SYNERGIC MOTIVES AND ECONOMIC SUCCESS OF MERGERS OF CZECH COMPANIES

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Abstract

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One of the motives for mergers and acquisitions is the synergy effect, which can take several forms. This paper tries to find out whether mergers implemented at the Czech market bring positive or negative synergies. The basis of our investigation is the database of the companies that implemented a merger within 2001–2009; out of these, the companies that published their financial statements in a digitalized form were selected. We monitored the development of six indicators characterizing the economic status of a company. The values of these indicators were compared for all participating companies before the merger and for the successor company three years after the merger. The hypotheses were formulated so that they expressed an expectation of a positive synergy brought about by mergers. However, hypothesis testing has not provided a clear result. A positive effect of a merger on the key indicator of net assets, whose growth means an increase in the accounting value of the company after the merger, has been proved for small and medium-sized companies only. The effect of mergers on the increase in indicators has been confirmed for retained earnings from past years and personal costs. Further research will concentrate on the relations between the indicators with the aim to create an integral indicator for the economic success of mergers.

company transformation, merger development, motives for mergers and acquisitions, synergy, methods for measurement of economic effects of mergers, hypothesis testing, assessment of merger success

Further existence of companies that do not expand and do not adapt to the changing environment is at risk. Their ability to produce organic growth consistent in the long term can be limited and their own generated sources may not be sufficient for an adequate reaction to new opportunities and challenges. Owners, investors and the management therefore use external sources for further development of a company in the form of a company combination or division. Company combinations referred to as mergers and acquisitions (M&A) are usually performed with a company that has adequate abilities, technologies or position in the market that will enable them to enter a new market, gain a new product series or improve their competitiveness by achieving sufficient size or economies of scale (Sharp, 2002). There is a wide range of motives for M&A and their effects change in dependence on the current economic environment.

This leads to an unbalanced development of transactions at the M&A market, which is referred to by some authors as M&A waves, characterized by a considerable deviation from the gradually growing trend of world M&A. These waves have been defined and given reasons for in many publications, e.g. Levy and Sarnat (1994) talk about 3 waves, Bobenic-Hintos (2009) mention 4 waves, Bruner (2004) divides the fourth wave into two: a) and b), Martynova and Rennebook (2008) differentiate 5 waves, Lipton (2006) identifies 6 waves of mergers and acquisitions. Although we can explain the waves well, we do not know what triggers them and we cannot predict the moment when the wave will start forming or ceasing (Brealey, Myers, Allen, 2006). The determining factor of company transformations was the development of the external and the internal environment, which occurs in the context of the current significant market globalization. In

the conditions of an economic boom, the national product grows markedly faster than the long-term growth rate, the employment rate and production rise and the level of aggregate demand for goods and services is very high. For companies this means an opportunity for an expansion, an increase in production and also investments and profits. The intensity of entrepreneurial activities and the number of company transformations grow. On the other hand, when the growth slows down, the level of GDP drops as well as the employment rate and company incomes and profits. Logically, in this period (period of economic recession) we would expect a reduction in entrepreneurial activities and thus also company transformations as a consequence of the decreasing entrepreneurial trust, decrease in expenses on capital investments, lower demand for import, slump of financial markets and heavy price discounting (Sedláček, 2007). However, the link between activities in the area of company transformations and the economic cycle is not so clear; undervalued financial markets represent an opportunity for interesting investments and an expansion of entrepreneurial activities. The development of transactions at the M&A world market is presented in Fig. 1 and our research has confirmed a similar trend at the Czech market between 2001 and 2010 (Sedláček, Valouch, Hýblová, 2012).

A closer observation of the causes leading to company transformations allows us to classify seven attitudes, identified by Trautwein (1990) as motivation theories, which ultimately lead to reaching a higher value for owners of the successor company (investors). The most recent study KPMG (2011) ascertained that the main motive for mergers and acquisitions is the effort to achieve a higher market share – this was reported by 48% of companies merging in the period 1997–2009.

