REVIEW PAPER
UDK: 339.922
347.72.04
Date of Receipt: January 14, 2016

Dušan Marković
University of Belgrade
Faculty of Economics
Department of Business Economics and Management

Dragan Azdejković
University of Belgrade
Faculty of Economics
Department of Statistics and Mathematics

FINANCIAL PERFORMANCE OF CROSS-BORDER ACQUISITIONS IN SERBIA

Finansijske performanse međunarodnih preuzimanja u Srbiji

Abstract

Intensified globalization of business environment in the last two decades has resulted in a growing number and value of cross-border acquisitions, which have become a commonly used strategy for business restructuring. Economic reforms in transition economies, including Serbia, opened the way for growing use of cross-border acquisitions in these markets. This paper examines financial performance of cross-border acquisitions made in Serbia in the period 2003-2008. The sample comprises 79 target companies. Analyses of changes in targets' return on sale, return on investment and return on equity showed that foreign acquirers did not manage to improve targets' financial performance in post-acquisition period, because these companies encountered numerous problems before the acquisition and the global economic crisis spilt over into Serbia in this period.

Keywords: *cross-border acquisitions, return on investment, return on equity, return on sale, transition economies*

Sažetak

Globalizacija poslovnog ambijenta koja je na značaju dobila poslednje dve decenije dovela je do rasta broja i vrednosti međunarodnih preuzimanja. Međunarodna preuzimanja su postala jedna od čestih strategija poslovnog restrukturiranja. Usled sprovedenih ekonomskih reformi, međunarodna preuzimanja su postala sve zastupljenija i u zemljama u tranziciji, kojima pripada i Srbija. Ovaj rad analizira uspešnost međunarodnih preuzimanja u Srbiji realizovanih u periodu od 2003. do 2008. godine, kroz unapređenje finansijskih pokazatelja „meta" u postakvizicionom periodu. Analizirajući promene stope neto poslovnog dobitka, prinosa na imovinu i prinosa na kapital na uzorku od 79 međunarodnih preuzimanja u Srbiji, došli smo do zaključka da strano vlasništvo nije doprinelo unapređenju finansijskih performansi kod „meta". Razlog za to su bili poslovni problemi kojima su se odlikovale preuzete kompanije i prelivanje globalne ekonomske krize na Srbiju.

Ključne reči: *međunarodna preuzimanja, stopa prinosa na imovinu, stopa prinosa na kapital, stopa neto poslovnog dobitka, tranzicione zemlje*

Introduction

Increasing globalization during the first two decades of the 21st century has created a business environment that offers ample business opportunities, but also involves growing business risks. Multinational companies (further in the text MNC) use cross-border acquisitions to grasp these global business opportunities, to gain new competencies, to further exploit the competencies they already have, to achieve geographical and product diversification, and to reinvent their business models. The value of cross-border acquisitions made in 2014 was almost USD 400 billion, which is still much below the all-time peak of USD 1.032 billion reached in 2007, before the global economic crisis took hold [24, p. 8].

Cross-border acquisitions of targets from emerging and transition markets are growing in importance. Increasing growth rates of these economies attract the attention of MNCs from developed countries which perceive them as an alternative to large but saturated domestic markets. However, integration of targets from emerging markets is more complex because these markets are characterized by undeveloped formal institutions, unpredictable actions of informal institutions, weak legal protection and a broad base of poor customers [27]. Specific institutional environment affects the efficiency of market mechanisms and thus increases transaction costs [6]. All these factors can significantly impair a target's financial performance in post-acquisition period.

Taking into account the specific marketing and institutional environment in emerging and transition economies, it is important to compare success rate of cross-border acquisitions in these markets with studies on cross-border acquisitions in developed economies showing that about two-thirds of them do not create value for shareholders [10]. Management scholars have used several approaches to measure financial performance of cross-border acquisitions, some being the following: short-term financial performance, accounting performance, long-term financial performance, etc., [21, p. 116]. Considering poor institutional environment in emerging and transition economies, these approaches need to be modified when used in these markets.

This paper examines the success rate of cross-border acquisitions made in Serbia in the period 2003-2008 measured by targets' financial performance. It consists of three parts. The first part offers a literature review of the methods for measuring success rate of cross-border acquisitions and a review of previous researches conducted in this field. The second part of this paper gives an insight into the methodology and data used in this research. Finally, in the third part of the paper we discuss the obtained results and certain limitations of this research, and offer some directions for further research.

Literature review

Performance of cross-border acquisitions, as one of the commonly used strategies for business restructuring, has been analyzed a great deal in the field of finance and management. This analysis is very complex as researchers have to identify an adequate measure of performance, to define a suitable time frame, and isolate other factors that could affect the final results of the analysis. There are several most frequently used methods for measuring success rate of cross-border acquisitions.

Analysis of share prices of acquiring firms or target firms before and after the acquisition is the commonest method for measuring success rate of cross-border acquisitions. This approach is based on the view that the main goal of acquisition is to create value for shareholders, as the most important stakeholders. It also assumes maximum efficiency of financial markets and that investors have all the necessary information when making decisions, meaning that decision-making process is free of bias (management hubris, for example) [22]. Researchers compare share prices during a period surrounding the acquisition announcement (window) with the "normal return" that would have been achieved if the acquisition had not been made [20, p. 65]. "Abnormal" return rate resulting from an acquisition indicates that the acquisition was successful. "Abnormal return" is calculated by subtracting the expected return, the so-called benchmark (its approximate value is obtained through CAPM or return from S&P 500 index) from the actual return [5, p. 30]. In practice, this method is used to measure success rate of acquisitions both in the short

and in the long term. Event windows of two, eleven and twenty-one days have been used for measuring the short-term performance of acquisitions [21, p. 118].

