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IMPACT OF INDUSTRY STRUCTURE ON SUCCESS OF MERGERS AND ACQUISITIONS

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Original scientific paper
Mergers and acquisitions represent a prominent phenomenon of the developed capitalist world. Growth of the company through mergers and acquisitions provides access to new markets and resources, and the success or failure is of great importance not only for the companies involved in these transactions, but also for all subjects as well as for the overall economy. Given the fact that the results of a large number of studies suggest that the failure rate of mergers and acquisitions is high, the main objective of this paper is to analyse the impact of industry structure on the success of mergers and acquisitions. The empirical research was conducted on the sample of Croatian companies from non-financial sector that were taken over in the period from 1998 to 2006. The following hypothesis was tested and confirmed: the lower the concentration ratio of the target company's industry, the more successful is the target company's performance after the takeover.

Keywords: *acquisitions, industry structure, M&A success, mergers*

Utjecaj industrijske strukture na uspjeh spajanja i preuzimanja poduzeća

Izvorni znanstveni članak
Spajanja i preuzimanja poduzeća predstavljaju prominentan fenomen razvijenoga kapitalističkog svijeta. Rast poduzeća putem spajanja i preuzimanja pruža pristup novim tržištima i resursima, a uspjeh ili neuspjeh od velike je važnosti ne samo za poduzeća koja sudjeluju u tim transakcijama nego i za sve sudionike kao i za cjelokupno gospodarstvo. S obzirom na to da rezultati velikog broja istraživanja sugeriraju kako je stopa neuspjeha spajanja i preuzimanja jako velika, glavni cilj ovog rada je analizirati utjecaj industrijske strukture na uspjeh spajanja i preuzimanja poduzeća. Empirijsko istraživanje provedeno je na uzorku hrvatskih poduzeća iz nefinancijskog sektora koja su preuzeta u razdoblju od 1998. do 2006. Testirana je i potvrđena sljedeća hipoteza: što je manja koncentracija industrije u kojoj poduzeće-meta posluje, uspješnije je poslovanje poduzeća-mete nakon preuzimanja.

Ključne riječi: *industrijska struktura, preuzimanja, spajanja, uspjeh spajanja i preuzimanja*

1 Introduction

Mergers and acquisitions, as a part of the growth strategy, but also as a research field of numerous scientists and consultants, represent prominent phenomenon of developed capitalist world since the late 19th century. Mergers and acquisitions have occurred in waves, i.e., their intensity was sometimes higher, and sometimes lower. The existing literature has identified six waves of mergers and acquisitions. All these waves differ in the motives for mergers and acquisitions as well as the reasons for the decrease in these activities. When thinking about the M&A motives, and the success of these transactions, heterogeneity prevails within the academic community. It is a widely accepted opinion that the intensity of mergers and acquisitions decreases when the economy is in recession, and increases in the periods of economic recovery. The intensity of mergers and acquisitions is also affected by the availability of funding, the development of capital markets, legislation and technological shocks. In turbulent business environment of 21st century organizations are forced to use different growth strategies in order to successfully position with respect to competition and to preserve and increase their profit margins. There is no book, journal or scientific paper in academic literature regarding issues such as the impact of mergers and acquisitions on the increase or decrease of shareholder value, motives for mergers and acquisitions, realization of planned synergies, operational efficiency of acquired companies and the reasons due to which mergers and acquisitions fail and do not achieve expected benefits as well as the overall impact of mergers and acquisitions on the society. Success of M&As can be observed from different perspectives. Given the fact that mergers and acquisitions affect a wide range of stakeholders (for example, shareholders, managers, employees, customers, suppliers, etc.) and having in mind the fact that the interests of these groups diverge, realized transactions can positively impact a part of the stakeholders and negatively impact the other part of the interest groups. Financial theory is mainly focused on shareholders' wealth as the criteria for the overall M&A success because the shareholders are company's residual owners. Along with the research about the impact of M&As on shareholders' wealth, many of the studies have focused on the analysis of variables that affect the success of mergers and acquisitions after the takeover. Internal organization variables such as strategy, structure and culture, management style, technology, etc. are typically pointed out as the most important variables that influence M&A success, while little or no attention is directed to industry structure, which is external organizational variable, on which company's long-term profitability depends. Therefore, the main aim of this paper is to analyse the impact of industry's structure on the success of mergers and acquisitions. In the empirical research, conducted on the sample Croatian companies that were taken over in the period from 1998 to 2006, the following hypothesis was tested: the lower the concentration ratio of the target company's industry, the more successful is the target company's performance after the takeover. Namely, the target company faces a lot of changes related to the internal organization variables after the takeover. For example, in order to improve the financial performance of the target company after the takeover, the company often faces changes in strategy, structure and culture, and it is assumed that all these changes will have a greater effect on the company's performance if the target company operates in industry that is not concentrated, rather than operating in a concentrated one. The following