The other reasons for mergers and acquisitions implemented by the clients of this auditing company are summarized in Table I. The fact that inter firm transaction activities are becoming global, across countries and continents, brings still new obstacles to a successful integration of companies and an increased risk of failure. Mergers and acquisitions do not have to be a guarantee that expected effects will be generated and they do not imply success automatically. They are implemented to bring advantages but we have to take into account that they are a sophisticated process in which company processes of different companies with different cultures are to be reconciled. Synergic effects arise if the value of the transformed or the new company after the transaction is higher than the values of the separate companies before a merger, including the paid premium (Brealey, Myers, Allen, 2006; Bruner, 2004; Levy, Sarnat, 1999; Picot, 2002; Kislingerová 2007; Synek, 2007).

Synergic effects arise if the value of the transformed or the new company after the transaction is higher than the values of the separate

I: *The rationale behind the acquisition in the period 1997–2009*

Motives	%
Increase market share	48
Geographic growth	35
Expanding into a growing sector	27
Cost synergies	19
Investment opportunity	18
Enter a new market	17
Acquire brand/additional service	13
Other	12
Diversity	10

Source: KPMG (2011)
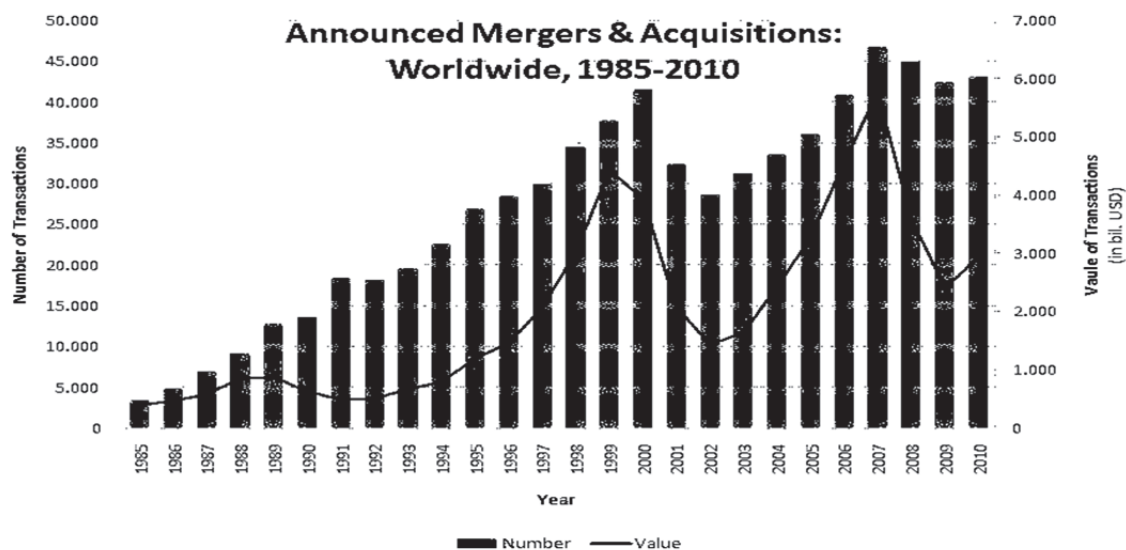
1: *Development of Announced M&A: Worldwide, 1985–2010*
Source: IMAA Institute (2011)

companies before a merger, including the paid premium.

The aim of this paper is to analyze and statistically ascertain whether the mergers implemented at the Czech market bring an added value (a positive synergy) or if they destroy this value (a negative synergy).

MATERIALS AND METHODS

The economic gain for owners will be achieved only if the successor company reaches a positive synergy. This synergic effect can be mathematically described as:

$$S = PV_{AB} - (PV_A + PV_B). \tag{1}$$

The costs of the merger can be calculated using the equation:

$$C = PP_B - PV_B. \tag{2}$$

The net present value for owners of the successor company is:

$$NPV = S - C = PV_{AB} - (PV_A + PV_B) - (PP_B - PV_B) = $$
$$= PV_{AB} - PP_B - PV_A, \tag{3}$$

where:
S ....Synergy
PV_{AB}....The present value of the company after combination
PV_A .....The present value of company A as an independent entity
PV_B .....The present value of company B as an independent entity
C..........Costs of the merger
PP_B......The purchase price paid for company B
NPV....The net present value following from the merger for the owners of the successor company.

