THE EFFECTS OF CRISIS ON FINANCIAL HEALTH OF COMPANIES OF SPECIAL NATIONAL INTEREST IN CROATIA

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Abstract— The companies of special national interest (CSNIs) are those appointed as such by the Croatian Parliament because they provide services related to areas of special importance for the implementation of economic policies. The state is majority owner or has control over these entities. The aim of this paper is to determine to which extent profitability, solvency and liquidity of CSNIs have been affected by global financial crisis. The research was conducted on the sample of 47 CSNIs, comparing two sets of different financial ratios for years 2010 and 2016. The obtained results indicate that neither the profitability nor the leverage of CSNIs have significantly changed due to global financial crisis.

Index Terms— companies of special national interest (CSNIs), liquidity, profitability, solvency.

I. INTRODUCTION

In Croatia there are 53 companies which are, according to the decision of the Parliament, considered as the companies of special national interest (CSNIs). They comprised the portfolio of the Republic of Croatia which is under the division of the jurisdiction of the State Administrative Office for State Property Management and are divided into three categories [1]:

1) Companies of strategic interest for the Republic of Croatia, for which there are long-term social needs and which are not scheduled for privatization.
2) CSNIs in which the Republic of Croatia has a majority share and are scheduled for restructuring, privatization or listing on the capital market.
3) CSNIs in which the Republic of Croatia has a less than 50% share and whose shares are listed on the regulated capital market and which are designated for possible further sale to a third-party.

However, there is no a unique definition of CSNIs. They are commonly determined as such by the law, and their main features are fully or majority state ownership, state control over the operations and the selection of administration and specific activities they do. The gained profit CSNIs is partly reinvested for the improvement of their operations and the rest is forwarded to the state budget. CSNIs are involved in the activities that are characterized as natural monopolies and they often provide services which are not profitable for private companies. However, it is important to monitor the profitability, solvency and liquidity of CSNIs in order to improve their financial performance, to anticipate and prevent problems and to assess their attractiveness from the perspective of various interest groups.
Studies that have researched the profitability, solvency and liquidity of CSNIs are pretty scarce, as this kind of companies is characteristic for transition economies, like Croatia. In Croatia, the financial health of CSNIs were researched by [2] who analyzed descriptively the results of the operations of 69 state-owned enterprises in 2009 and provided an overview of theoretical findings that give reasons for the existence of state companies, their lesser efficiency and the reasons for privatisation. In paper [3] main characteristics of Croatian regulatory framework of corporate governance in state-owned enterprises in the year of 2010 are presented and discussed. Author [4] presents in her paper the analysis of the credit worthiness of 20 CSNIs. Assessment has been made by horizontal and vertical analysis of annual financial reports as well as the ratio analysis. The author concludes that these companies are over-indebted and not creditworthy. Reference [5] dealt with profitability of CSNIs with regard to their ownership structure, firm size and main activity and showed that the profitability of CSNIs depend on the share of state ownership and the size of the enterprise itself. Last, [6] examined competitiveness of CSNIs compared with privately owned companies which are doing the same or similar activities, provide the same or similar services, trade with substitutes or may affect the financial performance of CSNIs in any other way and found that leverage and profitability of CSNIs do not significantly differ from their privately owned competitors.

According to our best knowledge, there are no papers dealing with the effects of global financial crisis on financial performance of CSNIs, which is the subject of this paper and its main scientific contribution.

II. MATERIALS AND METHODS

The list of CSNIs in the Republic of Croatia is determined by the [7]. According to the census, out of the total of 236 legal entities, 53 legal entities that are established as companies are the topic of this research. Three companies with missing or incomplete data and three companies from financial sector are excluded, so final sample consists of 47 companies (89% of total population).

Table I Distribution of CSNIs according to main activity

NACE main section	Number	Percentage
B. Mining and quarrying	1	2.13%
C. Manufacturing	6	12.77%
D. Electricity, gas, steam and air conditioning supply	2	4.26%
F. Construction	3	6.38%
G. Wholesale and retail trade; repair of motor vehicles and motorcycles	1	2.13%
H. Transportation and storage	21	44.68%
I. Accommodation and food service activities	2	4.26%
J. Information and communication	3	6.38%
M. Professional, scientific and technical activities	6	12.77%
R. Arts, entertainment and recreation	2	4.26%
TOTAL	47	100.00%

Main activities of selected CSNIs based on National classification of activities are presented in Table 1. As it can be seen, almost half of CSNIs is in the transport and storage sector, where special national interest is determined by the fact that these activities are strategically important for the state and it sees a special interest for their further development. Companies in this sector are usually natural monopolies, in which there are high barriers of entry, capital intensity and the need for specific investments that hinder the development of competition. The rest of CSNIs portfolio consists of companies from 9 different industry sectors which are mainly oligopolistic enterprises that are not exclusive providers but they have competitors in privately owned businesses which operate in more profitable businesses, whereas CSNIs provide services in the less profitable part.