sections present literature review concerning research on M&A success, as well as the impact of industry structure on it. The third part of the paper refers to the explication of the methodology and the research results, while final section of the paper synthesizes the results of the empirical research and provides information about future research and research limitations.

2 Literature review: research regarding M&A success and impact of industry structure on M&A success

2.1 Research about M&A success

The profitability of mergers and acquisitions has been studied for many years. Four research approaches for measuring the profitability of mergers and acquisitions can be derived from recent literature: event study approach, the accounting approach, case study or clinical study, and a survey based approach [1]. Research about the impact of mergers and acquisitions on shareholder wealth is mainly based on short-term effects, and is built on the assumption that the announcement of potential transactions provides new information on the market upon which the investors' expectations are built and consequently reflected in the stock price. The event study methodology is commonly used in this type of research. Event study methodology is based on the abnormal returns which are the result of discrepancy between the realized return and the expected return of company's industry in the event that transaction did not happen. That methodology is used since 1969 when Fama, Fisher, Jensen and Roll applied it to research the effects of stock splits on share prices [2]. Along with research focused on shareholder wealth, a large number of studies focused on the accounting aspects of the transactions. Accounting research analyses the business performance of the company before and after mergers and acquisitions and tries to determine how the performance has changed after the transactions. The most common way of analysing business performance is through comparison of company's performance before and after the transaction by using accounting indicators such as sales, operating income, income/loss, cash flow, profit margins, etc. [3]. Being an alternative to studies that rely on event study methodology and accounting methods, surveys or interviews of the company's key employees is also used as a method of research in the field of M&A. The analysis of individual cases is used as well. Questionnaires and interviews usually provide answers to questions regarding the profitability of the acquired companies (if acquired company continues to operate as an independent organizational unit) and achieving anticipated synergies (if acquired company is incorporated in the business system of the bidder). The case study focuses on a single transaction or a few transactions, and the detailed analysis leads to conclusions about the acquisition success [4]. It is important to note that every method used in research on the M&A success has both its advantages and disadvantages [1].[1]

2.2 Business performance of acquired companies

Numerous empirical studies about the target company's success after the takeover offer inconsistent results. The available research can be classified into: a) studies that show significant improvements in the business performance after the transaction, b) studies that suggest that company's performance is worse after the transaction, c) studies that point out how changes in company's performance are statistically insignificant [5]. Research about the performance of the bidder and the target are generally based on the accounting methodology [6]. Return on equity (ROE), return on assets (ROA) and return on sales (ROS) are usually calculated for a period of three years after the takeover, and these returns are then compared with the performance of the target company or the bidder in the period before the takeover. Accounting indicators show actual returns achieved by the company after the acquisition [7]. Various accounting policies that enable manipulation of financial statements are usually cited as a disadvantage of that method. Analysis of financial statements is used when the takeover success of companies that are not listed on the stock exchange is analysed. As for performance of target companies, the existing studies do not make the distinction between mergers and acquisitions. In doing so, the performance results after the transaction are compared with the results in the period before the transaction. In constructing the indicators that would allow the comparison of ex ante and ex post business performance, researchers construct aggregate indicators for the bidder and the target company, and compare them with performance indicators of the company which continues to operate after the transaction. Therefore, in the following sections the ex post business performance of the acquired or the combined company will be analysed.