The synergic effect can be created by the acquirers if they use a comparative advantage other companies do not have and the management of the target company itself is not able to use the advantage. The synergy of the combination is usually demonstrated later in the future in the form of higher revenues, higher margins, better use of sources, decrease in expenses, etc. The calculation of NPV has to reflect all risks that can endanger the additional economic benefit for the owners or change it into a loss.

To assess the success of mergers and the achieved synergies, it is important to choose appropriate economic criteria. Fritsch (2007) expresses the economic efficiency of companies after the acquisition by the change in indicators return on equity (ROE) and cost to income ratio (CIR). Achampong and Zemedkun (1995) analyse the factors motivating managers to mergers using indicators such as the insider ownership ratio (IO), retained earnings ratio to net income (REI), the ratio of salary expenditures to total assets (S/TA) or the ratio of total operating expenditure to total assets (TOE/TA). Our study uses indicators available in the database created by the Faculty of Economics and Administration, Masaryk University, which contained all mergers implemented in the monitored period (domestic and cross-border). The basic dataset included all company transformations from which one continuing company (successor) remained and one or more of the participating entities ceased to exist (company acquired). The initial source of data was the Trade Register (2011), from which the identification data of merging companies were excerpted as well as temporal, legal and economic information. The dataset in our database comprises the period of one year before a merger (the situation of the last day before the decisive day) for all companies and then the situation at the end of each year for the period of 3 years after a merger for successor companies. The overview of the data extracted from financial statements of companies participating in mergers is presented in Tab. II.

The database includes all domestic mergers, as defined by the Czech Act on transformations (Act

II: *The overview of data extracted from financial statements of companies in the monitored period*

Item in the statement	Abbrv.	Effect on company economy
Total assets of the company	A	High demands as concerns assets decrease the business profitability and increase the indicator of total indebtedness.
Net assets	NA	Increase in net assets of a company means an increase in its (accounting) value for owners.
Retained earnings from past years	RE	Retaining earnings in the company means creation of sources for future investments. Support for company and management development from owners.
Earnings after taxes	EAT	Disposable profit created in the past economic year.
Added accounting value	AAV	Contains the business margin and the difference between sales of products and services and their expenses.
Personal costs	PC	Higher incomes increase the operating costs, which are limited by the rate of increase in company sales.
Earnings before interest and taxes	EBIT	Expresses the productive power of the company. A higher profitability of total assets generates a higher value for owners.

Source: author's

No. 125/2008) implemented in 2001–2010, in which the companies being dissolved go to an existing or a newly established (successor) company. In total, there are 360 successor companies whose financial statements were published in the digital form in the Trade Register.

The quantities presented in Tab. II were gradually tested to find out what direction their development takes in merged companies and how they are affected by the merger. To test the hypotheses (H_0 and H_1), we used the following tests:

- *paired t-test,*
- *ANOVA,*
- *Wilcoxon matched pairs test,*
- *Kruskal-Wallis test,*
- *median test,*
- *sign test.*

We assume that the transformation should bring a higher value for owners in the third year after the merger. All the above mentioned hypothesis tests will be performed at significance level $\alpha = 0.05$, i.e. p-values lower than 5% will be interpreted as significant. The testing will be conducted at three stages:

- at the 1st stage, we will verify whether the merger brought improvement of the explored quantity (regardless of the company size);
- at the 2nd stage, we will verify whether the merger effect on the value of the explored quantity is affected by the company size;
- at the 3rd stage, we will test whether the merger improved the explored quantity separately for small, medium-sized and large companies (i.e. the tests will be conducted in strata based on size).

For this purpose, we introduce a new difference variable with indices *a* and *b*, where *a* stands for net assets of the successor company three years after the merger and *b* stands for net assets of all participating companies before the merger. The classification of companies based on size categories is presented in Tab. III.

