, Desai and Kim (1988), Schwert (1996), Roll (1986), Stulz, Walking and Song (1990), Berkovitch and Narayanan (1993), Houston and Ryngaert (1994), Banerjee and Eckard (1998), Rau and Vermaelen (1998)). Their conclusions agreed with those from Jensen and Ruback’s analysis.

Cumulative abnormal returns for merger announcements – analysis description

The analysis is based on merger announcements published by companies both listed on the Warsaw Stock Exchange, which were issued in years 2004-2008. The sample contains only cases when transaction was completed, which resulted in a stock market delisting completed by one of the transaction parties. The list of transaction was made on the basis of table: “Delistings in 2004 (2004-2008)”, published in “Factbook 2005 (2005-2009)” by the Warsaw Stock Exchange. There were no delistings at the stock exchange in years 2004-2005, where the cause of delisting was merger. The sample contains 1 delisting in 2006 year, 5 delistings in 2007 year and 4 delistings in 2008 year. Total quantity of transactions in the research sample is 10, which means that there are 20 companies involved.

The merger announcements, share prices and stock exchange index WIG values come from GPWInfoStrefa (www.gpwinfostrefa.pl), which is an economic newswire covering Polish and foreign firms listed on the Warsaw Stock Exchange. The service was developed in cooperation between the Warsaw Stock Exchange (GPW) and the Polish Press Agency (PAP). Additional verification was based on information from Money.pl (www.money.pl).

The analysis was conducted with cumulative abnormal returns (CAR), basing on Market Model, for which parameters were estimated by the ordinary least squares method (OLS). An estimation window was 150 days long, from -210 to -60 days before the event day (mer-
The estimation window is a period required to obtain parameter estimates. Event windows were established for days:
- from -1 to +1,
- from -2 to +2,
- from -3 to +3
- from -15 to +15
- from -30 to +30
- from -45 to +45
- from -60 to +60.

The event windows of cases were settled symmetrically round the day of the event as the information on prepared transaction could have leaked out from a company earlier. Having counted abnormal returns for successive days, the cumulative average abnormal returns for the whole sample was obtained by summing up proper quantity of abnormal returns.

**Cumulative abnormal returns for merger announcements – results distribution**

The foreign authors’ studies do not indicate whether the mergers are beneficial to merging companies’ shareholders. The analysis presented below refers to the Polish market and the companies listed on the Warsaw Stock Exchange. The analysis examined the behavior of the cumulative abnormal returns of shares of companies that have announced their intention to merge. The examined event windows are periods of observation consisting of days (sessions) from -1 to +1, from -2 to +2, -3 to 3, from -15 to +15, -30 to 30, from -45 to 45 and from -60 to +60. The calculation results are presented in Table 1.

Table 1. Cumulative abnormal returns for merger announcements published in the years 2004-2008 by the companies listed on the Warsaw Stock Exchange

<table>
<thead>
<tr>
<th>Event window</th>
<th>CAAR (%)</th>
</tr>
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<tbody>
<tr>
<td>(-/+1)</td>
<td>1.6</td>
</tr>
<tr>
<td>(-/+2)</td>
<td>2.1</td>
</tr>
<tr>
<td>(-/+3)</td>
<td>2.2</td>
</tr>
<tr>
<td>(-/+15)</td>
<td>0</td>
</tr>
<tr>
<td>(-/+30)</td>
<td>-0.2</td>
</tr>
<tr>
<td>(-/+45)</td>
<td>3.2</td>
</tr>
<tr>
<td>(-/+60)</td>
<td>4.1</td>
</tr>
</tbody>
</table>

Source: own compilation.

Taking into account the obtained results of cumulative abnormal returns, the entire examined event window can be divided into three sub-periods:
- I sub-period covering up to about 1.5 months - in which the results are positive,
- II sub-period covering the period of 2-3 months - in which the results are neutral,
- III sub-period covering a period of about 5-6 months - in which the results are positive again.
Figure 1. The distribution of cumulative abnormal returns in the event window (-/+1) day for the merger announcements published in the years 2004-2008 by companies listed on the Warsaw Stock Exchange

Source: own compilation.

In the first sub-period the CAR results are positive. In the close neighborhood of the merger announcement day the cumulative abnormal return is growing (Table 1). In the (-/+1) day the CAR rate is 1.6%, in the (-/+2) days the CAR rate is 2.1% and in the period of (-/+3) days the CAR rate is 2.2% (Table 1). This means that the average rate of return on shares of the analyzed companies is higher by that much in comparison to the situation if the companies had not announced the details of a proposed merger.

Figure 2. The distribution of cumulative abnormal returns in the event window (-/+2) days for the merger announcements published in the years 2004-2008 by companies listed on the Warsaw Stock Exchange

Source: own compilation.
In the second sub-period the observed results are neutral. In the (-/+15) days the CAR rate is zero (Table 1). This means that for investors who bought shares in 15 sessions before the revealing of information about a merger and kept them up to the 15th session after the day of merger announcement, the disclosure of the intention to merge had no impact on the valuation of the company. The share price could fall or rise due to changes in the stock market cycle, but the abnormal rate of return is zero, so an event that occurred did not affect the rate of return on shares. In the (-/+30)-day period the cumulative abnormal return is also close to zero and amounted to -0.2% (Table 1).