Twenty four of selected CSNIs (45%) are organized as joint stock companies, whereas 29 or 55% are limited liability companies. Only ten companies are issuing securities that are traded on the organized capital market. According to [8] size classification, almost half of companies (47% or 22) are considered to be very large as they match at least one of the following conditions: listed, operating revenue higher than 100 million EUR, total assets higher than 200 million EUR and more than 1,000 employees. Eighteen companies (39%) are classified as large companies because they match at least one of the following conditions: operating revenue higher than 10 million EUR, total assets higher than 20 million EUR and number of employees higher than 150. Six companies (13%) are medium sized as they match at least one of the following conditions: operating revenue higher than 1 million EUR, total assets higher than 2 million EUR and have more than 15 employees. One company which is not included in any of above mentioned categories is considered to be small.

For the purposes of the research, the financial data of selected companies for the years 2011 and 2016 were downloaded from Bureau Van Dijk Amadeus database available at [8].The data were analyzed using the statistical package for social sciences software - PASW v. 18.0.

According to the defined problem and the subject of the research, the following ratios of profitability, solvency and liquidity shown in Table 2 were defined as variables in the research.

Financial ratios of return on assets (ROA) and return on equity (ROE) are defined as measures of profitability. Additionally, profit margin (ROS) as alternative measure of profitability of sales is used. According to the theoretical background, as CSNIs often provide services which are not profitable for private companies, it can be expected that profitability, as common measure of business success, is not the primary focus of CSNIs business. In the same context, significant difference in profitability ratio during and after financial crisis is not supposed.

Liquidity indicates company's ability to meet its short term obligations and it is measured by current ratio (CR) and cash return on sale (CROS). Furthermore, company's solvency, i. e. ability to meet long term financial commitments is examined by debt ratio (DR) as measure for level of indebtedness. It is assumed that CSNIs take advantage of the fact that the state is their owner in order to provide more funds through borrowing and consequently borrowing easier.

Table II Variables review

Variable	Symbol	Calculation
Return on assets	ROA	(Profit before tax/Total asset)*100
Return on equity	ROE	(Net profit / Owner's equity)*100
Return on sale	ROS	(Profit before tax/ Operating revenue)*100
Debt ratio	DR	(Total liabilites / Total assets)*100
Cash return on sale	CROS	Operating cash flow / Operating revenue)*100
Current ratio	CR	Current assets / Current liabilities

Table III Real GDP growth rate in Croatia

Year	Percentage change on previous year	Year	Percentage change on previous year
2008	2.1	2013	-1.1
2009	-7.4	2014	-0.5
2010	-1.7	2015	2.2
2011	-0.3	2016	3.0
2012	-2.2		

Effects of financial crisis on financial health are explored by paired-samples t-test by comparison of the means for previously described ratios calculated from CSNIs' financial statements. Year 2010 is settled as „in crisis year" whereas 2016 is defined as „after crisis year", based on the annual growth rate of GDP volume as a measure of the economic activity which allows comparisons of the dynamics of economic development over time. Detailed trend of real GDP growth rate – volume in Croatia expressed as percentage change on previous year is presented in Table 3. According to [9] methodology, for measuring the growth rate of GDP in terms of volumes, the GDP at current prices are valued in the prices of the previous year and the thus computed volume changes are imposed on the level of a previous year. The following criteria is applied: in the observed period from 2008 to 2017, second consecutive year with negative GDP growth rate is tagged as "in crisis" and second consecutive year with positive GDP growth rate is tagged as "after crisis", both indicating change in trend of economic development.

III. RESULTS AND DISCUSSION

A. Descriptive Analysis

The first part of the empirical research is descriptive comparison of CSNIs with respect to the assessment of financial health in 2010 and 2016.

In view of the analyzed CSNIs in 2010, 27 or 57% operated with profit and 20 or 43% recorded a loss at the end of the year. In 2016, when financial crisis pressure reduced, out of the 47 surveyed CSNIs 36 or 77% were operating with a profit, whereas only 11 companies or 23% made a loss in the observed period. The next step comprised the descriptive statistics for all the used variables by subsample in order to obtain a better insight into possible differences in the values of parameters between the periods. The results are presented in table 4.

The comparison of descriptive statistics regarding the profitability, solvency and liquidity ratios by subsamples shows significant differences in average values of current ratio, return on equity and profit margin ratios between the in crisis and after crisis period. However, these differences may be assigned to the existence of extreme values in several companies which can be identified through the minimum and maximum values and standard deviation. The existence of outliers also caused similar average values of cash return on sale and debt ratio.