RESULTS AND DISCUSSION

The first outcome is the database that includes all mergers implemented in the Czech Republic in 2001–2010. The original large number of merging

III: *Company categories based on the volume of assets (mCZK)*

Category	Small	Medium	Large
Volume of assets	≤ 100	≤ 500	> 500
Number of mergers	74	119	118

Source: authors

companies gained from the Trade Bulletin was reduced by those transformations that do not meet the definition of a merger (e.g. acquisitions) and only those were left whose merger was confirmed by a relevant court and registered in the Trade Register (line 2 in Tab. IV). These implemented mergers are further structured based on the type of the merger. The sample that was statistically processed contains data from financial statements saved in a digitalized form in the collection of documents of the Trade Register (line 7 in Tab. IV).

To test the effect of a merger on the values of individual quantities presented in Tab. II before and after company transformation, two hypotheses for each were formulated:

H_0 the merger has no effect on the value of the explored quantity; *difference variable = 0*; (4)

H_1 the value of the explored hypothesis increased after the merger; $0 <$ *difference variable*; (5)

H_0 the size of the company does not influence the merger effect on the value of the explored quantity; (6)

H_1 the size of the company influences the merger effect on the value of the explored quantity; (7)

H_0 the merger has no effect on the value of the explored quantity in the relevant size category of companies; difference median=0; (8)

H_1 the merger increases the value of the explored quantity in the relevant size category of companies; difference median >0. (9)

The difference variable in formulations of hypothesis H_1 can have an opposite character, if the decrease in the value means improvement of the explored quantity. Out of the explored quantities (see Tab. II) only personal costs (PC)

IV: *The number of mergers implemented in the Czech Republic in 2001–2010*

Mergers	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
from the Trade Bulletin	238	511	676	682	611	835	1231	1757	3624	3938
implemented	68	138	191	183	80	290	290	402	369	433
out of which: while no new company is formed	68	136	188	181	73	253	182	323	297	355
while a new company is formed	0	2	2	2	0	20	23	30	28	15
division by combination	0	0	1	1	1	5	1	2	5	3
division by demerger	0	0	0	0	6	12	84	47	39	60
sample set	25	34	41	41	11	66	58	35	49	x

Source: authors' database

V: *Results of hypothesis testing*

Quantity	H$_1$(5)	H$_1$(7)	H$_1$(9)
A	a positive effect of a merger on A was not proved	the merger effect dependence on the company size was proved	we proved a significant increase for small companies, insignificant for medium companies, and a decrease in A for large companies
NA	a positive effect of a merger on NA was not proved	the merger effect dependence on the company size was proved	we proved a significant increase for small companies, insignificant for medium companies, and a decrease in NA for large companies
RE	a positive effect of a merger on RE was proved	the merger effect dependence on the company size was proved	we proved a significant increase in RE for all size categories of companies
EAT	a significant effect of a merger on EAT was not proved	the merger effect dependence on the company size was not proved	a significant effect of a merger on EAT increase for any of the size categories was not proved
AAV	it was proved that a merger significantly increased AAV	the proved merger effect on AAV increase does not depend on the company size	we proved a significant increase in AAV for medium and large companies, and an insignificant increase for small companies
PC	a significant effect of a merger on PC was proved	the merger effect dependence on the company size was proved	we proved a significant increase in PC for all size categories of companies

Source: authors

are of an opposite character. The final results of testing variables A, NA, RE, EAT, AAV and PC are summarized in Tab. V.

If we want to prove that a positive synergic effect was achieved by the companies listed in the explored sample, we assess the change in indicator net assets, which characterizes the wealth of owners of the transformed companies. The results of testing show that the increase in the value for owners in the third year after a merger occurs, but only in the category of small companies (significant increase), while only an insignificant increase was confirmed for medium companies. The increase in indicator NA was considerably supported by the positive synergy in retained earnings, which was proved for all size categories. Indicator personal costs was effective in an opposite direction – there was an increase after a merger (a negative synergy), which led to weakening of the production power of the transformed companies and lower disposable profits.

