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BANKRUPTCY RISK EXPOSURE OF SERBIAN HOTELS IN THE PERIOD 2008-2012

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Abstract:

The purpose of this paper is to determine the indebtedness level of hotels operating in the Republic of Serbia during the period from 2008-2012. It is presumed that the weakened worldwide economy resulted in the decrease of general business solvency and increase of bankruptcy probability in all industries. Service providers have certainly not been left out, and hotels have been in the focus of this paper. We have collected available financial statements of hotels operating in the Republic of Serbia for the period from 2008-2012. We have calculated several bankruptcy prediction models including: Altman's Z' and Z''-score, M-score, Kralicek's df score and Z-score for hospitality industry. The results show that the average implicated bankruptcy probability increased in 2010 and 2011, and reached its peak value in 2011. When comparing 2008 and 2011, the average Altman's scores recorded decrease of approximately 70% and other scores confirm the same results. Therefore, it can be concluded that hotel industry in Serbia recorded the weakest results and has been insolvent and had the greatest risk of going bankrupt in 2010, and especially in 2011.

Key words:

indebtedness,
bankruptcy prediction models,
financial statements.

1. INTRODUCTION

If we take into consideration that corporate bankruptcy figures in the United States in the first quarter of 2015 recorded high level since 2010 (Hals, 2015) and that property market soars 10% in 2015 (Boyce, 2015), we might be at the beginning of creation of another market bubble and the new financial crisis. At the times of crisis, the solvency of business entities gets affected by negative market contractions. In order to retain the normal business cycle functionality, entities need additional funds. According to Stanišić *et al.* (2013) business entities in Serbia that invested their capital in current assets respond better (noted higher results) to the negative effects of financial crisis in comparison to those that had fixed assets of high value. Therefore, if business entities retain the same financial strategies, they may end up indebted pretty soon. The risk of bankruptcy increases as the level of credit solvency decreases. Bankruptcy filing is the last chance for the entity to regroup through reorganization; however, only one out of ten debtors actually opens the reorganization in the Republic of Serbia (Mizdraković, 2012). Therefore, approximately 90% of debtors are liquidated in the process of bankruptcy proceedings. Their assets are sold at a very low value (usually 10-30% of the market value) and collected money is used to reimburse the creditors. The value of debtor's bankruptcy estate is usually not enough to cover its debts, thus the creditors suffer in the process of bankruptcy, as well as the debtor. Also, a bankruptcy proceeding causes very high expenses; in Serbia they could be as high as 23% of the total value of debtor's properties (Mizdrakovic, 2012). The hotel industry has some specifics; firstly, the value of fixed assets is very high due to good property locations. This could be both - a life belt, and a hole in the boat for hotel management. A high property value could help in capital generation, as it allows the approval of mortgage loans of higher amounts. On the other hand, as mentioned above, the capital invested in fixed assets cannot be easily transformed in liquid assets, especially in the times of need. Also, the hotel's property does not possess high sales power, because when estate market is in decline, it will require more marketing time to make sales. Secondly, hotel industry is highly leveraged, because those valuable properties are usually financed by long-term debt financing. These two characteristics could easily cause problems with hotel credit solvency and force hotel management to file for bankruptcy proceedings. Therefore, it is very important for hotel management to notice red flags, react and avoid bankruptcy at all cost. The purpose of this paper is to find out whether Serbian hotel managements did notice the deterioration of the hotel credit solvency and at what level did they constrained bankruptcy risk. Actually, we wanted to find out when the indebtedness of hotel businesses in Serbia and their bankruptcy risk were at the highest level, throughout the period 2008-2012. Therefore, we have collected available financial statements of the hotels operating in the period from 2008-2012 and calculated several bankruptcy prediction models. This paper contributes to the existing literature on financial aspects of hotel industry in Serbia, which is quite modest. This is especially true when it comes to hotel bankruptcy prediction in the Republic of Serbia. The paper is structured as follows: The first part addresses the literature review; the second part presents research methodology used and the results, while the final part provides concluding remarks.