However, there are many arguments against the use of short-term window event methodology. The first is that this is an *ex ante* measure of performance, i.e. it does not measure actual performance of an acquisition but investor's expectations. Furthermore, this method can be used only for public listed companies and in countries with highly efficient financial markets, meaning that it cannot be applied in transition economies where financial markets have not reached their full efficiency. Results from this stream of research show that acquisitions create value for targets' shareholders, while, on the other hand, the results for shareholders of acquiring companies are somewhat mixed [13]. Actually, majority of these studies show that acquisitions do not create value for acquirers. In order to overcome the foregoing limitations, some researchers decided to increase the length of the event window from several days to several years. The main problem with long-term window event methodology is that a longer time period implies more factors that could affect performance of acquisition, and cannot be easily isolated from the analysis (strategic decisions that are not directly related to acquisitions, economic crisis, disturbance in the market of strategic products, etc.) [20, p. 68]. Results from this stream of research depend to a large extent on the method for calculating "abnormal returns" [13]. Majority of these studies showed that acquisitions destroy value for shareholders of acquiring companies [22].

In order to overcome the foregoing limitations, some researchers tried to find objective *ex post* measures of performance. Comparison of pre-acquisition and post-acquisition accounting-based measures was a logical solution. This approach has been used mainly in studies conducted in the field of strategic management and organization, and it is the second most commonly used method for measuring success rate of acquisitions [28]. The two most important arguments for the use of this methodology are that accounting-based measures show the actual long-term performance of an acquisition rather than investor's expectations, and that synergies from acquisitions are best reflected in long-term ratios such as return on investment and return on equity [21, p. 120]. Researchers have used a number of accounting-based ratios, but the commonest are return on investment, return on equity and return on sale. However, this approach has been criticized for many reasons. One argument is that accounting-based ratios can be made up through different accounting policies. Another argument is that, although there is no direct relationship between them, accounting-based ratios affect to a large extent share prices, meaning that this method has similar shortcomings as the long-term window event methodology [20, p. 75]. Results from this stream of research are not fully consistent, and therefore, we cannot be certain whether acquisitions create value for shareholders in the long term [1].

In contrast to the aforementioned approaches, some researchers measured acquisition performance by the level of satisfaction of the competent parties involved in an acquisition with the extent to which the goals behind the acquisition have been achieved. Although this is a subjective measure of success, it reflects to a large extent the level of objective performance. Typical time period for which the respondents, usually managers of the acquiring firm directly involved in acquisitions or consultants, rate the extent to which the goals have been achieved is three to five years after the acquisition. A frequently quoted research showed that 44% of managers participating in the research were dissatisfied or very dissatisfied with the achieved results [19], and a similar research showed that only 37% of respondents perceived the acquisitions as successful [2]. The main limitation of this approach is respondents' bias. A way to overcome this limitation is to include multiple respondents involved in a single acquisition, for example consultants and a larger number of managers, and to compare their answers.

In order to overcome the limitations of the foregoing approaches, some researchers tried to calculate the percentage of targets that were subsequently divested, assuming that divestment expresses shareholders' dissatisfaction with the acquisition performance. Porter, a pioneer of this method, found that divestiture rate ranges from 60% for acquisitions of companies involved in related business activities to 74% in conglomerate acquisitions [17]. Similarly, some later studies showed that majority of targets in conglomerate

acquisitions were divested five years after the acquisition [1]. However, critics of this approach say that divestment is not necessarily a sign of failed acquisition but that it could mean that the acquirers decided to change their corporate strategy. They also claim that some investors purchase troubled companies, revitalize them and then sell them at high premiums, which cannot be considered a failure [25, p. 277].

Since each of the aforementioned methods has certain limitations, some researchers employed several approaches simultaneously to measure acquisition performance, trying to determine whether the obtained results correlate with each other. A study combining abnormal returns for the event window of 21 days, divestiture rates for the time period of six, nine and thirteen years after the acquisition, and managerial and relevant experts' perception of acquisition performance showed that all these methods reported success rate of 44-56%, but that there was no statistically significant relation between the results obtained through the *ex ante* method (abnormal returns) and the *ex post* methods [19]. Similarly, the success rate of acquisitions made in Greece was analyzed in a study combining abnormal returns, changes in accounting-based ratios two years after the acquisitions and managerial perception of acquisition performance. It reported success rate of 50% and did not find any statistically significant relation between the results obtained through the *ex ante* method (abnormal returns) and the *ex post* methods [16]. Absence of strong correlation between the results obtained through *ex ante* and *ex post* methods indicates that there is information asymmetry regarding target restructuring between managers and investors, which implies inefficiency of financial markets.

Finally, some researchers compared success rates of cross-border and domestic acquisitions to determine which are more successful. Results from this stream of research are somewhat mixed. Some studies carried out in developed economies showed that cross-border acquisitions, unlike domestic acquisitions, created value for shareholders [11 and 4], mainly because acquirers can further exploit their strategic resources abroad (internalization theory). Another study found that US acquirers experienced significantly lower stock and operating performance for cross-border acquisitions than for domestic acquisitions, due to acquirers' inability to correctly value or capture synergies in cross-border takeovers [15]. Finally, some studies indicate that overall acquirers incur losses, with domestic acquirers' underperforming cross-border acquirers in general [7].

Cross-border acquisitions made by emerging market MNCs have come into focus of many researchers recently. Some of them show that cross-border acquisitions of targets from developed markets carried out by emerging market MNCs create value for shareholders of acquiring companies [8], because acquirers combine their low-cost competencies with target's strategic resources. Some studies suggest that cross-border acquisitions made by emerging market MNCs cannot create value for shareholders [26] because acquirers lack the necessary competencies for smooth integration of targets. Performance of cross-border acquisitions in small transition economies has not been examined much.

