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## RISK ASSESSMENT OF TOURISM COMPANIES LISTED ON THE STOCK EXCHANGE BASED ON THEIR FINANCIAL REPORTING

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**ABSTRACT:** The aim of the research was to identify the level of economic risk and to evaluate the effects of the risk management in the tourism companies listed on the stock exchange from 2010 till second quarter of 2017 on the basis of their financial reporting. Desk research method for identifying specific risks and a comparative indicator analysis of the tourism companies were used in the research process. Operating and financial risk, using degree of leverages and multipliers, bankruptcy risk, systematic risk, and business profitability have been measured. The results indicated that tourism companies operating in the valuable natural areas had a higher level of risk and, at the same time, had lower profitability. The necessity of verification of the way of distinguishing the tourism companies sector on the Warsaw Stock Exchange was pointed out and the implementation of social responsibility reporting standards in the tourist companies was recommended.

**KEY WORDS:** operational risk, financial risk, bankruptcy risk, tourism company

## Introduction

Every business activity is a risky one. Touristic enterprises are exposed to specific industry risks associated with weather, local or political conditions that influence the level of sales and typical economic risks as well. In addition to operational (business) risk related to the appropriate asset structure, there is a financial risk associated with selecting the appropriate capital structure. Entities in the tourist industry that have introduced their shares to the stock market have sought to increase their credibility with customers and, by expanding their market share and increasing their profitability, wanted to reduce the level of economic risk.

The aim of the research was to identify the level of economic risk and to evaluate the effects of the risk management in the tourism companies listed on the stock exchange from 2010 till second quarter of 2017 on the basis of their financial reporting. The Warsaw Stock Exchange listed four tourism companies: Rainbow Tours S.A., Orbis S.A., Interferie S.A. and Tatry Mountain Resorts AS. While the first two focused their activity on the intermediary services (travel agency) and the development of the overall hotel offer (hotel operator), the last two firms run their businesses mainly in the valuable natural areas (respectively for Interferie: tourist and leisure services, sanatorium and spa services, hotels, organization of training courses or conferences and for Tatry Mountain Resort: ski resorts, aqua parks, amusement parks and hotels located in Slovakia, the Czech Republic and Poland).

## An overview of literature

The risk is defined as the possibility of potential losses in the material or financial resources of the entity. Risk, as opposed to uncertainty, is related to quantitative or qualitative changes, i.e. risk is measurable (mathematically or statistically). Other approaches to uncertainty and risk, combining those two phenomena, can also be found in the literature (Gładysz, 2006, p. 31-32; Olkiewicz, 2012, p. 556-559).

There are different classifications of risk in an enterprise. Przesmycka and Podstawka (2015, p. 158) have identified risks related to the macroenvironment (political, technical, economic, environmental, social and corruption), risks related to microenvironment (suppliers, customers, competitors) and internal risk (organizational, legal and financial). The economic risk classification was also made by Chłapek (2015, p. 20-27). Those analyses indicate that particular elements of financial reporting allow to identify such types of economic risks as: operating, currency, liquidity, commodity price

changes, interest rate changes, business, financial, investment, bankruptcy, etc. (Chłapek, 2015, p. 74-77). This comparison indicates a lack of uniformity in separating particular types of risk in business entities, which significantly hinders risk management processes.

Pure and speculative risks in the company can also be distinguished. Pure risk arises irrespective of the actions taken and results from violent natural events (fire, flood, epidemic). The speculative risk, called economic, is the result of targeted activities such as introducing a new product or a new technology. The economic risk is a two-way operation, it means the possibility of both profit and loss exists (Dudycz, 2011, p. 180). Economic risks include, among others: business risk, financial risk and bankruptcy risk (Dąbrowski, 2015, p. 55-57). Its measurement is based on financial reporting (Gos et al., 2017, p. 7) and is carried out using financial analysis (Gołębiowski et al., 2014, p. 189, 243-249).

The scope of activity of tourism companies is relatively large, as it includes: transport services, hotel and catering services, health resorts, sports and leisure activities, travel agencies, tour operators and travel agents, as well as agritourism farms (Biczysko, 2011, p. 32-45; Kurleto, 2011, p. 475; Ozimek, 2011, 166-167). Also the tourist product offered is complex and its elements are constantly changing and adapting to the requirements of customers and the environment. Innovative types of tourism are emerging, like for example health tourism, which requires not only appropriate environmental values but also infrastructure and health services (Szymańska et al., 2017, p. 10). Still, the most important component of the tourism product is tourism values, especially environmental (Ozimek, 2011, p. 5). However, it should be noted that valuable natural areas, due to legal protection, will generate additional risks in tourism activity.