2.3 Business performance of bidder companies

Scientists have, over the last three decades, tried to answer the question of whether the acquirer and the target company operate better or worse after the merger or the acquisition. The academic community has not yet reached a consensus on that matter. Numerous studies have shown that acquisitions result in better business performance in the period after the transaction, but there are a large number of studies with opposite results. Ravenscraft and Scherer analysed 62 takeovers in the period from the start of the transactions until three years after it, and based on the ratio of earnings before interest and taxes (EBIT) to total assets, came to the conclusion that the takeovers result in worse company's performance in comparison to the period before the transaction. In the same study, using indicators related to the cash flow, the authors came to the conclusion that the performance did not change compared with the period prior to the transaction [8]. Healy et al. used accounting information of the target company and the bidder in order to get a picture of their business performance before the merger. Through comparing the performance of the combined company after the merger with the joint business

[1] Inability to isolate impact of M&A on company's performance is the main drawback of event study and accounting methodology, while subjectivity of managers and small number of cases on which conclusions should be drawn represent main limitations of survey based approach and case study method.

before the merger, authors measured the change in business performance. EBIT for the period of five years before the transaction and during the first year after the transaction was taken as a measure of performance success. In the period of five years before the transaction operating returns on the sample of 50 companies range from 26 to 27,50 %, while a year after the transaction operating returns range from 19 to 23 %. These indicators suggest that the company's performance got worse after the transaction [9]. In their study, Martynova et al. analyse the long-term profitability of 155 European acquisitions in the period from 1997 to 2001. In the study authors used EBITDA as a measure of profitability because this indicator is used as an alternative to cash flow indicators. The authors of the research found that the profitability of the combined company is significantly reduced after the acquisition. However, the decrease in profitability becomes insignificant when compared with the operating results of similar companies in the industry, so it can be concluded that the decrease in profitability has nothing to do with the acquisition, it is rather a matter of macroeconomic changes that affect all companies in the industry [5]. Linn and Switzer explored the relationship between the profitability of the merged companies and the form of payment (cash or shares) on a sample of 413 transactions. The authors note that a change in profitability was significantly higher in the situation when the transaction was paid by the bidder in cash rather than in shares [10]. Contrary to the aforementioned conclusion, Ghosh stresses that the change in business performance measured as the operating cash flow after the acquisition is not statistically significant [11]. On a sample of 191 takeovers in the United Kingdom in the period from 1985 to 1993 Powell and Stark came to the conclusion that there are significant changes in the bidders' business performance in the period after the takeover, compared with the performance in the period before the acquisition [12]. Research results by Cosh, Hughes and Singh show growth of assets in companies that were involved in mergers and acquisitions in the United Kingdom from 1967 to 1969 [13]. On a sample of 247 companies that participated in transactions in the USA from 1962 to 1972, Mueller came to the conclusion that there has been a decrease in key financial indicators such as ROE, ROA and ROS in the period of three years after the takeover [14]. Similar results were offered in the research of Clark and Ofek. These authors found that EBITDA/sales ratio decreased two years after the acquisition [15]. Analysing the period of five years after the transaction, Dickerson et al. have came to the conclusion that on a sample of 2914 companies return on assets declined in comparison to the performance in the year when the transaction occurred [16]. The lack of consensus in the academic community on the matter of company's performance after the takeover can be explained by using different measures. In fact, as it has already been stated in this section, the use of financial indicators when evaluating business performance is sensitive to the different accounting policies, and financial statements are subject to possible manipulations that reflect on the research results.

2.4 Impact of M&As on shareholder wealth

Do M&As create wealth for shareholders whose companies engage in such transactions? This is the main research question regarding the impact of the transactions on shareholder wealth. Answer to that question depends on whether impact of M&As on target's shareholder wealth or bidder's shareholders wealth is being analysed. At the time of the transaction announcement the total earnings of the acquirer's and the target's shareholders are on average positive. In these situations, the target company's shareholders earn much more than the acquirer's shareholders [17].[2] In addition, usually three to five years after the transaction acquirers operate worse than the industry average which erodes the value of their shares, and consequently the wealth of their shareholders. It remains unclear whether the reason for the destruction of the value relates exclusively to the M&As or it can be related to other variables [18]. Empirical research confirms that the price of target company's shares at the time of the transaction announcement rises considerably. According to the research [19] in the USA on a sample of 57 companies and according to the research [20] on a sample of 90 companies in France, shareholders of the acquired companies achieved significant positive returns on the day and the day after the takeover announcement in the period from 1960 to 1970. According to these studies, cumulative average abnormal returns for shareholders of the acquired companies were 6% in the USA and 16 % in France. In the period from 1987 to 2002 thirteen studies were conducted in the USA regarding the impact of takeovers on shareholder wealth of the acquired company, and cumulative average abnormal returns for shareholders of at least 16 % were confirmed [14]. High returns for shareholders of the acquired companies were identified by Graham, Lemmon and Wolf. Their study included 356 takeovers in which the shareholders of acquired companies achieved a cumulative average return of 22,51 %, and the transactions were analysed in the period of the day before and the day after the takeover announcement [21]. A research by Schwert has shown that the stock price movement of the target company is easily affected not only on the announcement day but also in the period of 42 days prior to the announcement [22]. Results of several available studies suggest that a rise in the target's share price in the period of one month before the takeover is high and it surpasses the price increase on the announcement day. Premiums gained by the target's shareholders during this period range from 13,32 to 21,80 %. Such returns imply that the takeovers are anticipated, and that the sudden price jumps occur as a result of rumors, information leaks or insider trading [14]. When the long-term impact of M&As on target's shareholder wealth is observed, research results diverge. Studies that analyse a longer period, usually three to four years after the transaction can be classified into subgroups which observe payment type and the nature of the transaction (friendly or hostile). Several studies that have looked at mergers and acquisitions financed by stock swaps showed that