Significant differences in means between during and after crisis periods occurred only for return on assets ratio. This finding indicate that CSNIs are significantly more profitable relative to its total assets in after crisis period (mean = 2,70%) than during the crisis (mean=1,14%). It means that CSNIs manage its assets more efficiently to produce profits when they are not burdened with negative effects of financial crisis.

However, to accept or reject hypothesis about significant changes in financial health of CSNIs due to global financial crisis, statistical testing is done.

Table IV Descriptive statistics of variables used by subsamples

Variable-year	N	Minimum	Maximum	Mean	Std. Deviation
ROA2016	46	-13.53	34.16	2.7026	8.03243
ROA2010	46	-13.77	32.91	1.1437	6.95033
ROE2016	43	-186.45	53.19	-1.5726	31.86596
ROE2010	45	-111.35	47.10	-2.9576	21.41780
ROS2016	46	-93.93	54.71	3.7063	26.00496
ROS2010	44	-99.98	88.94	-.5507	28.75805
CROS2016	46	-55.94	78.32	17.2476	26.35306
CROS2010	44	-54.03	77.23	13.6805	24.43134
CR2016	46	.01	84.81	4.9857	13.13481
CR2010	47	.01	15.77	2.4977	3.33085
DR2016	46	2.45	154.52	42.7298	32.91985
DR2010	47	1.58	187.60	46.4423	35.05495

Table V Paired samples t-test results

Ratio	Year	Mean	Standard deviation	St. error Mean	t-test	Sig.
ROA	2016	2.5831	8.08174	1.20475	1.055	0.297
	2010	1.2140	7.01230	1.04533		
ROE	2016	-1.7733	32.22469	4.97238	-0.052	0.959
	2010	-1.4926	20.94685	3.23217		
ROS	2016	6.4047	21.92641	3.34375	1.397	0.170
	2010	-0.5007	29.09646	4.43717		
CROS	2016	19.5062	25.00725	3.85870	1.434	0.159
	2010	13.9410	24.98254	3.85489		
CR	2016	4.9857	13.13481	1.93662	1.357	0.182
	2010	3.5424	3.35335	.49442		
DR	2016	42.7298	32.91985	4.85377	-0.679	0.500
	2010	46.1852	35.39747	5.21907		

B. Statistical Testing Results

The obtained results of statistical testing on the existence of significant differences in financial health of CSNIs in situation of financial crisis and after it are presented in Table 5.

The results of the test of differences in mean values between two dependent samples presented in the table above, show that difference between paired observations on a particular outcome is not significantly different from zero so the t-test values are

not statistically significant for any of the tested profitability, solvency and liquidity ratios (t-test p values range from 0.159 to 0.959). Therefore, it can be concluded that all observable differences are explained by random variation because there is no significant change in financial health measured by above mentioned ratios of CSNIs during and after financial crisis.

However, [10] notes that limiting factors of methodology which should be kept in mind are some conceptual problems in the ratios calculations with regard to statistical issues: (1) small numbers – the potential for distortion where small numbers are involved, particularly when dividing by small number; (2) relationship between numerator and denominator – for ease of comparison it is assumed that the relationship is linear which may not sometimes be the case.

According to [1], positive progress in operating results of CSNIs that is happening during the time can be explained as a result of the implementation of restructuring, rationalization or reorganization of operations according to the plans approved by the Supervisory Boards, so the financial crisis did not affect it.

CONCLUDING REMARKS

Companies of special national interest in which the state shareholders and state business share owners have a stake in share capital are in the focus of this research because they are an important part of the gross domestic product, employment and market capitalization in Croatia. However, due to the possibility of opportunistic behaviour of management, a possible excessive and politically motivated state interference in their business, it is expected that these companies would not operate in such a way if they were left to the free competition on the market.

The main aim of this paper was to explore the differences in liquidity, solvency and profitability ratios as measures of financial health between CSNIs in the condition of economic crisis in year 2010 and when crisis came to its end in 2016. Verification of empirical evidence is provided through the sample of 47 legal entities that are established as companies. The obtained results show that there is no significant difference in liquidity, solvency and profitability between CSNIs duet to global financial crisis. However, these results should be interpreted with caution and certainly in the context of the economic environment, primarily post-transition, in which CSNIs have been operated in the observed period. The contribution of this paper is to offer an insight into the financial health of CSNIs', which should be of interest for the state as their owner, but also to the public whose funds are used for financing these companies.

Future researches should be oriented toward examination of financial health of other legal persons from the List of Entities of Special National Interest - institutions and non-budgetary funds, in order to examine the financial performance of their business. Moreover, the subject of the future research can be extended by examining the effect of additional financial and non-financial performance ratios, such as the number of employees, organizational factors, the type of industry, etc.

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