Annals of DAAAM for 2010 & Proceedings of the 21st International DAAAM Symposium, Volume 21, No. 1, ISSN 1726-9679
ISBN 978-3-901509-73-5, Editor B. Katalinic, Published by DAAAM International, Vienna, Austria, EU, 2010
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Annals of DAAAM International

PREACQUISITION FINANCIAL PROFILE OF CROATIAN SME

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Abstract: *Increased number of SME acquisitions in Croatia during the last few years was the main motivation for this study. The main objective was to discover financial profile of acquired SME. The most important financial ratios are calculated, while logistic regression was used to discover statistically significant ratios i.e. ratios which explain probability of being acquired. Empirical research is based on data for 92 SME acquired in the period 2007-2008. Logistic regression analysis for Croatian SME revealed that the likelihood of being acquired is positively related with company size and activity, while it is negatively related with liquidity and leverage.*
Key words: *Acquired SME, financial profile, Croatia*

1. INTRODUCTION

In Croatia, like in many other countries, SME companies represent the vast majority of companies. SME acquisitions have become more frequent during the last few years in Croatia and that was a strong incentive to explore the preacquisition profile of the acquired SME. The research sample consists of 92 SME that were acquired in the period 2007-2008. The sample of the acquired SME is developed on the basis of publicly available information from business magazines and Internet. In order to explore the preacquisition profile of the acquired SME the sample of 92 acquired SME is compared with the sample of 92 randomly chosen unacquired SME from the same industries and year. Empirical findings for the acquired Croatian SME revealed that likelihood of being acquired is positively related with company size and activity, while it was negatively related with liquidity and leverage.

2. PREVIOUS RESEARCH

Research in the issue of the preacquisition profile of acquired companies has started in the 70s of the last century. Early studies (for example Simkowitz & Monroe, 1971) that were focused on exploration of financial profile of the acquired companies used discriminant analysis. Later studies (Wanesly, 1984, Meador, et al. 1996) questioned the use of discriminant analysis due to its theoretical requirements for normality of financial ratios and equality of dispersion matrices. Since financial ratios from many earlier studies showed that these assumptions were usually violated, the recent studies often use probit, logit and logistic regression.

One stream of literature is trying to utilize preacquisition profile of acquired companies in order to beat the stock market and earn abnormal return. Namely, studies explore preacquisition financial profile trying to develop prognostic models that would be able to discriminate between acquisition targets and non-targets. Empirical results on prognostic models ability to earn abnormal return are mixed. Some studies (Palepu, 1986; Barnes, 1999) did not succeed in development of prediction model resulting with abnormal returns. On the other hand, some later studies (Powel 2004; Brar et al. 2009) succeeded in developing such models. It is important to point that all the mentioned studies were based on the samples of listed companies.

Another stream of literature is focused on analysis of financial profile and it is not limited only to the segment of listed companies. Thus for example, in UK (Cosh & Hughes, 1995) conducted a comparative analysis of 142 acquired companies. Research data indicated that size and growth were positively related with likelihood of being acquired. USA study explored the issue of horizontal and vertical mergers. In the horizontal merger sample significant variables for acquired companies were: leverage, sales growth, assets growth and M/B ratio. For the vertical merger sample only one variable was significant – dividend policy (Meador et al, 1996). Another paper with the data for USA food industry analyzed M&A activity. The model identified the following financial ratios as significant: firm liquidity, leverage, profitability, growth in sales, stock earning capacity, free float and M/B ratio (Adelaja et. al., 1999).

In 2001 a study was conducted for Belgian privately held companies that were involved in takeovers. Empirical findings revealed that the acquired companies were more profitable in comparison with industry medians. Also, failure scores for the acquired companies were smaller in comparison with their industries (Ooghe & Camerlynck, 2001). A study on Greek listed companies was done in 2006. Authors reported that takeover targets were larger older companies, with higher labor productivity and better performance (Tsagkanos et al., 2006).

3. MODEL AND EMPIRICAL FINDINGS

In order to conduct empirical research we have firstly collected data on the acquired Croatian SME in the period 2007-2008. Sample of 92 acquired SME is discovered on the basis of publicly available information from business magazines and Internet. In order to explore the preacquisition profile of the acquired SME the sample of 92 acquired SME is compared with the sample of 92 randomly chosen unacquired SME from the same industries and year. All financial statements data are collected from the Fina (www.fina.hr), public institution which collects and publishes financial statements for all Croatian companies. On the basis of collected data selected financial ratios are calculated (Table 1).

