

Financial Health Assessment of International Airports

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Abstract The financial health of company is extremely important for potential investment decisions. Financial health is mainly assessed by financial analysis which identify strengths and weakness. The aim of paper is to evaluate and to compare financial health of selected international Slovak and Czech airports. We applied the best-known financial variables, particularly liquidity ratios, asset management ratios, debt ratios and profitability ratios. Then, we compare results of Bratislava Airport with Kosice Airport, Ostrava Airport and Prague Airport. We calculate financial ratios based on statements of international airports. The results show that Bratislava Airport is mainly good at current assets management during analysed period. On the other hand, Bratislava Airport have long-term problem with profitability ratios.

Keywords Financial Analysis, Financial Health, Financial Ratios, International Airport, Liquidity Ratios, Asset Management Ratios, Debt Ratios, Leverage Ratios

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1. Introduction

Financial analysis is a tool for decomposition of financial statements. The aim of financial analysis is to obtain an overview about assets and capital structure in enterprise. Based on the result of financial analysis we can make investment decisions. Moreover, financial health expresses resistance to external and internal risks. Enterprises can achieve optimal financial conditions, for instance, based on adequate liquidity and profitability ratios. The fulfilment of these attributes enhances the increase of company market value [1, 2].

2. Literature review

The financial situation of company is determined by several factors. The impact of these factors is shown by ratio variables. Most of these ratios have comprehensive character.

The primary aim of financial analysis is not only to calculate ratios, but mainly find out how partial ratios have impact on comprehensive situation of enterprise. The relationship among ratios may have additive, multiplicative or mixed character [3]. The influence of partial ratios on comprehensive ratios can be quantified by specific methods applied in the financial analysis, for instance, logarithmic method, functional method, etc.

The assessment of financial health is conducted through specific method, i. e. financial-economic analysis. In general, methods are divided into two main groups - elementary and sophisticated methods. In this paper, we focus on elementary

methods. The elementary methods include analysis of absolute indicators that are part of horizontal and vertical analysis. However, we concentrate mainly on liquidity ratios, asset management ratios, debt ratios, profitability ratios and market ratios.

The elementary tools of financial analysis include ratio variables that express relationship among two and more absolute variables. The primary advantage is to eliminate the disadvantages of absolute variables that is not available to provide reliable information. The reason is different size of enterprises. On the other hand, their primary disadvantage is that the ratios variables have reduced explanatory ability. Therefore, we must compare ratios of selected enterprises with recommended variables, planning variables or variables from previous years [13]. The elementary ratio variables include liquidity, asset management ratio, leverage ratios and profitability ratios [4].

Liquidity means company's ability to pay current liabilities. Liquidity ratios are important for creditors. It is associated with potential insolvency of business partners. In general, the liquidity ratio is relationship between current assets and current liabilities. The business partners believe in enterprises with greater level of liquidity ratios. Liquidity ratios depend on liquidity level of asset. On the other hand, too high level of liquidity ratios has negative impact on profitability. It is reason why liquidity ratios have recommended intervals [14].

The liquidity ratios include Cash Liquidity, Quick Liquidity and Current Liquidity. In addition, among liquidity ratios belong, for instance, Relative Ratio of Net Working Capital

(NWC) that reflects ratio of NWC to Current Assets. The recommended level is from 30 % to 50 % [15].

Asset management ratios measure enterprise effectiveness. Low asset effectiveness causes to increase costs due to maintenance assets, for instance, inventories or repayment of interest on loans for purchase of given asset. Therefore, enterprise has assets surplus. On the other hand, for company is acceptable nor lack of assets. It causes slowdown of production and decrease of sales revenues [16].

The specific asset management ratios are Days Sales Outstanding and Days Payables Outstanding. These ratios indicate quality of relationship between suppliers and subscribers. Results of these ratios determine lack of cash, for instance, if receivables maturity is longer than liabilities maturity. In addition, among asset management ratios belong Assets Turnover Days, Non-Current Assets Turnover and Tangible Assets Turnover Days.

Debt Ratios are associated with funding asset structure in enterprise that represents equity and liabilities. The primary reason of use of external resources, for instance, bank loans is relatively lower price compared to price of own resources. It is associated with tax shield. Debt Ratios don't have recommended limits, i. e. company looks for optimum ratio between own resources and liabilities. It is clear that high level of total debt has negative influence on profitability and liquidity ratios in enterprises. Among basic debt ratios belong Debt Ratio, Credit Debt Ratio, Financial Leverage Ratio and Interest Coverage Ratio.