A synergic effect regardless of the size category was confirmed for indicator AAV. A significant increase in the indicator was proved for large and medium-sized companies, while only an insignificant increase was found for small companies. We could assume that the owners' wealth after the merger will increase the earned net profit in the third year after the merger. However, the testing did not confirm a significant effect of a merger on a change in EAT, neither when the companies were divided into size categories. When testing indicator A, we could not prove a merger effect on assets of transformed companies in general. When they were divided into size categories, a significant effect on the increase in total assets was proved for small companies and an insignificant effect for the medium-sized category. Large companies manifested a decrease in the value of total assets due to mergers.

Tests of effects of individual indicators give us a lot of information about the financial situation of companies after mergers; however, to confirm the overall success of a merger and achievement of the required economic effect of a merger, it would be necessary to assess the financial situation and efficiency of particular companies in the sample individually. Increase in company assets as a consequence of a merger can be considered a favourable phenomenon if it holds that a larger company gets a stronger position for negotiations and is more competitive (Brealey, Myers, Allen, 2006). At the same time, an expansion of a company should be accompanied by economies of scale so that a better use of the assets is provided. Also retained earnings seem to be controversial from the perspective of merger success, as it could be a guarantee of economic efficiency of the company in the future if invested appropriately (Bohušová, Svoboda, 2010). A synergy that will lead to an increase in net assets of the company in the long term should be the main criterion for an assessment of a merger success; and an additional criteria, should be the indicators expressing returns, liquidity and activity achieved by the company after the transformation (Nerudová, 2011).

CONCLUSIONS

Our study tested whether mergers implemented at the Czech market within 2001–2009 provide synergic effects to successor companies. We can agree with opinions of some authors (e.g. Brealey, Myers, Allen, 2006; Bruner, 2004; Kislingerová, 2010; Sharp, 2002), that there are good and bad mergers and acquisitions, but economists cannot agree if they are beneficial generally. Mergers depend on temporary trends and they develop unevenly; often they end in a failure, which was

manifested in the Czech territory as well (Sedláček, Kuhrová, 2012). As owners of the target company usually gain substantial revenues from the transaction and owners of the successor company retain what they had, we could assume that mergers are generally beneficial. The tests of hypotheses that expressed an expectation of positive synergies caused by mergers did not provide a clear result. A positive effect of a merger on key indicator NA, whose increase means an increase in the accounting value of companies after a merger, was only proved for small and medium-sized companies. A merger

effect on indicator increase was confirmed for RE and PC. However, both of these indicators can be interpreted only in the context of the other related variables. Contrary to expectations, a significant effect of a merger on EAT or a dependence of the merger effect on indicator increase on the company size were not confirmed.

The next stage of the research should analyze the relations between the particular indicators and describe the dependencies so as to create an integral indicator that would express the economic effects of mergers.

SUMMARY

The aim of our research was to find out whether mergers implemented at the Czech market provide economic success. Economic effects often have a form of a synergic effect (positive or negative synergies). The basis of our research is the database of companies that implemented a merger in the territory of the Czech Republic within 2001–2009. The companies that published their financial statements in a digitalized form in the collection of documents of the Trade Register were selected from the database. We monitored the development of six indicators characterizing the economic situation of a company. The values of these indicators were compared for all participating companies before the merger and for the successor company three years after the merger. Hypotheses were formulated so that they expressed positive expectations of synergies caused by mergers. The merger effect on an increase in the value of the explored quantities was not confirmed for three indicators (A, NA, EAT). Therefore, the companies were categorized based on their size and the dependence of the merger effect on the company size was tested. A positive effect of mergers on key indicator net assets, whose growth means increasing the accounting value of the companies after a merger, was only proved for small and medium-sized companies. The effect of mergers on an increase in indicators was confirmed for retained earnings from past years and personal costs. Further stages of the research will analyse relations between the indicators and describe the dependencies with the aim to create an integral indicator expressing economic effects of mergers.

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