The tourism business is also subject to specific risks. Its level depends on many macroeconomic and microeconomic variables, both in the environment and within the enterprise. According to the World Tourism Organization, there are four main sources of risks in tourism: tourism sector and the related commercial sources, human and institutional environment outside the tourism sector, personal risk of individual travellers, physical risks from the environment – natural, climatic, epidemics (Stetić, 2012, p. 69-70). Other authors rated terrorism, war, political instability and health problems as the most important risk factors (Simanavicius et al., 2015, p. 837). A number of these factors are also indicated by Naira's research (2013, p. 142-144).

Attempts are being made to develop risk assessment models for tourism (Simanavicius et al., 2015, p. 839-841) or recommendations for the implementation of strategic risk management programs (Kurleto, 2013, p. 66). However, they do not effectively address all emerging problems. It seems that

a tourism company is not able to control or prevent all these specific risks, in particular that the three most important factors have the nature of uncertainty, not risk. On the other hand, it is the risk that is the impulse to undertake a given activity and gain income, therefore the emphasis in different model is mainly on the correct identification of risk.

Any change in terms and conditions of operation is reflected in financial results. And it was financial results that were the main subject of analysis. Attempts have been made to indicate how specific risks have been reflected in the financial results of business operations, and thus how they have transferred into economic risk.

## Research methods

Desk research method for identifying specific risks and a comparative indicator analysis based on the consolidated financial statements of the tourism companies were used in the research process. The objects of the study were four tourism companies, whose shares were listed on the Warsaw Stock Exchange. Orbis S.A. and Rainbow Tours S.A. are large entities with sales revenues of approx. PLN 1.3 billion, whereas Tatry Mountains Resort AS and Interferie S.A. are smaller entities with revenues of about PLN 348 million and PLN 48 million in 2016.

The subject of the research were selected elements of economic risk, i.e. operational (business) risk, financial risk and bankruptcy risk. For comparative purposes, identification of specific risks and systematic risk was also made. Operational risk and financial risk were measured using leverage ratios (Dudycz, 2011, p. 113-142, 166-178). These studies were supplemented with risk multipliers ratios (Dębiewska, Skorwider-Namiołko, 2015, p. 84). The risk of bankruptcy was measured using the Polish prediction models. The model of Mączyńska and Zawadzki, the Poznań model and the Wierzbica model were used (Kitowski, 2015, p. 95-96, 142, 155). Those models were selected according to their high efficiency which were confirmed on the sector level (Antonowicz, 2007, p. 46, 59, 74; Balina, Bąk, 2016, p. 123). The specific risk was identified on the basis of management reports of the surveyed companies using descriptive methods. Systematic risk measurement was performed by determining the beta coefficients of the companies on the basis of their stock quotes and weekly rates of return according to the procedure proposed by Dąbrowski (2017, p. 40-41). In addition, the differences between coefficients were analysed after eliminating the impact of capital structure using the Hamada equation (Brigham, Houston, 2012, p. 547-548).

The study hypothesized that tourism companies listed on the stock exchange operating in the valuable natural areas are characterized by higher levels of economic risk than other tourism entities in the stock market.

## Results of the research

The types of risks that have been identified by companies in the years 2010-2017 are set out in table 1. Specifics risk, economic risks and general risks were appeared. The types of risk in the companies were fixed in time and only in a few cases were redefined. The differences between the companies in types of risk were observed.

**Table 1.** Types of risks in the activity of tourist companies in the years 2010-2017

<b>Rainbow Tours S.A.</b>	<b>Orbis S.A.</b>
Risks associated with the occurrence of disasters in tourist regions	Risk related to the macroeconomic situation and the condition of the hotel industry
Risk related to competition	Risk related to competition
Risk associated with seasonality of sales	The risk of cooperation with agencies and travel agents
Risk related to the financial position of subsidiaries	Risk of reputation loss
Risk related to the macroeconomic situation of Poland	Legal risk
Risk related to changes in regulations	
Currency risk	
Risk of rising oil prices	
<b>Interferie S.A.</b>	<b>Tatry Mountain Resorts AS</b>
Market risk (including the risk of exchange rate fluctuations or cash flows as a result of changes in interest rates);	Market risks (economic climate change in Central and Eastern Europe, seasonality of services (January-March, July-August), weather conditions, competition, under-occupancy and average price change
Credit risk;	Financial risks: exchange rate, interest rate, credit, liquidity, buyout of bonds,
Risk of liquidity loss;	Operational risks: customer and employee safety, IT systems, variable return on investment, takeover risk, environmental risk
Competition risk;	
Legal risk;	
Reputation loss;	
Investment risk	

Source: authors' own work based on the activity reports of the management boards of the audited companies for the years 2010-2017.