Total Debt to Total Assets reflects ratio debt to total assets. The sum of Total Debt to Assets and Equity ratio equal to 1. Equity Ratio reflects ratio equity to total assets. Both ratios are important to lenders and owners because enterprise shows dependence on external resources. Debt ratios include Financial Leverage Ratio, Interest Coverage Ratio, etc. In addition, Interest Coverage Ratio reflects the enterprise's ability to pay interest expenses. The recommended limit of Interest Coverage Ratio is approximately 5. Financial analysts deal with Interest Coverage Ratio due to expensive bank loans [4].

Some enterprises with low debt ratio can consider using external resources, for instance, bank loans. The main criterion is to compare difference between profitability ratio and interest rate. In the case that potential profitability ratio is greater than bank interest rate, we recommend bank loan [16].

Profitability Ratios are used to evaluate profitability of business effort. The general shape of profitability ratio compares profitability in the form of profit (EAT, EBT, EBIT, EBITDA) or CF and invested capital (equity, total assets). In general, profitability ratio should have increasing trend. The best-known profitability ratios belong Return on Sales (ROS), Return on Equity (ROE) and Return on Assets (ROA), Return on Revenues (ROR) and Return on Costs (ROC) [17].

The next group of ratios are calculated based on cash-flow. The best-known ratios based on cash flow include Current Ratio, Interest Coverage Ratio, ROE, ROA, etc.

Elementary methods include also the analysis of differential indicators that help to analyse cash flow, income analysis, expenses analysis and profit analysis [4].

Moreover, elementary methods are divided into pyramidal decomposition analysis and ex-ante analysis that focuses on prediction likelihood [5]. The ex-ante analysis consists of logit and probit model [6]. In general, model for predicting financial health divided into some groups, for instance, score models, multivariate models, logit and probit models, etc. The best-known prediction models belong Altman model (1966), Beaver model (1968), Ohlson model (1980), Springate model (1983), etc. [7]. In addition, the specific ratios are indicators of value management, such as Economic Value Added, Market Value Added, Net Present Value as a specific indicator of efficiency investments, etc. [8].

The sophisticated methods of financial analysis are divided into two groups, i. e. mathematical-statistical and non-statistical methods. The statistical methods include, for instance, regression model, discriminant analysis, etc. The aim of discriminant analysis is to determine the bankruptcy likelihood. In the past decade, many scientific publications deal with applying Artificial Intelligence in the form of Artificial Neural Networks. [9]. Financial analysts can suggest bankruptcy model based on available information from financial statements of enterprises [10]. The approach differs from conventional analytical models because ANN systems eliminate disadvantages of linearity, for instance, Altman model (1966) and Beaver model (1968) [11]. Non-statistical methods include fuzzy set by L.A. Zadeh (1965). In addition, expert systems and gnostic theory of uncertain data based on data comprising uncertainty [12].

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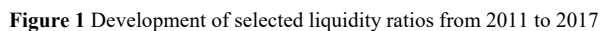
3. Methodology

The purpose of paper is to assess and to compare financial health of selected international Slovak and Czech airports. The sample consist of four international airports, specifically Bratislava Airport, Kosice Airport, Ostrava Airport and Prague Airport. We obtain information from financial statement from 2011 to 2017. Firstly, we assess financial health of Bratislava Airport from 2011 to 2017 based selected liquidity ratios, assests management ratios, debt ratios and profitability ratios. Secondly, we compare Bratislava Airports with Kosice Airport, Ostrava Airport and Prague Airport.

4. Results

Liquidity ratios. Figure 1 show trend of selected liquidity ratios from 2011 to 2017. Cash ratio, quick ratio and current ratio have increasing trend except for 2016. In 2017 Bratislava airport achieve recommended liquidity level. These results are excellent because in 2011 cash ratio reached at 0.02. Therefore, Bratislava Airport was unable to pay its current liabilities. The best result of cash ratio was reached at 1.04 in 2017. The main reason is decrease of current liabilities, mainly in 2012 in compared with previous year, stabilization of current receivables and to increase cash at bank accounts due to decline of current receivables. Quick ratio has positive

Critical level of this ratio of more than 280 days in 2011 meant inability to pay its current liabilities. In following years, the ratio improved significantly, especially in annual comparison 2012/2011, because we recorded decline of almost 240 days. Based on comparison of Days Sales Outstanding and Days Payables Outstanding, we can claim that Bratislava Airport receive cash for services later than payment to creditors.