[2] Some studies that observed the market reaction to the announcement of a takeover indicate that the returns for the shareholders of target companies are positive, while the returns for shareholders of the acquiring company are zero or negative.

shareholders in these cases do not receive returns, but they lose, and on the other hand, when the takeovers are paid in cash shareholders gain positive returns [23, 24]. Impact of hostile takeovers on shareholder returns in the UK's target companies is much higher in terms of growth in share price than in the situation of friendly takeovers [25]. Research by Cosh and Guest showed results contrary to the aforementioned thesis, because their research results show that the shareholders of the target company generate negative returns for a period of four years after the hostile takeover [13]. Research on the effects of takeovers on the bidder's shareholder wealth diverges. Unlike the returns gained by the target companies' shareholders, bidders' shareholder returns are modest and often negative. Average returns of the bidder's shareholders are close to zero [14]. According to research conducted by Asquith bidders' positive cumulative returns for the period from 1960 to 1970 were 0,20 % [26]. Studies that analysed the return of bidders' shareholders in the period from 1970 to 1980 found that their cumulative losses ranged from 1,20 % to 0,70 % [27, 28]. While analysing the takeovers that occurred between 1958 and 1981, Jensen and Ruback came to the conclusion that in the period from 20 days before and 60 days after the takeover bidders' share prices increased on average by 4 % [29]. Results of research on takeovers during the 1990s differ in terms of bidders' shareholder returns. In a survey of 961 takeovers in USA, in the period from 1987 to 1996, Kohers and Kohers came to the conclusion that the bidder's shareholders achieved cumulative returns of 1,37 % [30]. Mulherin and Boone conducted a study on a sample of 376 acquisitions and concluded, by observing the movement of the share price during the period from the day before and the day after the transaction, that the bidder's shareholders had cumulative losses of 0,37 % [31]. After analysing the period of the day before and the day after the acquisition of target companies that are not listed on the stock exchange, Moeller, Schlingemann and Stulz [32] stressed that bidder's shareholders achieved positive cumulative returns of 1,38 %, while Fuller, Netter and Stegemoller claim that the aforementioned shareholders had a cumulative loss of 1% [33]. Recent research by Lehn and Zhao (2006), who analysed the bidder's shareholder returns in the period of five days before to 40 days after the transaction on a sample of 61 takeovers, showed that the shareholders' cumulative loss was 7,03 %. Similarly, Ang and Cheng (2006) analysed 848 takeovers and their impact on shareholder's wealth in the interval of one day before the transaction announcement and came to the conclusion that in these transactions shareholders cumulatively lost 0,48 % of their share value [32]. Studies that have analysed the long-term impact of takeovers (usually a month or two after the takeover) diverge with respect to the type of takeover, payment method and takeover strategy of acquisitions. The cumulative average abnormal returns for bidder's shareholders are significantly higher in the situation of a friendly takeover than those in the situation of a hostile takeover. Goergen and Rennboog state that hostile takeovers reduce the value of the acquirer from 3 to 5 % [34]. Numerous studies support the hypothesis that higher returns for the bidder's shareholders occur when the target companies are not listed on the stock exchange. Netter, Stagemoller and Wintoki conducted a research in the period from 1992 to 2009 and obtained the results which suggest that the average returns for the bidder's shareholders are negative when the companies are listed on the stock exchange, while the average returns of the non-listed companies are positive [35]. In addition, the authors pointed out that the average bidder's shareholder return in the period from 1992 by 2009 decreased three times at the time of transaction announcement. In studies that have been conducted in the USA there is a consensus on the matter of shareholder returns with respect to the ways of funding the transaction. In all transactions financed exclusively through shares, shareholders can experience significant losses, while the transactions paid in cash generate fewer losses. For example, research by Savor and Lu showed that the value of the bidder's shares, when using stocks as a method of payment in the first year after the takeover, fell by 7 %, while the cumulative decline for three years after the takeover was 13 % [36]. Unlike the USA, the results of studies in Europe show positive average returns for bidder's shareholders in situations when the takeover is funded through exchanging shares [3]. Numerous studies have shown that the returns to bidder's shareholders in the cases of horizontal acquisitions are significantly higher than those in vertical acquisitions. Research by Marynova and Renneboog included 2419 takeovers in 28 European countries during the 1990s [14]. The results of their research suggest that there are minor fluctuations in the share price after the announcement of the takeover. The bidder's shareholders accomplished small, statistically significant returns of 0,8 % in the period of 10 days before and after the takeover. However, the cumulative average shareholder returns were significantly negative (−3 %) in the period of three months after the takeover [14]. According to the presented research on the impact of M&As on bidder's shareholder wealth it can be concluded that the bidder's shareholders tend to generate negative returns, and if they gain positive returns, those generally move slightly above zero.