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2. LITERATURE REVIEW

Due to space constraints and since literature on corporate bankruptcy prediction is quite extensive and has already been explored by numerous authors (Bellovary, Giacomino, & Akers, 2007), this paper will only address bankruptcy prediction in the hospitality industry. Park and Hancer (2012) noticed that bankruptcy prediction in the hospitality industry has gained more interest with researchers since 1999. Since then, there were several papers till 2005 using MDA (Multivariate Discriminant Analysis) for bankruptcy prediction of restaurants, lodging companies and airplane companies. There were two more papers in 2006 addressing bankruptcy prediction of restaurants using Logistic Regression and MDA analyses, in which it has been concluded that low earnings before interest and taxes, and high total liabilities would likely lead to bankruptcy of the restaurant (Kim & Gu, 2006; Kim & Gu, 2006a). Similarly, Park and Hancer (2012) noticed that financial indicator total liabilities to total assets plays a great role in detecting when the business entity from the hospitality industry will go bankrupt. Kim (2011) focused on comparison of bankruptcy prediction models in his paper and found out that the following indicators had the highest discriminating power[1], when discerning healthy hotels from bankrupt ones: Debt to Equity Ratio, Profit Margin, ROE, Account Receivable Turnover and Fixed Asset Turnover. Out of the aforementioned, Debt to Equity Ratio had the highest significance, which correlates with the previous studies. Finally, we had difficulty in finding any research paper addressing bankruptcy prediction in the hotel or hospitality industry in Serbia.

3. METHODOLOGY

Since the purpose of this paper was to determine the credit solvency level of Serbian hotels, we had to design the research sample of hotels operating in the observed period and collect their financial statements. Business entities in the Republic of Serbia have an obligation of financial reporting and financial statements preparation. Serbian Business Registers Agency collects financial statements and makes them publicly available via its Internet site. In that way, we have acquired the complete financial statements of 71 hotels in 2008, 87 hotels in 2009, 82 in 2010, 73 in 2011 and 75 in 2012. Sample hotels belong to the groups of small, medium-sized and large enterprises, according to the Serbian Law on Accounting. In the table No.1, we have presented the average and median values of the main financial positions of sample hotels.

The collected financial statements have been used to calculate financial indicators to determine credit solvency level of Serbian hotels for the observed period. We have chosen the following models: Altman's Z' and Z" scores, M-score, Kralicek'sdf score and Z-score formulated for hospitality industry.

The most renowned methodology of corporate bankruptcy risk assessment has been formulated by Professor Edward Altman. The formulas for updated original Z-score are as follows (Altman, 1968; Altman, 2002):

Table 1. Main financial positions of sample hotels in thousands of RSD

	Year	Total Assets	Sales Revenue	Net Result	Equity
Average	2008	9,003,154	1,437,437	-243,767	6,894,513
	2009	8,096,100	1,378,961	-63,109	5,755,335
	2010	7,798,344	1,342,595	-18,994	5,062,357
	2011	10,816,516	1,578,256	-143,588	6,854,571
	2012	10,349,295	1,479,533	-276,794	6,320,317
Median	2008	4,085,822	711,797	-1,597	2,459,453
	2009	2,963,755	662,642	0	2,177,590
	2010	2,739,553	708,969	0	1,454,328
	2011	3,430,494	959,987	-23,212	2,018,130
	2012	3,145,382	880,274	-21,567	1,958,714

$$Z' = .717X1 + .847X2 + 3.107X3 + .420X4 + .998X5 \quad (1)$$

$$Z'' = 6.56X1 + 3.26X2 + 6.72X3 + 1.05X4 \quad (2)$$

Where Xn represents:

X1 - Working Capital/Total Assets,
X2 - Retained Earnings/Total Assets,
X3 - Earnings before Interest and Taxes/Total Assets,
X4 - Book Value of Equity/Total Liabilities and
X5 - Sales/Total Assets.

These models should perform better than the original formula for bankruptcy prediction of Serbian hotels, because most of them are not public companies. The first formula should be used to predict corporate bankruptcy of private companies, whereas the latter one is more efficient for entities operating in emerging markets.

Since both of the previous formulas are not modelled based on the data from the Serbian entities, we have decided to calculate M-score which is meant to be used for corporate bankruptcy prediction of Serbian business entities (Stanišić, Mizdraković, & Knežević, 2013)[2]:

$$M = -.00039\ X1 + .003786\ X2 + .997167\ X3 - 1.900213\ X4 \quad (3)$$

Where:

X1 – EBITDA
X2 – Number of Employees
X3 – Debt Ratio
X4 – Sales to Total Assets.

We have also decided to calculate Kralicekdf score, because it is formulated based on the data from European (German, Austrian and Swiss) business entities. This author used MDA (Multiple Discriminant Analysis) and formed this model (Zenzerovic & Perusko, 2006):

$$DF = 5{,}1\ X_1 + {,}0\ 08X_2 + 10X_3 + 5X_4 + 3{,}0\ X_5 + 1{,}0\ X_6 \quad (4)$$

Where:

X1 – Net Cash Flow to Total Liabilities,
X2 – Total Assets to Total Liabilities,
X3 – EBIT to Total Assets,
X4 – EBIT to Total Revenues,
X5 – Inventories to Total Revenues and
X6 – Sales Revenues to Total Assets.