Data and methodology

This paper examines financial performance of cross-border acquisitions made in Serbia in the first decade of the 21st century. The analysis is based on the three most commonly used accounting-based ratios - return on sale (ROS), return on investment (ROI) and return on equity (ROE). We chose these ratios because they are *ex post* objective measures, and a large number of the targets were not publicly listed companies. ROS, as the ratio of operating profit to sales income, measures profitability of business operations. It indicates whether or not an acquiring company has managed to increase target's operating margins after the acquisition, either through premium pricing or through cost reduction. ROI, as the ratio of net profit to total assets, measures profitability of a company as a whole. It indicates changes in profitability of business operations and measures how efficiently a company uses its assets. Finally, ROE, as the ratio of net profit to shareholders' equity, measures how well a company manages to serve shareholders' interests. Besides measuring profitability of a company's business operations and its

asset management efficiency, this ratio also indicates how efficiently the company uses financial leverage.

In the absence of a comprehensive database on cross-border acquisitions in Serbia, we had to use the data obtained from the Serbian Privatization Agency and SIEPA, and the Internet, to draw a sample for this research. The sample comprised 79 cross-border acquisitions of large and medium-sized companies with continuity of business operations from 2006 to 2012, and in almost all cases longer. Three targets were liquidated in 2013, so the sample for that year comprised 76 companies. All the necessary data were obtained from the official financial statements.

In order to determine the impact of cross-border acquisitions in Serbia on targets' financial performance, we compared the values of the aforementioned ratios in the year of acquisition with their post-acquisition values. The global economic crisis which spilt over into Serbia in 2008 made this analysis more complex. To isolate its effects, cross-border acquisitions made in 2003, the period of strong economic growth, were analyzed separately from those made in 2008, at the onset of the global economic crisis. Another reason for using this approach is that most of the acquisitions made before the crisis were privatization acquisitions, while most of the targets acquired in 2008 were privately-owned companies. The following three hypotheses were tested:

H1: Cross-border acquisitions in Serbia resulted in higher post-acquisition return on sales of target companies.

H2: Cross-border acquisitions in Serbia resulted in higher post-acquisition return on investment of target companies.

H3: Cross-border acquisitions in Serbia resulted in higher post-acquisition return on equity of target companies.

We used two samples to test our hypotheses. A Paired T-test was used for samples comprising more than 30 companies and the Mann-Whitney test for samples comprising less than 30 companies. In cases when p-value was close to the border, bootstrapping method was employed to check the results. This method gave the same results, so we present only the first ones.

Results and discussions

In transition economies, cross-border acquisitions are fraught with risks and uncertainties arising from unstable business environment and numerous structural problems inherited from the socialist period. One such problem is inadequate employee structure regarding their age, professional qualifications and education. The majority of targets from transition economies, including even some privately-owned companies, have an excessive number of employees. Acquirers, therefore, need to rightsize target's workforce, to develop the lacking competences of the acquired employees, and to hire new employees already possessing the necessary competences [18]. Outdated technology is another important issue relating to cross-border acquisitions in transition economies. The acquiring company usually has to invest heavily in target's technology in order to enable it to compete in domestic and foreign markets [9]. Acquirers develop their strategy for target restructuring bearing in mind these two issues, which then affects target's short-term and long-term financial performance. Foreign acquirers encountered these two problems in majority of companies included in our sample, because most of these targets were under state or social ownership before the acquisition.

We first analyzed changes in ROS of 34 targets acquired in 2003. The T-test with 95% confidence interval showed that there was no statistically significant increase in this ratio three years after the acquisitions (Appendix 1.1.; $p = 0.646$). In post-acquisition period acquirers take certain measures to rightsize targets' workforce [3], which has positive impact on operating costs and efficiency. However, in transition economies acquirers have to be careful not to act against the host government's interests [23], so they need to carry out the process of employee downsizing gradually and to offer a satisfactory severance pay to the redundant employees, which pushes up short-term operating costs. Furthermore, targets from transition economies usually have a very poor technological base, which requires large post-acquisition investment in new technology and employee training [14], and consequently pushes up short-term operating costs. The targets from our sample had an excessive number of employees before the

acquisition, and their technological base was very poor. Obviously, restructuring-driven rise in their sales income could not compensate for the increase in operating costs.

The results also showed that there was no statistically significant increase in this ratio six (Appendix 1.2.; p = 0.219) and nine years after the acquisitions (Appendix 1.3.; p = 0.476). Target restructuring and stabilization of business activities were not followed by the expected gradual rise in sales, due to a crisis-driven decline in economic activity in Serbia and in the key export markets. In such circumstances, target companies were not able to expand their business operations, and thus increase their ROS.

To determine whether the foregoing findings refer exclusively to targets acquired in 2003, we analyzed 40 cross-border acquisitions made after 2003. Many of the targets were under private ownership before the acquisition, and few of them were state-owned or socially-owned. The T-test with 95% confidence interval showed that there was no statistically significant increase in ROS achieved by these companies in 2006 compared to 2003 (Appendix 1.4.; p = 0.476). There are several reasons for this. On one hand, socially-owned targets did not have the resources to update their technology, and lacked the necessary competencies to keep up with the growing competition. Consequently, their sales profitability fell. On the other hand, privately-owned targets were under strong pressure of foreign competitors in this period, i.e. market liberalization and inflow of foreign investment led to a tough price competition and consequential decrease in ROS.

At the next stage of this research we analyzed ROS of targets acquired in 2008, at the beginning of the global economic crisis. We identified 12 such companies. However, this sample was too small to use the T-test. Instead, we used the Mann-Whitney test with 95.4% confidence interval. The results showed that there was no statistically significant increase in ROS three years after the acquisition (Appendix 1.5.; test of $\acute{\eta}1 = \acute{\eta}2$ vs $\acute{\eta}1 \neq \acute{\eta}2$ is significant at 0.5067). The majority of these targets were privately-owned companies that were in the black before the crisis. However, the acquirers did not manage to fully carry out the process of target restructuring because the crisis started. Consequently, operating costs were not reduced and sales income was not increased.