In the case of the Orbis Group, the environmental impact of the company was further defined. They included energy demand and related CO<sub>2</sub> emissions, water demand, pollution and discharges, waste management and recycling, and biodiversity. A positive approach to the use of environmental resources was reflected in the corporate social responsibility report prepared for the first time in the company's history in the second quarter of

2017. This report was compliant with the requirements of the Global Reporting Initiative.

Interferie emphasized that the basis of the adopted strategy has been the potential for growth of the health tourism market, and that is the main direction of development. The approach to risk has evolved. By 2015, it was limited to the statement that „INTERFERIE S.A. is currently performing all duties imposed on the company for environmental protection”. The risk has been identified directly in the form shown in the table 1 only from 2016.

Tatry Mountains Resort (TMR) recognized that the activity was conducted in the valuable natural areas. According to the company's management, minimizing environmental risk occurs in implementing corporate social responsibility (CSR) principles, primarily by minimizing the use of energy and fuels. Other tasks mentioned in reports were more like a sponsorship.

**Table 2.** Business risk indicators in tourism companies listed on the stock exchange in the years 2010-2017

Items	Years								Mean	Coefficient of variation	
	2010	2011	2012	2013	2014	2015	2016	2017 (Q2)			
Assets multiplayer									Overall	8,78	0,95
Rainbow Tours S.A.	1,44	1,41	1,30	1,17	1,13	1,19	1,23	1,18	1,26	0,09	
Orbis S.A.	16,99	6,38	7,38	8,30	6,95	6,28	4,29	5,39	7,75	0,51	
Interferie S.A.	20,65	17,96	27,63	28,80	27,62	17,22	12,29	9,26	20,18	0,37	
Tatry Mountain Resorts AS	1,83	3,11	5,76	6,11	8,77	7,65	5,58	n/d	5,54	0,43	
Degree of operating leverage (dynamic formula)									Overall	1,22	0,81
Rainbow Tours S.A.	n/d	0,64	0,76	3,17	1,97	0,94	0,75	1,01	1,32	0,70	
Orbis S.A.	n/d	3,70	0,52	1,03	1,19	1,23	1,09	1,08	1,41	0,74	
Interferie S.A.	n/d	0,84	0,65	1,19	0,88	1,80	0,82	1,31	1,07	0,37	
Tatry Mountain Resorts AS	n/d	-1,43	3,35	1,06	0,62	1,74	0,94	n/d	1,05	1,48	

Source: authors' own work.

The element of the study was an analysis of business risk. Results show high business risk in the companies surveyed measured by the multiplier of assets (table 2). It was strictly dependent on the type of activity. The smallest business risk was identified in the company which was a travel agency, as it did not require maintaining a high value of fixed assets. In other cases, high capital expenditure on assets was a source of high fixed costs and business risk. This situation was most apparent in the smallest company (Interferie).

Changes in the level of risk in Orbis, Interferie and TMR were significant as the variation coefficient ranged from 37 to 51%.

The dynamic analysis did not confirm the high level of risk. A comparison of the rate of change in operating profit and the rate of change in sales indicates that smaller companies had lower average risk than larger companies. In individual terms, however, high risk was observed in each group, e.g. Orbis in 2011, the TMR in 2012, Rainbow Tours in 2013. Only Interferie throughout the study period minimized its operational risk. Therefore, it can be concluded that the achieved high financial results effectively eliminated business risk.

**Table 3.** Financial risk indicators in tourism companies listed on the stock exchange in the years 2010-2017

Items	Years								Mean	Coefficient of variation	
	2010	2011	2012	2013	2014	2015	2016	2017 (Q2)			
Equity multiplier									Overall	1,95	0,54
Rainbow Tours S.A.	2,38	2,43	2,85	3,12	2,72	2,46	2,83	4,91	2,96	0,28	
Orbis S.A.	1,22	1,11	1,10	1,06	1,07	1,39	1,47	1,54	1,25	0,15	
Interferie S.A.	1,13	1,16	1,25	1,25	1,21	1,18	1,16	1,17	1,19	0,04	
Tatry Mountain Resorts AS	1,12	1,16	1,16	3,40	3,51	3,49	3,54	n/d	2,48	0,51	
Degree of financial leverage (dynamic formula)									Overall	0,26	8,44
Rainbow Tours S.A.	n/d	0,77	1,15	0,88	0,62	0,75	1,09	1,18	0,92	0,24	
Orbis S.A.	n/d	2,14	1,12	0,96	1,10	1,02	0,87	0,95	1,17	0,37	
Interferie S.A.	n/d	-0,23	-9,53	0,48	1,23	1,08	0,83	1,03	-0,73	5,37	
Tatry Mountain Resorts AS	n/d	-0,64	0,30	1,38	0,15	-0,49	-3,23	n/d	-0,42	3,69	