1 According to the results of Logistic Regression Analysis.

2 The training and test sample for this model predominately included business entities from processing and retail industry. The second reason why we have chosen this model is because it included entities from hospitality industry as well (though 5 out of 232).

Finally, the last model applied in this research is the one formulated by already mentioned authors and it is specialized in bankruptcy prediction of entities operating in the hospitality industry (Park & Hancer, 2012):

Z-score hospitality= –5.282 + 4.755X1 + 0.007X2 + 10.119X3

Where:

X1 = Working Capital to Total Assets,

X2 = Total Liabilities to Net Worth and

X3 = Total Liabilities to Total Assets.

All models used in this research have been formulated using either MDA or Logistic Regression Analysis.

4. RESULTS AND DISCUSSION

Based on the collected annual financial statements, we have calculated financial indicators required for further calculation of selected bankruptcy scores. The next step was to calculate scores. However, since their numerical values might lead to a wrong conclusion, we have calculated implicated bankruptcy probability for all of them, except for Kralicek's default score.

Table 2. Average and median values of implicated probability of Z', Z'' and M-score

	Year	No	Z'-score probability	No	Z''-score probability	No	M-score probability
Average	2008	71	23.48%	71	28.82%	60	46.24%
	2009	87	25.79%	87	31.42%	74	47.75%
	2010	82	29.22%	82	35.31%	69	51.81%
	2011	73	30.92%	73	37.62%	61	52.60%
	2012	75	31.69%	75	36.21%	60	41.73%
Median	2008	71	20.87%	71	10.76%	60	36.20%
	2009	87	21.42%	87	11.29%	74	48.12%
	2010	82	24.34%	82	16.94%	69	61.51%
	2011	73	28.57%	73	17.60%	61	68.91%
	2012	75	29.86%	75	12.79%	60	10.60%

Besides the implicated bankruptcy probability, we have presented the number of hotels that had all financial positions needed for bankruptcy scores calculation. Those that didn't fulfil this requirement were left out of the research. It can be noticed from the analysis of the above-given table that in 2011 Serbian hotels, on average, faced the highest bankruptcy risk. In the table No. 3, we have presented the probabilities for the remaining scores.

The remaining two bankruptcy scores show similar results as the previous ones. We have included the explanation for Kralicek's default score in order to simplify the analysis, even though average and median values clearly show that the score is lowest in 2011.

5. SUMMARY

Bankruptcy risk is a type of risk that business entities can influence by means of good financing strategies and maintaining regular cash flows. Due to high expenses of bankruptcy proceedings and several negative effects of bankruptcy on stakeholders of business entities, hotel management should maintain the bankruptcy risk at lowest possible level. The research results suggest that from 2008 until 2011, the quality of Serbian hotel business deteriorated. According to the Z' and Z''-scores implicated probability, the average Serbian hotel demonstrated approximately 30% and 37% risk of going bankrupt in the following two years. According to the Kralicek's df score, the hotels in Serbia were in particular bankruptcy position during 2009-2012, with the lowest value observed in 2011. It should be noted that all bankruptcy prediction scores show better results in 2012, which illustrates the revival of the Serbian hotel industry. Other studies point out that if the hotel management aims at running a healthy business entity, it should maintain positive cash flows, good profitability, and most importantly, apply self-financing activities, since indebtedness is the crucial bankruptcy trigger for these entities. Further studies might focus on formulating a bankruptcy prediction model based on the data from financial statements of the Serbian hotels. The most evident obstacle might be the research sample, since there are very few medium–sized or large hotels that have financial reporting obligation, and even fewer of those that went bankrupt.

Table 3. Bankruptcy prediction scores and implicated probability of Z-score hospitality

	Year	No	Z-score hospitality	No	Kralicek's df score	Explanation
Average	2008	60	18.97%	70	-0.86	Medium insolvency
	2009	74	21.91%	86	-1.76	Particular insolvency
	2010	69	32.53%	81	-1.13	Particular insolvency
	2011	61	36.00%	73	-2.27	Particular insolvency
	2012	60	33.16%	73	-1.47	Particular insolvency
Median	2008	60	4.67%	70	0.11	The beginning of insolvency
	2009	74	5.13%	86	0.12	The beginning of insolvency
	2010	69	11.22%	81	0.01	Medium insolvency
	2011	61	14.94%	73	-0.50	Medium insolvency
	2012	60	11.60%	73	0.09	The beginning of insolvency

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