Next, among asset management ratios belong Asset Turnover Days, Non-Current Assets Turnover Days and Tangible Asset Turnover Days. These ratios reach high level. It is caused by capital intensity and low volume of sale revenues. Based on analysis we can claim that ratios have positive tendency from 2012 to 2017, except for 2016. It is caused mainly decline of asset, non-current assets and tangible assets.

	2011	2012	2013	2014	2015	2016	2017
Days Sales Outstanding	55.59	49.66	44.56	49.40	0.00	0.00	0.00
Days Payables Outstanding	280.68	40.09	22.44	20.03	28.23	20.49	25.29
Assets Turnover Days	5 018,19	6 295,61	6 005,32	5 855,06	5 783,51	5 439,51	4 660,28
Non-Current Assets Turnover Days	4 927,06	6 208,76	5 900,64	5 725,33	5 605,62	5 312,69	4 505,69
Tangible Assets Turnover Days	4 898,00	6 178,91	5 879,73	5 711,28	5 595,86	5 305,55	4 500,82

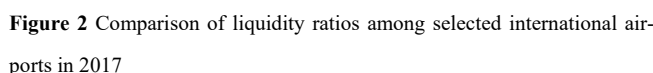


Figure 3 Development of selected asset management ratios from 2011 to 2017

Assets management ratios. These results express efficiency of transformation process. In addition, Day Sales Outstanding and Day Payables Outstanding characterize the quality of relationship among suppliers and subscribes. Day Sales Outstanding has changeable trend during analysed period. From 2015 to 2017 Day Sales Outstanding achieve 0. It caused by no current trade receivables. The least acceptable level was reached in 2011 (almost 56 days). On other hand the best level of ratio was reached in 2013 (45 days). Next year, we recorded a negative growth of more than 5 days. The reason is increase of current receivables and slight decrease in sales revenues.

As shown in Figure 4, we compare Asset Management Ratios with selected international airports in 2017. Based on comparison, we can claim that Bratislava Airport haven't reached acceptable result in asset management area. It is confirmed by Asset Turnover Days and Tangible Assets Turnover Days. On the other hand, the Days Payables Outstanding reached more than 25 days, i. e. acceptable level compared to selected international airports. Prague Airport reached the best results except for Days Sales Outstanding (almost 7 days). In the case of Days Sales Outstanding, the worst level was reached by Ostrava Airport (more than 30 days). In the case of Tangible Assets Turnover Days, the best result was reached by Prague Airport (almost 134 days). The last asset management ratio is Asset Turnover Days that copy level of Tangible Assets Turnover Days.

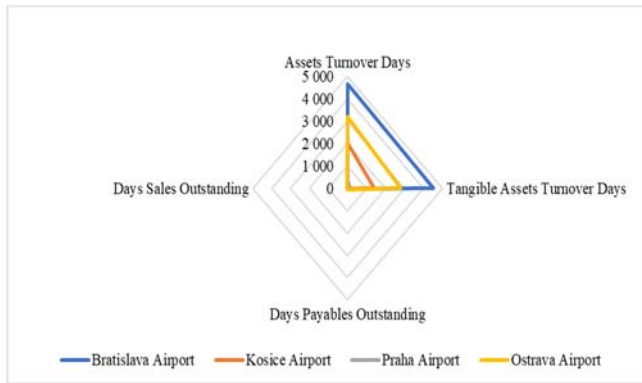


Figure 4 Comparison of selected asset management ratios among international airports in 2017

Source: authors based on [18] [19]

Debt ratios. At Bratislava Airport, total debt increased from 19 % to more than 25 % in 2012, i. e. more than 36 %. It is associated with obtaining long-term bank loan. In next period, total debt has decreased. The substantial part of the total debt includes long-term and short-term bank loans. Therefore, credit debt ratio reaches more than 16 % of total liabilities except for 2011.

Financial Leverage Ratio express ratio of assets to equity, respectively ratio of total debts to equity. We recorded rapid increase of Financial Leverage Ratio in 2012 compared to previous year due to financing airport terminal. As shown in Figure 5 shows relationship in the form of $ROE = ROA \times \text{Financial Leverage Ratio}$. Financial Leverage Ratio has negative impact on ROE because company is not able to assess external capital (bank loans).