Economic activity declined in this period because domestic demand, previously funded by the inflow of foreign capital, and demand in the key export markets (EU, CEFTA and Russia) fell. This was a period of negative or negligible growth rates. Declining economic activity affected financial performance of the acquired companies. To determine the impact of the global economic crisis on ROS, we applied the T-test with 95% confidence interval to the entire sample (79 targets). The results showed that there was no statistically significant increase in this ratio three (Appendix 1.6.; p = 0.952), four (Appendix 1.7.; p = 0.302) and five years (Appendix 1.8.; p = 0.416) after the crisis started. The acquirers did not manage to increase targets' ROS five years after the acquisition due to a prolonged economic and debt crisis in Europe and structural economic problems in Serbia.

Cross-border acquisitions made in 2003, the period of strong economic growth, were analyzed separately from those made in 2008, at the beginning of the crisis. The T-test with 95% confidence interval was used on the sample comprising cross-border acquisitions made in 2003. The results showed that there was no statistically significant increase in ROI achieved by these targets three, six and nine years after the acquisition (Appendix 2.1.; p = 0.245, Appendix 2.2.; p = 0.086 and Appendix 2.3.; p = 0.065 respectively). Targets' ROI was not increased due to the following factors: 1. the acquirers failed to increase targets' ROS (Appendix 1.1., Appendix 1.2. and Appendix 1.3.) and 2. transfer of new technology from investors to targets [12, p. 283] increased the value of total assets, but it was not accompanied by higher sales income, and resulted in lower efficiency in asset management.

We then analyzed changes in ROI of 40 companies acquired after 2003. Most of these companies were under private ownership before the acquisition. The T-test with 95% confidence interval showed that there was a statistically significant increase in this ratio three years after the acquisition (Appendix 2.4.; p = 0.004). As the foregoing analysis showed, these companies failed to increase their sales profitability in the analyzed period, so this increase in ROI is attributed to larger total asset turnover. The majority of these targets (especially state-

owned and socially-owned companies) postponed the necessary investment in this period (harvest strategy), which pushed up the ratio of sales income to total assets. Taking all this into account, we can conclude that this increase in ROI was more a consequence of short-term orientation and disregard for targets' long-term prospects, than a sign of actual improvement in targets' financial performance.

At the next stage of this research we analyzed changes in ROI of targets acquired in 2008, at the beginning of the global economic crisis. The sample comprised 12 companies and was too small to use the T-test. Instead, we used the Mann-Whitney test with 95.4% confidence interval, which showed that there was no statistically significant increase in this ratio three years after the acquisitions (Appendix 2.5.; test of $\acute{\eta}1 = \acute{\eta}2$ vs $\acute{\eta}1 \neq \acute{\eta}2$ is significant at 0.5067). The acquirers failed to increase targets' sales profitability (Appendix 1.5.) and total asset turnover in this period. A crisis-driven decline in demand kept down the total asset turnover.

Finally, we analyzed changes in ROI of all 79 targets from the sample during the crisis years. The T-test with 95% confidence interval showed that there was no statistically significant increase in this ratio three, four and five years after the crisis started (Appendix 2.6.; $p = 0.771$, Appendix 2.7.; $p = 0.476$ and Appendix 2.8.; $p = 0.368$ respectively). This is in line with the foregoing results showing that there was no statistically significant increase in targets' ROS in this period (Appendix 1.6.; Appendix 1.7. and Appendix 1.8.), and with the studies showing that cross-border acquisitions do not improve asset management efficiency [12, p. 228].

ROE is one of the most relevant measures of financial performance. Besides measuring sales profitability and asset management efficiency, this ratio also indicates how efficiently a company uses financial leverage. In spite of many arguments against it, this ratio is often used as a measure of success of cross-border acquisitions. Several targets from the sample posted loss above capital amount in some years, so it was not possible to calculate their ROE for those years. Consequently, these companies were excluded from the sample. Changes in this ratio before and during the crisis were analyzed separately.

The T-test with 95% confidence interval used on the sample of 33 targets acquired in 2003 showed that there was no statistically significant increase in ROE achieved by these companies three years after the acquisition (Appendix 3.1.; $p = 0.198$). This is in line with the foregoing results showing that there was no statistically significant increase in targets' ROI in this period (Appendix 2.1.). The time frame of six and nine years after the acquisition comprised 32 targets. The T-test with 95% confidence interval used on this sample showed that there was no statistically significant increase in ROE of these targets six and nine years after the acquisition (Appendix 3.2.; $p = 0.195$ and Appendix 3.3.; $p = 0.826$ respectively). Serbia was hit by the crisis in this period, so the acquirers failed to increase sales profitability more notably and to improve asset management efficiency. Accordingly, possibly more efficient use of financial leverage was not sufficient to increase ROE.

To determine whether the obtained findings refer exclusively to companies acquired in 2003, we analyzed changes in ROE of 35 companies acquired after 2003. The T-test with 95% confidence interval showed that there was a statistically significant increase in ROE in 2006 compared to 2003 (Appendix 3.4.; $p = 0.014$). Insufficient investment in fixed assets pushed down the value of total assets. Consequently, total assets turnover rose, and so did targets' ROE and ROI.

We then analyzed changes in ROE of targets acquired in 2008, at the beginning of the global economic crisis. The sample comprised only 11 companies, and was too small to use the T-test. Instead, we used the Mann-Whitney test with 95.4% confidence interval, which showed that there was no statistically significant increase in ROE three years after the acquisitions (Appendix 3.5.; test of $\acute{\eta}1 = \acute{\eta}2$ vs $\acute{\eta}1 \neq \acute{\eta}2$ is significant at 0.4701). This period saw a decline in economic activity, so the acquirers were not able to fully restructure the targets, and thus increase their ROE.

Finally, we analyzed trends in ROE during the crisis years. The T-test with 95% confidence interval used on the sample of 69 targets showed that there was no statistically significant increase in ROE received by these companies three years after the crisis started (Appendix 3.6.; $p = 0.588$). Time frame of four and five years after the beginning of

the crisis comprised 68 companies. The T-test with 95% confidence interval used on this sample showed that there was no statistically significant increase in ROE of these targets four and five years after the crisis started (Appendix 3.7.; p = 0.333 and Appendix 3.8.; p = 0.557 respectively). This is in line with the foregoing results showing that the acquirers failed to improve targets' sales profitability and asset management efficiency during the crisis.