Source: authors' own work.

The results of financial risk analysis are presented in table 3. They point to the high financial risk of the surveyed companies. In terms of multipliers, it was first seen in Rainbow Tours and from 2013 in Tatra Mountain Resorts, while in leverage also Orbis in 2011 and Interferie in 2010-11 were characterized by high financial risk. In aggregate terms, however, the risk was in the medium range.

**Table 4.** Bankruptcy risk analysis in tourism companies listed on the stock exchange in the years 2010-2017

Items	Years							
	2010	2011	2012	2013	2014	2015	2016	2017 (Q2)
Rainbow Tours S.A.								
Mączyńska and Zawadzki model	4,68	6,15	6,49	10,00	14,64	11,88	9,11	6,63
Poznan model	1,61	1,47	1,17	1,49	2,29	2,46	1,86	0,55
Wierzba model	0,60	0,56	0,53	0,86	1,26	1,21	0,97	0,72
Orbis S.A.								
Mączyńska and Zawadzki model	3,34	9,09	7,78	9,69	9,51	5,95	6,24	5,43
Poznan model	2,88	5,39	5,57	6,92	6,79	5,44	6,72	3,64
Wierzba model	-0,38	0,57	0,37	0,51	0,64	0,46	0,63	0,55
Interferie S.A.								
Mączyńska and Zawadzki model	4,02	4,24	4,07	3,97	4,19	5,26	5,32	5,78
Poznan model	3,54	2,82	2,69	2,65	2,79	3,79	4,04	3,67
Wierzba model	0,16	0,09	-0,07	-0,07	-0,08	0,16	0,18	0,32
Tatry Mountain Resorts AS								
Mączyńska and Zawadzki model	14,37	9,29	6,54	1,80	2,18	2,31	2,70	n/d
Poznan model	28,63	14,35	7,64	0,84	4,73	4,81	5,84	n/d
Wierzba model	1,16	0,48	0,36	-0,35	-0,31	0,00	0,11	n/d

Source: authors' own work.

Results of bankruptcy risk analysis (table 4) indicates that such risk in 2010-2017 has not been identified. The model of Mączyńska and Zawadzki as well as the Poznan model always pointed to the high value of the discriminative function. It significantly exceeded the limit value of the model, i.e. 0, which indicates the financial stability of the surveyed enterprises. Only the Wierzba model in some periods indicated slight deviations from the acceptable level, which was due to the specifics of the construction of this model. These deviations were not permanent, the longest period which last 3 years was observed in Interferie.



**Table 5.** Indicators of business profitability in tourism companies listed on the stock exchange in the years 2010-2017

Items	Years								Mean	Coefficient of variation	
	2010	2011	2012	2013	2014	2015	2016	2017 (Q2)			
Cash Return on Assets (%)									Overall	7,75	1,04
Rainbow Tours S.A.	n/d	0,92	13,77	42,41	10,34	6,09	-1,70	-0,77	10,15	1,51	
Orbis S.A.	n/d	8,10	5,59	7,59	9,26	12,72	14,25	13,43	10,13	0,33	
Interferie S.A.	n/d	2,85	6,69	4,92	3,21	6,49	5,41	5,90	5,07	0,30	
Tatry Mountain Resorts AS	n/d	5,56	3,28	4,14	4,37	6,55	7,82	b.d.	5,29	0,32	
Return on Equity (%)									Overall	10,45	1,30
Rainbow Tours S.A.	n/d	6,50	7,54	31,79	51,11	38,24	28,25	34,62	28,29	0,57	
Orbis S.A.	n/d	6,37	3,53	3,36	4,59	9,72	11,10	11,21	7,13	0,49	
Interferie S.A.	n/d	-0,57	3,51	2,02	2,32	5,05	3,62	4,90	2,98	0,65	
Tatry Mountain Resorts AS	n/d	3,53	3,62	3,52	0,67	-0,74	2,64	b.d.	2,21	0,83	

Source: authors' own work.