Figure 3. The distribution of cumulative abnormal returns in the event window (-/+3) days for the merger announcements published in the years 2004-2008 by companies listed on the Warsaw Stock Exchange

Source: own compilation.

Figure 4. The distribution of cumulative abnormal returns in the event window (-/+15) days for the merger announcements published in the years 2004-2008 by companies listed on the Warsaw Stock Exchange

Source: own compilation.
In the third sub-period the CAR results are positive once again. In (-/+45) days the CAR rate is 3.2%, and in the period of (-/+60) days the CAR is 4.1% (Table 1).

Figure 5. The distribution of cumulative abnormal returns in the event window (-/+30) days for the merger announcements published in the years 2004-2008 by companies listed on the Warsaw Stock Exchange

Source: own compilation.

The above results indicate that, on average, buying shares of companies that intend to merge can be profitable, provided that the purchase is completed appropriately early, in respect to the publication of the announcement, and the shares are sold at the right moment - not too soon or too late. However, what should be noted, these results are only average ones. There is no certainty that any company which intends to merge will give such results. Therefore the analysis of distribution of cumulative abnormal returns was conducted.

Figure 6. The distribution of cumulative abnormal returns in the event window (-/+45) days for the merger announcements published in the years 2004-2008 by companies listed on the Warsaw Stock Exchange

Source: own compilation.
Figure 7. The distribution of cumulative abnormal returns in the event window (-/+60) days for the merger announcements published in the years 2004-2008 by companies listed on the Warsaw Stock Exchange.

Source: own compilation.

Figures from 1 to 7 enable the analysis of the distribution of cumulative abnormal returns. While in the periods from (-/+1) to (-/+3) the largest number of companies has results around the value 0, starting from the period (-/+15) the opposite situation can be observed: the lack of results in the ranges close to zero and high number of results in extreme ranges.

Table 2 The percentage of positive cumulative abnormal returns for the merger announcements published in the years 2004-2008 by companies listed on the Warsaw Stock Exchange.

<table>
<thead>
<tr>
<th>Event window</th>
<th>Percentage of positive CAR results (%)</th>
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<tbody>
<tr>
<td>(-/+/1)</td>
<td>60</td>
</tr>
<tr>
<td>(-/+/2)</td>
<td>45</td>
</tr>
<tr>
<td>(-/+/3)</td>
<td>50</td>
</tr>
<tr>
<td>(-/+/15)</td>
<td>50</td>
</tr>
<tr>
<td>(-/+/30)</td>
<td>30</td>
</tr>
<tr>
<td>(-/+/45)</td>
<td>50</td>
</tr>
<tr>
<td>(-/+/60)</td>
<td>45</td>
</tr>
</tbody>
</table>

Source: own compilation.

The percentage of positive CAR results in each event window is presented in Table 2. Looking at the distribution of cumulative abnormal results in these periods it can be noted that except direct neighborhood of the event ((-/+/1) day from revealing the information), the percentage of positive results of the CAR is never over 50, and for the event window of (-/+/30)
days the positive percentage of CAR rate is only 30%. This means that buying shares of the company, which in some time after the purchase of shares announced its intention to merge with another company, the probability of obtaining a profit does not exceed 50%.

**Summary**

The analysis of cumulative abnormal returns on shares of companies that announced their intention to merge, in certain periods indicated a positive rate of CAR, meanwhile in certain periods the rate of CAR was close to zero. On average, buying shares of companies that intend to combine can be profitable, on condition that they are bought at a properly early date and sold also at the appropriate moment - not too soon nor too late in relation to the publication of merger announcement. Analyzing the distribution of cumulative abnormal returns it can be found that the number of profitable companies is less than half at any time. This means that for companies that intend to merge:

- the time of purchase and sale of shares is important,
- the probability of the purchase of shares of a company that obtains a negative result in each period is significant.

If the share prices fall as a result of information coming to the market, this means that shareholders consider this information as detrimental. Mergers can be motivated by a desire to maximize benefits for owners of the company or to maximize the benefits for managers. Decline in the cumulative abnormal rate of return shows the lack of investors’ confidence in the managers, their motivation or the plausibility of their plans. The results of the research indicate that this is a situation that can be observed frequently.

**Comprehension check**

1) What are the main motives why firms merge?
2) Discuss at least 2 well-known managerial models of a firm, supporting managerial motives of merging companies.
3) Discuss shortly event study method.
4) What events can be analyzed with the event study method? Give some examples basing on the scientific literature.
5) What is the procedure to find the cumulative abnormal returns?
6) Discuss results of research on the influence of mergers on the companies’ values which can be found in world scientific literature.
7) What are the results of the research on the influence of mergers on the share prices, where the sample were companies listed on the Warsaw Stock Exchange?

**Recommended readings**

- Gugler K., Mueller D.C., Yurtoglu B.B., Zelehner C., (2003), The effects of mergers: an


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33. Rau P.R., Vermaelen T., (1998), Glamour, Value and the Post-Acquisition Performance of