Conclusions, limitations and further research

Transition of Serbian economy sped up after 2000 resulting in a growing number of cross-border acquisitions. Many targets were state-owned and socially-owned companies. Targets from transition countries, sometimes even privately-owned companies, usually have an excessive number of employees, use outdated technology, lack marketing and management competencies and need to undergo radical restructuring in post-acquisition period. The aim of this research was to determine financial performance of cross-border acquisitions in Serbia. Changes in targets' post-acquisition ROS, ROI and ROE were analyzed. The sample comprised 79 companies acquired over the period 2003-2008. Global economic crisis which spilt over into Serbia in 2008 made this analysis more complex. Cross-border acquisitions made before the crisis were, therefore, analyzed separately from those made in 2008.

Analysis of the sample comprising cross-border acquisitions made in 2003 (period of economic prosperity) showed that there was no statistically significant increase in ROS of these targets three, six and nine years after the acquisition. The majority of these targets were state-owned or socially-owned companies that had an excessive number of employees and used relatively outdated technology. Accordingly, the acquirers had to invest considerably in target restructuring in post-acquisition period and, therefore, did not manage to increase targets' ROS. Furthermore, crisis-driven drop in demand forced many companies to reduce prices in order to preserve their market share, which had negative impact on their ROS. Statistically significant increase in ROS achieved by the targets acquired in 2008, at the beginning of the global economic crisis, was not detected three years after the acquisition, because the crisis did not allow the acquirers to carry out the process of target restructuring properly.

The entire sample comprising 79 cross-border acquisitions made in Serbia in the period 2003-2008 was analyzed to determine the impact of the global economic crisis on targets' ROS. The results showed that there was no statistically significant increase in this ratio three, four and five years after the crisis started.

This research did not confirm the first hypothesis (H1) stating that cross-border acquisitions in Serbia resulted in higher post-acquisition ROS of target companies. The results showed that cross-border acquisitions made before or at the beginning of the global economic crisis did not result in a statistically significant increase in targets' ROS. These acquisitions implied considerable cost of target restructuring, because the targets were in a quite poor state before the acquisition. Furthermore, companies were forced to reduce prices to adjust to the crisis-driven drop in demand.

Similar methodology was used to analyze the impact of cross-border acquisitions in Serbia on targets' ROI. The results showed that cross-border acquisitions made in 2003 did not result in a statistically significant increase in targets' ROI three, six and nine years after the acquisition. ROI depends on sales profitability (ROS) and asset management efficiency. The acquirers did not manage to improve efficiency in targets' asset management in the short run, because this was a complex task and required considerable investment. In addition, these investments could not produce a more notable increase in sales income because the crisis started.

Cross-border acquisitions made in 2008 did not result in statistically significant increase in targets' ROI three years after the acquisition. Investment in target restructuring did not result in a more notable increase in operating income due to the crisis-driven drop in domestic and foreign demand in this period. Consequently, efficiency in targets' asset management was not improved. Targets' ROI was not increased because the acquirers failed to improve sales profitability (ROS) and asset management efficiency.

Analysis of the entire sample comprising 79 internationally acquired companies showed that there

was no statistically significant increase in ROI achieved by these companies in 2011, 2012 and 2013 compared to 2008, because global economic crisis had negative impact on sales profitability and asset management efficiency in this period.

This research did not confirm the second hypothesis (H2) stating that cross-border acquisitions in Serbia resulted in higher post-acquisition ROI of target companies. On one hand, acquirers had to invest heavily in target restructuring in post-acquisition period. On the other hand, these investments did not produce desired increase in sales income due to the crisis.

Finally, we analyzed changes in targets' ROE in post-acquisition period. First, we analyzed the sample comprising cross-border acquisitions made in 2003. The results showed that cross-border acquisitions did not result in a statistically significant increase in targets' ROE three, six and nine years after the acquisition. Analysis of the sample comprising targets acquired in 2008 also showed that there was no statistically significant increase in this ratio three years after the acquisition. Finally, analysis of the entire sample showed that there was no statistically significant increase in ROE of these targets three, four and five years after the crisis started.

This research did not confirm the third hypothesis (H3) stating that cross-border acquisitions in Serbia resulted in higher ROE of target companies. As shown before, high cost of target restructuring and global economic crisis prevented the acquirers from improving targets' sales profitability and asset management efficiency. Consequently, possibly more efficient use of financial leverage was not sufficient to increase returns on equity.

This research had two significant limitations. The first one refers to the available data. Official financial statements submitted to the Serbian Business Registers Agency were used in this research. However, there was no mechanism to check whether these financial statements had undergone independent audit or to see the auditor's report, so we were not able to eliminate the companies that had received adverse opinion or disclaimer of opinion.

The second limitation refers to the size of the sample comprising cross-border acquisitions made in 2008. This sample comprised only 12 companies and was too small to use the T-test, so we had to use the Mann-Whitney test instead. Therefore, the obtained results should be taken with a certain degree of scepticism.

Finally, we can give some directions for further research in this area. Larger sample size would enable researchers to analyze financial performance of internationally acquired companies by different industries. This would allow them to compare the impact of cross-border acquisitions and global economic crisis on targets operating in different industries. This research could also be expanded to the region of Southeast Europe. Since these countries differ by the level of economic development and the pace of transition process, researchers could try to determine the relationship between these two factors and the impact of cross-border acquisitions on target's financial performance.