Variable	Description
ROA	EBIT/Assets
EBITDA margin	EBITDA/Sales
Assets turnover	Sales/Assets
Sales growth	$(Sales_{t-2}-Sales_{t-1})/Sales_{t-1}$
Net working capital	(Current assets-Current liabilities)/Assets
Leverage	Total debt/Assets
Size	Ln Assets
Real estate assets	(Land+Buildings)/Assets

Tab. 1. Selected financial ratios

The selected financial ratios describe basic financial characteristics: profitability, cash-flow, activity, growth, liquidity, leverage, size and relative importance or real estate assets. Financial ratios from the Table 1 are calculated for the two years before year of acquisition. Since the research sample consists of companies from different industries all financial ratios are relativized with industry means in order to control cross-industry ratios dispersions. All calculated financial ratios are normalized (IRR-Industry relative ratios) with industry means by the following formula:

$$IRR = \frac{Company ratio - Industry ratio mean}{|Industry ratio mean|} \quad (1)$$

As multivariant statistical technique, logistic regression is used, which has some advantages over discriminant analysis. Namely, discriminant analysis has theoretical requirements for normality of data and equality of dispersion matrices. Since many studies show that financial ratios do not follow these assumptions the use of discriminant analysis can be very problematic.

Since some of discriminating variables used by the logistic regression have the same denominator (assets) there was a possibility of multicollinearity problem in the estimated model. In order to analyze this problem we decided to use two approaches. Firstly we analyzed matrix of Pearson Correlation coefficients, where correlation analysis revealed that all values were less than 0.8. Secondly, we analyzed Variance Inflation Factors – VIFs, where linear regression of one discriminating variable was run, while all other variables were used as explanatory variables. This analysis resulted with all VIFs value less than 5. Both approaches indicated that the estimated model of logistic regression is free of multicollinearity problems. The results of logistic regression are presented in the Table 2.

The estimated model of logistic regression from the Table 2 indicates that there is no significant influence of performance measures (ROA & EBITDA_MAR) on probability of being acquired. Therefore, here we can conclude that inefficient management was not significant reason for acquisitions. Also, real assets (land and buildings) and growth in sales were not a significant variable for SME acquisitions. The acquired SME in comparison with nonacquired SME have higher activity ratio (ASSET_TURN). Also, the acquired SME are relatively larger than nonacquired SME companies.

Likelihood of being acquired for the sampled SME is negatively related with liquidity (NWC) and leverage (LEVERAGE). This means that the acquired companies are less liquid but have larger debt capacity in comparison with the nonacquired companies. The estimated model is significant at less than 1% level, while the explanatory power measured with Nagelkerke R Square is 30.11%. Models classification accuracy for acquired companies is 73.03%, for nonacquired companies 70.79%, while total accuracy reaches 71.91%.

Variable	Est.	Sig.
ROA	-,028	,275
EBITDA_MAR	-,063	,143
ASSET_TURN	,529	,032
GROWTH	-,039	,241
NWC	-,055	,017
LEVERAGE	-,485	,042
SIZE	6,642	,001
REAL_ASSETS	,041	,528
Constant	-,245	,175
-2 Log likelihood	201,19	
Sig.	< 0,0001	
Nagelkerke R Square	30,11%	
Class. accuracy for acquired	73,03%	
Class. accuracy for nonacquired	70,79%	
Total classification accuracy	71,91%	

Tab. 2. Logistic regression results

4. CONCLUDING REMARKS

Increased number of SME acquisitions in Croatia and nonexistent research of this type was the main motive for this study. The basic goal of research was exploration of the preacquisition financial profile of the acquired SME companies. All data required for research are collected from publicly available sources and the final research sample consisted of 92 acquired and 92 nonacquired SME. Empirical findings based on logistic regression model for acquired Croatian SME indicate that likelihood of being acquired is positively related with company size and activity, while it is negatively related with liquidity and leverage. As limitations of the study and findings we can point out the following: relatively short period of analysis and relatively small sample. Therefore, future research should try to expand the period of analysis and the number of observations in order to obtain more reliable results.

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