Analysis of the financial results – both in terms of cash return of assets and return on equity (table 5), indicates a high variability of results. Although the average score was positive, there were times when no cash was generated on sale (Rainbow Tours in the last two periods) or loss was generated (Interferie in 2011 or the TMR in 2015). The highest rates of return were achieved by larger companies, whose activities did not only perform in the valuable natural areas.

The analysed companies maintained their profitability and cash efficiency in the years 2010-2017. The average profitability of the travel agency was over 28% and exceeded the profitability of other companies several times. The lowest average profitability was observed among Interferie and Tatry Mountain Resorts companies, thus in companies operating in the valuable natural areas. In the ability to generate cash on operating activities similar trends were also observed, although the travel agency's situation began to deteriorate and there the highest volatility was observed.

The results of the systematic risk analysis (table 6) show that the beta coefficients were less than 1, so the risk of changing the return on investment in stocks of these companies was lower than market risk. In addition, the betas of smaller tourism companies were close to zero or even negative, indicating a trend reversal to the overall market. Eliminating the impact of capital structure slightly reduced the average, but not its variability. The betas of the

**Table 6.** Measures of synthetic risk in tourism companies listed on the stock exchange in the years 2010-2017

Items	Years								Mean	Coefficient of variation	
	2010	2011	2012	2013	2014	2015	2016	2017 (Q2)			
Beta coefficient									Overall	0,31	1,59
Rainbow Tours S.A.	0,93	0,13	1,06	0,99	1,32	0,43	0,91	0,95	0,84	0,45	
Orbis S.A.	1,23	0,69	0,54	0,27	0,32	0,61	0,19	0,64	0,56	0,58	
Interferie S.A.	-0,02	0,06	-0,01	-0,12	0,20	-0,08	0,16	0,40	0,07	2,36	
Tatry Mountain Resorts AS	-0,43	-0,15	-0,33	-0,40	0,13	-0,09	-0,19	-0,32	-0,22	-0,84	
Unlevered beta coefficient									Overall	0,19	1,57
Rainbow Tours S.A.	0,44	0,06	0,42	0,36	0,55	0,20	0,37	0,23	0,33	0,48	
Orbis S.A.	1,04	0,63	0,50	0,26	0,31	0,47	0,14	0,44	0,47	0,59	
Interferie S.A.	-0,01	0,06	-0,01	-0,10	0,17	-0,07	0,14	0,35	0,06	2,33	
Tatry Mountain Resorts AS	-0,39	-0,13	-0,29	-0,13	0,04	-0,03	-0,06	n/d	-0,14	-1,06	

Source: authors' own work.

surveyed companies were still significantly different from each other, even though they came from the same industry.

Analysis of beta coefficients indicated that Rainbow Tours and Orbis tourism companies were characterized by lower systematic risk. On the other hand, companies operating in the valuable natural areas often move against market trends, which indicates that they cannot earn a lot of money, but also it is less likely to lose on them. The analysis of unlevered coefficient shows that the surveyed companies do not form a single industry on the stock market. The unlevered beta of the industry should be similar. So the separation of this stock market: Hotels and restaurants or Tourism seems to be premature. In addition, the uncertainty of beta factors indicates that the stock market in Poland is not yet mature.

## Conclusions

The examined tourism companies were characterized by high business risk and medium financial risk. Two companies which concentrate their activity on the valuable natural areas had higher overall risk, which did not give higher rates of return. All the companies tried to diversify their risk. As a result, Rainbow Tours applied a high-risk financial strategy and low-risk

business strategy, and the other three companies generally adopted a high operational risk strategy, resulting from their business.

The business risk analysis indicates that the surveyed companies identified various general and specific risk. More detailed analysis of specific risks can be found in the reports of companies that have implemented a model based on corporate social responsibility. Environmental risk was rarely underline – more often it was an element of legal risk. Only one company (Tatry Mountain Resorts) focus on natural environment in which it operated, which in the tourism industry should be standard. The key postulate is therefore the implementation of corporate social responsibility reporting, which should facilitate understanding of the importance of environmental risk.

### The contribution of the authors

Marianna Dębniwska, Prof. – 40% (conception, literature review, analysis and interpretation of data)

Jarosław Skorwider-Namiołko, PhD – 40% (conception, literature review, acquisition of data, analysis and interpretation of data)

Karol Wojtowicz, PhD – 20% (acquisition of data, analysis and interpretation of data)

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