References

1. Bergh, D. D. (1997). Predicting divestiture of unrelated acquisitions: An integrative model of *ex ante* conditions. *Strategic Management Journal, 18(9)*, 715-731.
2. Bruner, F. R. (2002). Does M&A pay? A survey of evidence for the decision-maker. *Journal of Applied Finance, 12(1)*, 48-66.
3. Claessens, S., & Djankov, S. (2002). Privatization benefits in Eastern Europe. *Journal of Public Economics, 83(3),* 307-324.
4. Danbolt, J., & Maciver, G. (2012). Cross-border versus domestic acquisitions and the impact on shareholder wealth. *Journal of Business Finance & Accounting, 39(7-8)*, 1028-1067.
5. DePamphilis, D. (2010). *Mergers, acquisitions and other restructuring activities*. San Diego: Elsevier.
6. Gelbuda, M., Meyer, E. K., & Delios, A. (2008). International business and institutional development in Central and Eastern Europe. *Journal of International Management, 14(1)*, 1-11.
7. Gregory, A., & O'Donohoe, S. (2014). Do cross border and domestic acquisitions differ? Evidence from the acquisition of UK targets. *International Review of Financial Analysis, 31(1)*, 61-69.
8. Gubbi, R. S., Aulakh, S. P., Ray, S., Sarkar, M. B., & Chitoor, R. (2010). Do international acquisitions by emerging economy firms create shareholder value? The case of Indian firms. *Journal of International Business Studies, 41*(3), 397–418.
9. Lebedev, S., Peng, W. M., Xie, E., & Stevens, E. C. (2015). Mergers and acquisitions in and out of emerging economies. *Journal of World Business, 50(4)*, 651-662.
10. Lodorfos, G., & Boateng, A. (2006). The role of culture in the merger and acquisition process: Evidence from European chemical industry. *Management Decision*, *44(10),* 1405–1406.
11. Markides, C. & Oyon, D. (1998). International acquisitions: Do they create value for shareholders?. *European Management Journal, 16(2),* 125-135.
12. Marković, D. (2013). *Konkurentski i finansijski efekti međunarodnih preuzimanja u Srbiji*. Belgrade, Serbia: Faculty of Economics.

13. Martynova, M., & Renneboog, L. (2008). A century of corporate takeovers: What have we learned and where do we stand? *Journal of Banking & Finance, 32(10)*, 2148-2177.
14. Meyer, E. K., & Estrin, S. (2011). Brownfield acquisitions: A Reconceptualization and extensions. *Management International Review, 51(4)*, 483-509.
15. Moeller, S. B., & Schilngemann, F. P. (2005). Global diversification and bidder gains: A comparison between cross-border and domestic acquisitions. *Journal of Banking and Finance, 29(3),* 533-564.
16. Papadakis, M. V., & Thanos C. I. (2010). Measuring the performance of acquisitions: An empirical investigation using multiple criteria. *British Journal of Management, 21(4)*, 859-873.
17. Porter, M. (1987). From competitive advantage to corporate advantage. *Harvard Business Review, 65(3),* 43-59.
18. Santalainen, T., & Leimman, J. (2003). Straddling for market space: Transforming Estonian state-owned enterprises toward a free market orientation. *International Business & Economics Research Journal, 2(9),* 75-89.
19. Schoenberg, R. (2006). Measuring the performance of corporate acquisitions: An empirical comparisons of alternative metrics. *British Journal of Management, 17(4),* 361-370.
20. Sudarsanam, S. (2003). *Creating value from mergers and acquisitions*. London: Prentice Hall International.
21. Thanos, C. I., & Papadakis, M. V. (2012). Unbundling acquisition performance: How do they perform and how can this be measured? In D. Faulkner, S. Teerikangas & R.J. Jospeh (Eds.), *The Handbook of Mergers and Acquisitions* (pp. 114-147). Oxford, UK: Oxford University Press.
22. Tuch, C., & O'Sullivan, N. (2007). The impact of acquisitions on firm performance: A review of the evidence. *International Journal of Management Review, 9(2)*, 141-170.
23. Uhlenbruck, K., & De Castro, J. (2000). Foreign acquisitions in Central and Eastern Europe: Outcomes of privatization in transitional economies. *Academy of Management Journal, 43(3),* 381-402.
24. UNCTAD. (2015). *World investment report*. Geneva, Switzerland: United Nations Publication.
25. Weston, F. (1994). Divestitures: Mistakes or learning? In P. Gaughan (Eds.), *Readings in Mergers and Acquisitions* (pp. 271-283). Massachusetts: Blackwell.
26. Williamson, P., & Raman, A. (2011). How China reset its global acquisitions agenda. *Harvard Business Review*, 89(4), 109-114.
27. Yadong, L., Sun J., & Lu Wang, S. (2011). Emerging economy copycats: Capability, environment, and strategy. *Academy of Management Perspective*, *25(2)*, 37-56.
28. Zollo, M., & Meir, D. (2008). What is M&A performance? *Academy of Management Perspective, 22*(3), 55-77.

APPENDIX 1: RETURN ON SALE

Appendix 1.1.: Cross-border acquisitions realized in 2003 (T-test)

	Number of companies	Mean	Standard Deviation	SE Mean
2003	34	0.81	18.21	3.12
2006	34	2.17	12.27	2.1
Difference		-1.36	17.16	2.94

Paired T-test for 2003-2006
95% Confidence Interval for the mean difference (-7.35; 4.63)
T-test of the mean difference = 0 (vs ≠ 0): T – Value = -0.46 P – Value = 0.646

Appendix 1.2.: Cross-border acquisitions realized in 2003 (T-test)

	Number of companies	Mean	Standard Deviation	SE Mean
2003	34	0.81	18.21	3.12
2009	34	4.66	10.3	1.77
Difference		-3.85	17.91	3.07

Paired T-test for 2003-2009
95% Confidence Interval for the mean difference (-10.1; 2.4)
T-test of the mean difference = 0 (vs ≠ 0): T – Value = -1.25 P – Value = 0.219

Appendix 1.3.: Cross-border acquisitions realized in 2003 (T-test)