2.5 Impact of industry structure on takeover success

One of the exogenous organizational variables which is in the focus of this research is the industry structure and its impact on the performance of the target company after the takeover. Before elaborating the impact of industry structure on the target company's performance after the takeover, it is necessary to define terms such as industry and market. Although the concepts of industry and market have sometimes been identified, there is a difference between these two terms. The industry can be seen as a group of companies that produce and sell similar products using the same technology, and that compete for production factors in the same markets, whereas markets can be viewed through geographical or product areas where the companies compete [37]. It is important to point out that the market defines the place and manner of interfacing supply and demand in order to satisfy some needs, as well as all the actors involved in the process. In contrast, the industry does not consist of all the participants in the market. In

addition, the needs of the market can be met in a variety of ways, through the products or services from a number of different industries [38]. Porter defines the industry as a group of companies that produce set of products that are close substitutes [39]. So, the companies that manufacture telecommunication equipment can be grouped in the same industry because they use the same raw materials, technology, etc. [37]. In the long run, higher or lower profitability as a feature of a company's competitiveness is not solely the result of the development and implementation of strategic activities, but it also depends on the industry structure, i.e., the competitive space in which companies compete. The industry structure is characterized by a number of companies in the industry at a given point of time as well as by size of these companies, and the industry concentration ratio is used as a measure of industry structure [37]. Scientists use different measures of concentration through which they try to describe the industry structure. Information on industry concentration suggests the nature of competitive forces in any industry. Most commonly used concentration measures are the concentration ratios and the Herfindahl-Hirschman Index. Concentration ratio measures the market share of the *N* largest firms in the industry, and *N* usually presents 3, 4, or 8 companies. The market share is generally measured by the value of sales, assets or number of employees. Concentration ratios represent an incomplete measure of industry concentration, because the *N* shows how much of the total industry output was produced by only the largest companies in the industry. The shortcomings of these indicators include frequent impossibility of precisely defining the industry, inability of incorporating the entry and exit barriers along with the regional and foreign competition, and not taking into account the distribution of the market shares of other companies. Due to the shortcomings of the concentration ratio, some scientists use measures of concentration which take into account all the companies in the industry [18]. Unlike the concentration ratio, the Herfindahl-Hirschman Index (*HHI*) shows not only the distribution of market shares by the *N* leading companies in the industry, but also the market shares of other companies. In order to obtain statistical measures of concentration, Herfindahl-Hirschman Index, squares the market shares of all companies in the relevant market and by doing so it gives greater importance to the shares of leading companies and thus more accurately reflects the relative importance of large companies in the event of a merger or a takeover. The index can have a value from 0 to 10 000 (100^2). If the index tends to be lower, then the industry has a large number of companies with a small market share (fragmented industry), whereas the index of 10 000 means that the industry consists of only one company - a monopoly [40]. The Federal Trade Commission (FTC) is an independent agency established to protect consumers and to prevent and eliminate what regulators think to be harmful anti-competitive business practices. According to the FTC, when the value of the *HHI* index is less than 1000, the market is not concentrated, while index values between 1000 and 1800 reflect moderate concentration [18]. Index values above 1800 suggest a concentrated market. Fig. 1 shows the degree of market concentration, according to the FTC.