	Number of companies	Mean	Standard Deviation	SE Mean
2003	34	0.81	18.21	3.12
2012	34	-1.9	31.45	5.39
Difference		2.71	21.96	3.77

Paired T-test for 2003-2012
95% Confidence Interval for the mean difference (-4.95; 10.37)
T-test of the mean difference = 0 (vs ≠ 0): T – Value = 0.72 P – Value = 0.476

Appendix 1.4.: Cross-border acquisitions not realized in 2003 (T-test)

	Number of companies	Mean	Standard Deviation	SE Mean
2003	40	-0.4	10.6	1.7
2006	40	-10.1	78.9	12.5
Difference		9.7	74.2	11.7

Paired T-test for 2003-2006
95% Confidence Interval for the mean difference (-14.0; 33.4)
T-test of the mean difference = 0 (vs ≠ 0): T – Value = 0.72 P – Value = 0.413

Appendix 1.5.: Cross-border acquisitions realized in 2008 (Mann-Whitney test)

	Number of companies	Mean
2008	12	5.5
2011	12	2.4

Point estimate for $ń_1$ - $ń_2$ is 3.8
95.4% Confidence Interval for $ń_1$ - $ń_2$ is (-5.9; 11.5)
W = 162.0
Test of $ń_1$ = $ń_2$ vs $ń_1$ ≠ $ń_2$ is significant at 0.5067

Appendix 1.6.: Cross border acquisitions realized between 2003 and 2008 (T-test)

	Number of companies	Mean	Standard Deviation	SE Mean
2008	79	0.32	31.6	3.56
2011	79	0.55	26.67	3
Difference		-0.23	34.11	3.84

Paired T-test for 2008-2011
95% Confidence Interval for the mean difference (-7.87; 7.41)
T-test of the mean difference = 0 (vs ≠ 0): T – Value = -0.06 P – Value = 0.952

Appendix 1.7.: Cross-border acquisitions realized between 2003 and 2008 (T-test)

	Number of companies	Mean	Standard Deviation	SE Mean
2008	79	0.3	31.6	3.6
2012	79	-22.3	193.9	21.8
Difference		22.6	193.1	21.7

Paired T-test for 2008-2012
95% Confidence Interval for the mean difference (-20.7; 65.8)
T-test of the mean difference = 0 (vs ≠ 0): T – Value = 1.04 P – Value = 0.302

Appendix 1.8.: Cross-border acquisitions realized between 2003 and 2008 (T-test)

	Number of companies	Mean	Standard Deviation	SE Mean
2008	76	0.3	31.6	3.7
2013	76	-9.2	100.5	11.5
Difference		9.6	102	11.7

Paired T-test for 2008-2013
95% Confidence Interval for the mean difference (-13.7; 32.9)
T-test of the mean difference = 0 (vs ≠ 0): T – Value = 0.82 P – Value = 0.416

APPENDIX 2: RETURN ON INVESTMENT

Appendix 2.1.: Cross-border acquisitions realized in 2003 (T-test)

	Number of companies	Mean	Standard Deviation	SE Mean
2003	34	-1.71	14.71	2.56
2006	34	1.81	12.34	2.15
Difference		3.51	17.05	2.97

Paired T-test for 2003-2006
95% Confidence Interval for the mean difference (-9.56; 2.53)
T-test of the mean difference = 0 (vs ≠ 0): T – Value = -1.18 P – Value = 0.245

Appendix 2.2.: Cross-border acquisitions realized in 2003 (T-test)

	Number of companies	Mean	Standard Deviation	SE Mean
2003	34	-1.71	14.71	2.56
2009	34	2.87	9.76	1.7
Difference		-4.57	14.84	2.58

Paired T-test for 2003-2009
95% Confidence Interval for the mean difference (-9.83; 0.69)
T-test of the mean difference = 0 (vs ≠ 0): T – Value = -1.77 P – Value = 0.086

Appendix 2.3.: Cross-border acquisitions realized in 2003 (T-test)

	Number of companies	Mean	Standard Deviation	SE Mean
2003	34	-1.71	14.71	2.56
2012	34	3.37	10.68	1.68
Difference		-5.07	15.24	2.65

Paired T-test for 2003-2012
95% Confidence Interval for the mean difference (-10.48; 0.33)
T-test of the mean difference = 0 (vs ≠ 0): T – Value = -1.91 P – Value = 0.065

Appendix 2.4.: Cross-border acquisitions not realized in 2003 (T-test)

	Number of companies	Mean	Standard Deviation	SE Mean
2003	40	-3.13	12.49	1.97
2006	40	6.62	15.68	2.48
Difference		-9.75	20.2	3.19

Paired T-test for 2003-2006
95% Confidence Interval for the mean difference (-16.21; 3.29)
T-test of the mean difference = 0 (vs ≠ 0): T – Value = -3.05 P – Value = 0.004

Appendix 2.5.: Cross-border acquisitions realized in 2008 (Mann-Whitney test)

	Number of companies	Mean
2008	12	0.57
2011	12	0.12

Point estimate for $ή_1$ - $ή_2$ is -1.66
95.4% Confidence Interval for ή1 - ή2 is (-11.23; 3.92)
W = 138.0
Test of $ή_1 = ή_2$ vs $ή_1 ≠ ή_2$ is significant at 0.5067

Appendix 2.6.: Cross border acquisitions realized between 2003 and 2008 (T-test)

	Number of companies	Mean	Standard Deviation	SE Mean
2008	79	2.75	13.78	1.56
2011	79	2.22	12.23	1.39
Difference		0.52	15.78	1.79

Paired T-test for 2008-2011
95% Confidence Interval for the mean difference (-3.04; 4.08)
T-test of the mean difference = 0 (vs ≠ 0): T – Value = 0.29 P – Value = 0.771

Appendix 2.7.: Cross-border acquisitions realized between 2003 and 2008 (T-test)