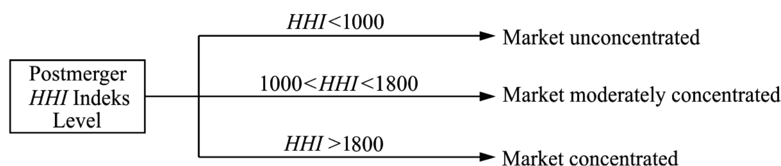

Figure 1 Degree of market concentration

Source: DePamphilis, D. M. (2010) Mergers, Acquisitions, and Other Restructuring Activities, 5th edition. San Diego: Academic Press, p. 63.

Industry structure may range from a highly fragmented to a firmly consolidated industry. The fragmented industry is a form of poorly concentrated industry with a large number of small or medium-sized enterprises, none of which is in a dominant position, nor does it have the power to shape the industry events [39]. Consolidated industry is a form of concentrated industry dominated by one company or a small number of large companies. The main feature of this type of industry structure is the accentuated interdependence of companies, which is reflected by the fact that the actions of one company affect the profitability of others, as well as their market shares. The more concentrated the industry, according to some research, the more likely it is for the companies in the industry to recognize their interdependence and not to encourage strong rivalry that can reduce everyone's profitability [38]. There are lots of studies about the influence of industry structure on the company profitability. In 1951 Bain conducted an analysis of the impact of industry structure on the profitability of 42 manufacturing companies in the USA and came to the conclusion that the profitability of companies that operate in industries with a higher degree of concentration is higher than the profitability of companies which operate in low concentrated industries. Demsetz's research from 1973 was conducted on a sample of 95 manufacturing companies, and it showed that the profitability of companies in the sample did not grow with the increase in the concentration ratio [41]. Horizontal mergers and acquisitions increase the company's market share, as well as its market power, which can affect the price of the industry products. Increasing market share in the situation of horizontal mergers and acquisitions is a short-term increase and it is a real challenge to maintain this share in the long term. After a merger or acquisition of one or two companies within the same industry, many companies follow that trend, and the initial increase in the market share of companies is very hard to maintain [42]. On a sample of 1000 mergers and acquisitions in the period from 1950 to 1972, Mueller showed that only 18 % of companies in the sample managed to retain their market share as opposed to 88,50 % of companies that maintained their market share, while not being involved in mergers and acquisitions. The study did not confirm the hypothesis that

mergers and acquisitions increase the efficiency of the companies involved in transactions by increasing their market share. Mueller postulates that bidders, whose market share did not increased, operated neither better nor worse than companies that did not use mergers and acquisitions as a growth strategy. In addition, Mueller's opinion was that it was difficult to believe that the loss of market share did not affect the decrease in profitability [43]. Mergers and acquisitions can result in increased industry concentration but that does not automatically mean a reduction of competition between established companies in the market. Thus, the increased concentration does not result in increased profitability and creation of shareholder's wealth. Schmalensee and Willig concluded that the relationship, if there is any, between concentration and profitability of companies is statistically insignificant and the estimated effect is usually small [44]. Extensive research by Hay and Morris, conducted in 1991, suggests that very little research proves that the concentration has a negative impact on profitability, and that only half of the research stresses the significant positive correlation between these two variables [45]. Keating's study from 1991 was conducted on a sample of 2438 large companies and their performance in the period from 1969 to 1981. The conclusion was that the profitability of companies in concentrated industries is less stable compared to the profitability of companies in fragmented industries [46]. Given the fact that after the takeover of the target company a number of changes, that affect its business occur, this paper tests an assumption that if the industry is characterized by lower concentration ratio, these changes will have a greater effect on the business performance of the target company as opposed to the situation when the industry is concentrated.

3 Methodology and research results

Measuring instrument (questionnaire) for testing the hypotheses of this research consisted of a set of questions that the respondents (board members and company managers) answered and expressed their agreement/disagreement with proposed statements whereat a Likert measurement scale of five degrees was used. Propositions used in different measurement scales are either originally developed for research purposes, or processed and adapted from existing measurement scales that can be found in the relevant scientific literature. Empirical research was conducted in Croatian companies, which were taken over or acquired. In Bloomberg and Mergermarket databases 233 transactions in the period 1998 ÷ 2010 were recorded. With the detailed investigation of the information library of the Croatian Agency for Supervision of Financial Services additional 401 transactions during this period were recorded, which combined with the transactions from Bloomberg and Mergermarket databases comes to a total of 634 transactions. Since this paper analyses transactions in non-financial sector, the sample on which the empirical research was conducted comprised 598 companies. In order to analyse the impact of the industry structure on takeover success, it was important that at least three years have passed since the takeover. For this reason, the acquired companies were analysed in the period from 1998 ÷ 2006. In the period of sixty days after the beginning of the primary research 43 completed questionnaires were returned representing a return rate of 7,19 %. Considering the sensitivity of the analysed phenomena and complexity of analysis, the rate of return of questionnaires was acceptable. The complexity of the analysis is reflected in the fact that the study included only companies in which at least three years passed after the takeover. Additional criteria were related to the fact that the respondent (the president or board member or senior manager) should be included in the acquisition process and familiar with the acquisition activities, and also working in the company that was acquired at least 5 years in order to identify and assess the changes that have occurred after acquisition. Out of the total number of received questionnaires, 30 companies that performed better after the takeover were identified (69,8 %) and 13 that performed worse after the transaction (30,2 %). In the analysis of empirical data collected in this study large number of statistical techniques was used. Overall data analysis was conducted using statistical software package SPSS 17.0. Empirical research begins by testing the hypothesis: *The lower the concentration ratio of the target company's industry, the more successful is the target company's performance after the takeover.* In order to test the proposed hypothesis survey participants were asked about the target company's industry concentration and its performance after the takeover. Results of descriptive statistics are presented in Tab. 1.

From the total number of analysed companies, 8 of them operate in a very fragmented industry, 24 companies are from a moderately fragmented industry, while 11 companies operate in a firmly consolidated industry.

Table 1 Target company's industry concentration and its performance after the takeover

Target company's industry concentration		Performance after the takeover		Total
		Worse	Better	
Unconcetrated	Number of companies	0	8	8
	%	0,0 %	100,0 %	100,0 %
Moderately concentrated	Number of companies	9	15	24
	%	37,5 %	62,5 %	100,0 %
Highly concentrated	Number of companies	4	7	11
	%	36,4 %	63,6%	100,0 %
Total	Number of companies	13	30	43
	%	30,2 %	69,8%	100,0 %

Source: Authors' research

It can be seen from Tab. 1 that all companies which operated in very fragmented industry had better performance in the period after the takeover, while success rate for companies that operated in moderately and highly concentrated industry was 62,5 % and 63,6 %. Chi-square test was used in order to test the correlation between industry structure and Target Company's performance after the takeover.

Table 2 Chi-square test

Chi-Square Test	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	4,264[a]	2	0,119	0,136
Likelihood Ratio	6,527	2	0,038	0,072
Fisher's Exact Test	4,422			0,122

Source: Authors' research

Table 3 Chi-square symmetric measures

Symmetric Measures	Value	Approx. Sig.	Exact Sig.
Phi	0,315	0,119	0,136
Cramer's V	0,315	0,119	0,136
Contingency Coefficient	0,300	0,119	0,136

Source: Authors' research

Standard Chi-square test (p = 0,136) has shown that there is no statistically significant difference between industry structure and target company's performance after the takeover but if Chi-square test based on Likelihood ratio is applied (p = 0,038), it can be said that there is a statistically significant correlation between the observed variables. Besides, if percentages in target company's performance after the takeover are analysed it is evident that correlation between observed variables is practically significant because all companies that operated in very fragmented industry (100 %) had better performance in the period after the takeover, while success rate for companies that operated in moderately and highly concentrated industry was 62,5 % and 63,6 %. Furthermore, in order to shape the best possible conclusions under this hypothesis survey participants whose companies operated in moderately and highly fragmented industries were asked about the correlation between Target Company's performance after the takeover and industry concentration. Survey participants gave their opinion on whether the changes that occurred in their companies after the takeover had a greater impact on performance due to the fact that their companies operated in a highly or moderately fragmented industry (1 – no impact, 2 – weak impact, 3 – moderate impact, 4 – strong impact, 5 – very strong impact). Descriptive statistics is presented in Tab. 4.