	Number of companies	Mean	Standard Deviation	SE Mean
2008	79	2.75	13.78	1.56
2012	79	1.53	13.96	1.58
Difference		1.21	14.95	1.69

Paired T-test for 2008-2012
95% Confidence Interval for the mean difference (-2.16; 4.58)
T-test of the mean difference = 0 (vs ≠ 0): T – Value = 0.72 P – Value = 0.476

Appendix 2.8.: Cross-border acquisitions realized between 2003 and 2008 (T-test)

	Number of companies	Mean	Standard Deviation	SE Mean
2008	76	2.96	13.86	1.6
2013	76	0.99	17.5	2.02
Difference		1.97	18.87	2.18

Paired T-test for 2008-2013
95% Confidence Interval for the mean difference (-2.37; 6.32)
T-test of the mean difference = 0 (vs ≠ 0): T – Value = 0.91 P – Value = 0.368

APPENDIX 3: RETURN ON EQUITY

Appendix 3.1.: Cross-border acquisitions realized in 2003 (T-test)

	Number of companies	Mean	Standard Deviation	SE Mean
2003	33	-13.7	71.5	12.4
2006	33	4	47.2	8.2
Difference		-17.7	77.5	13.5

Paired T-test for 2003-2006
95% Confidence Interval for the mean difference (-45.2; 9.8)
T-test of the mean difference = 0 (vs ≠ 0): T – Value = -1.31 P – Value = 0.198

Appendix 3.2.: Cross-border acquisitions realized in 2003 (T-test)

	Number of companies	Mean	Standard Deviation	SE Mean
2003	32	-13.1	72.5	12.8
2009	32	3.8	23.7	4.2
Difference		-16.9	72	12.7

Paired T-test for 2003-2009
95% Confidence Interval for the mean difference (-42.8; 9.1)
T-test of the mean difference = 0 (vs ≠ 0): T – Value = -1.33 P – Value = 0.195

Appendix 3.3.: Cross-border acquisitions realized in 2003 (T-test)

	Number of companies	Mean	Standard Deviation	SE Mean
2003	32	-13.1	72.5	12.8
2012	32	-17.2	76	13.4
Difference		4.1	104.4	18.5

Paired T-test for 2003-2012
95% Confidence Interval for the mean difference (-33.6; 41.7)
T-test of the mean difference = 0 (vs ≠ 0): T – Value = 0.22 P – Value = 0.826

Appendix 3.4.: Cross-border acquisitions not realized in 2003 (T-test)

	Number of companies	Mean	Standard Deviation	SE Mean
2003	35	-7.39	25.12	4.25
2006	35	8.71	27.63	4.63
Difference		-16.09	36.81	6.22

Paired T-test for 2003-2006
95% Confidence Interval for the mean difference (-28.74; -3.45)
T-test of the mean difference = 0 (vs ≠ 0): T – Value = -2.59 P – Value = 0.014

Appendix 3.5.: Cross-border acquisitions realized in 2008 (Mann-Whitney test)

	Number of companies	Mean
2008	11	1.65
2011	11	0.77

Point estimate for $\acute{\eta}_1 - \acute{\eta}_2$ is 2.31
95.4% Confidence Interval for $\acute{\eta}_1 - \acute{\eta}_2$ is (-12.11; 16.23)
W = 138.0
Test of $\acute{\eta}_1 = \acute{\eta}_2$ vs $\acute{\eta}_1 \neq \acute{\eta}_2$ is significant at 0.4701

Appendix 3.6.: Cross-border acquisitions realized between 2003 and 2008 (T-test)

	Number of companies	Mean	Standard Deviation	SE Mean
2008	69	-4.29	52.54	6.33
2011	69	0.28	55.01	6.62
Difference		-4.57	69.88	8.41

Paired T-test for 2008-2011
95% Confidence Interval for the mean difference (-21.36; 12.21)
T-test of the mean difference = 0 (vs ≠ 0): T – Value = -0.54 P – Value = 0.588

Appendix 3.7.: Cross-border acquisitions realized between 2003 and 2008 (T-test)

	Number of companies	Mean	Standard Deviation	SE Mean
2008	68	-3	52	6
2012	68	-115	940	114
Difference		111	942	114

Paired T-test for 2008-2012
95% Confidence Interval for the mean difference (-117; 339)
T-test of the mean difference = 0 (vs ≠ 0): T – Value = 0.97 P – Value = 0.333

Appendix 3.8.: Cross-border acquisitions realized between 2003 and 2008 (T-test)

	Number of companies	Mean	Standard Deviation	SE Mean
2008	68	-5.6	53.5	6.5
2013	68	-17.6	160.2	19.4
Difference		12	167.2	20.3

Paired T-test for 2008-2013
95% Confidence Interval for the mean difference (-28.5; 52.4)
T-test of the mean difference = 0 (vs ≠ 0): T – Value = 0.59 P – Value = 0.557

Dušan Marković

is an Assistant Professor at the Faculty of Economics, University of Belgrade, where he also received his PhD in Business. His PhD thesis focused on the competitiveness and financial effects of cross-border acquisitions in Serbia. He teaches courses on international business management in the bachelor's and master's programs at the Faculty of Economics, University of Belgrade, and the Financial Crises and Firm Performance course in the Summer School Program of EBS Business School, Germany. He has published in the areas of cross-border acquisitions, strategic alliances, emerging market multinationals and business strategies in auto industry. Dušan also has rich practical experience in capital and asset valuation, financial due diligence, business and financial restructuring, and has previously worked as financial advisor for Grant Thornton Serbia.

Dragan Azdejković

is an Assistant Professor at the Faculty of Economics, University of Belgrade, where he teaches a course in Decision Theory and Mathematical Economics. Born in Kruševac, he studied in Belgrade and graduated in Mathematics from the University of Belgrade. He earned his PhD (2012) after defending the research thesis entitled "Optimization Process of Group Decision Making". The current focus of his research is on mechanism design and decision making. Other areas of his research interests include fuzzy sets, game theory and econometrics.