Table 4 Descriptive statistics about correlation of industry structure and performance after the takeover

Target company's industry concentration	Performance after the takeover	N	Mean	Std. Deviation	Minimum	Maximum
Unconcentrated and moderately concentrated	Worse	9	1,00	0,000	1	1
	Better	23	3,22	0,934	1	5
	Total	32	2,50	1,301	1	5

Authors' research

The mean score of the participants whose companies operated worse after the takeover was 1, while the mean score of participants from companies that operated better was 3,22. Variance analysis was used in order to determine whether there is a statistically significant difference in the mean scores of the survey participants whose companies operated worse or better after the takeover.

Table 5 Variance analysis

Target company's industry concentration	ANOVA	Sum of Squares	df	Mean Square	F	Sig.
Unconcentrated and moderately concentrated	Between Groups	4,675	1	4,675	13,947	0,001
	Within Groups	13,744	30	0,335		
	Total	18,419	31			

Authors' research

Based on the variance analysis it can be concluded that there is a significant difference (p = 0,001) in the mean scores of survey participants, which implies that participants whose companies operated better after the takeover think that there is an impact of industry concentration on the success of company's performance after the takeover. Although the standard Chi-square test did not show statistically significant difference between industry concentration and Target Company's performance after the takeover, by using Chi-square based on the likelihood ratio the significance is 0,038, which is significant at a level lower than 5 %. In addition, it is evident that the correlation between industry concentration and Target Company's performance after the takeover is practically significant, and that variance analysis showed a statistically significant difference between the mean scores of research participants whose companies operated better and worse after the takeover. Therefore, *the hypothesis according to which the lower the concentration ratio of the target company's industry, the more successful is the target company's performance after the takeover can be accepted.*

4 Conclusion

The conducted empirical research was used to achieve the main goal of this paper which relates to the analysis of the impact that industry structure has on the success of mergers and acquisitions. The assumption according to which the lower the industry concentration ratio of the

industry in which the target company operates, the more successful is the target company's performance after the takeover, was tested within empirical research. The standard Chi-square test did not show a statistically significant difference between industry concentration and Target Company's performance after the takeover, but using a Chi-square based on the likelihood ratio the significance equals 0,038, which is significant at a level lower than 5 %. Besides, correlation between industry structure and Target Company's performance after the takeover is practically significant because all companies that operated in very fragmented industry (100 %) had better performance in the period after the takeover. The variance analysis showed statistically significant difference, regarding the impact of industry structure on success of M&A, between the mean scores of survey participants whose companies operated worse (in their opinion there was no impact of industry structure on company's performance) and better (in their opinion the impact of industry structure on company's performance was moderate) after the takeover so the tested hypothesis was accepted. As for the implications for future research, it is visible that there is scope for further methodological improvements. For example, analysing the takeovers in only one industry could produce more significant results in terms of analysing the impact of industry structure on the M&A success. However, it is practically impossible to conduct empirical research within one industry in the Republic of Croatia because there are not enough transactions within only one industry that could be analysed. Different research methodology could also be used as undoubted methodological improvement. Research based on case study is recognized and accepted methodology used in the social sciences, and such method might result in credible and reliable findings and conclusions while exploring the phenomenon presented in this paper. Despite the potential improvements that can be expected in future empirical research, the findings of the conducted theoretical and empirical research affirm the relevance of the impact that industry structure has on the success of mergers and acquisitions. By accepting suggestions regarding methodological improvements, it is possible to remove the indicated limitations of the conducted research. The perceived limitations of the study may result in the increased interest of all those interested in M&As and therefore improve further research in this highly interesting field. Considering the results of the conducted empirical research and results of the previous studies about the impact of industry structure on takeover success it can be concluded that it is important for the success of the takeover that target company conducts business in industry which is characterized with low concentration ration. If Target Company operates in industry with low concentration ratio all changes that occur in Target Company after the takeover will have higher impact on target's performance than in the situation when Target Company operated in industry with high concentration ratio. Finally, the results of this research can contribute to the increase of the number of successful takeovers not only in the Republic of Croatia, but also in other countries with active M&A arena.

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