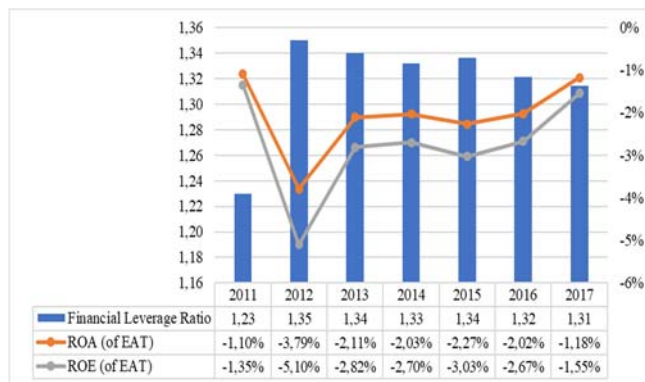


Figure 5 Impact of financial leverage ratio to profitability ratio

Source: authors based on [18]

Moreover, Interest Coverage Ratio has reached negative rate. However, in 2017 Bratislava Airport reach the best result during analysed period. The main reason is negative EBIT during all analysed period. Based on these facts, we can claim that Bratislava Airport is not able to asset capital from creditors. In addition, Bratislava Airport is not able to pay debit interest. On the other hand, we can consider as positive matter, for instance, profitability ratios are improved from 2012 to 2014. In 2014 Bratislava Airport reached the

most acceptable result during all analysed period. It is mainly caused due to improvement of EBT compared to previous period (more than 36 %). In 2015, we recorded negative trend of ROA from (-) 1.35 % to (-) 1.62 %.

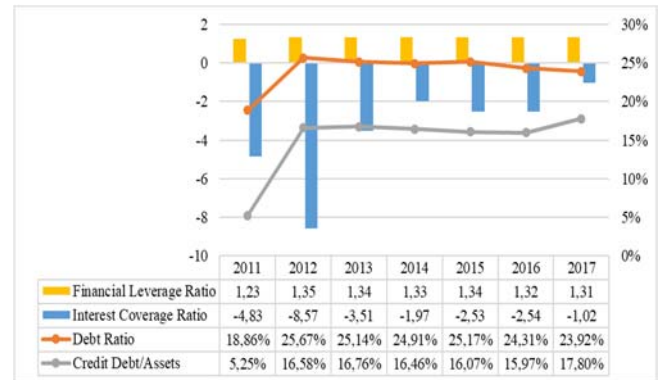


Figure 6 Development of selected leverage ratios from 2011 to 2017

Source: authors based on [18]

As shown in Figure 7, we compare debt ratios, especially Debt Ratio, Equity Ratio and Financial Leverage Ratio, among selected international airports in 2017. Bratislava Airport reached second place in total debt, i. e. approximately 24 % compared to other international airports. The lowest rate of total debt was reached by Kosice Airport (less than 5 %). Ostrava Airport has the highest level of overall debt (more than 70 %). Prague Airport have total debt of 17 %. Another ratio is financial leverage ratio. Ostrava Airport reached the highest level of Financial Leverage Ratio (almost 350 %). It is caused by considerable share of liabilities. On the other hand, Kosice Airport reached less than 105 %, Bratislava Airport (almost 132 %) and Prague Airport (more than 122 %).

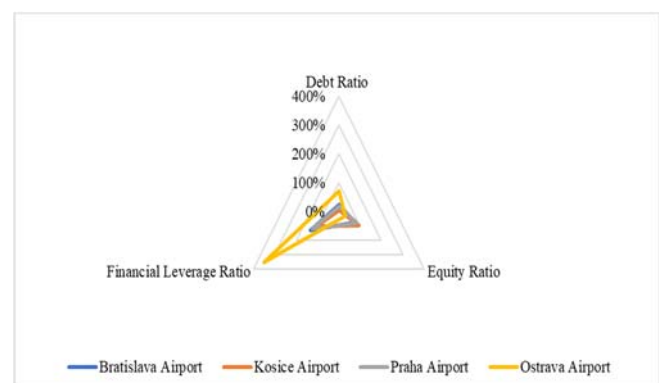


Figure 7 Comparison of selected leverage ratios among international airports in 2017

Source: authors based on [18] [19]

Profitability ratios. Based on analysis of profitability ratios, we found out that profitability ratios have reached negative level since 2011. Therefore, Bratislava Airport is not profitable. We can claim that development of profitability ratios has changeable trend. In following Figure 8, we can see

detailed development of profitability ratios during analysed period.

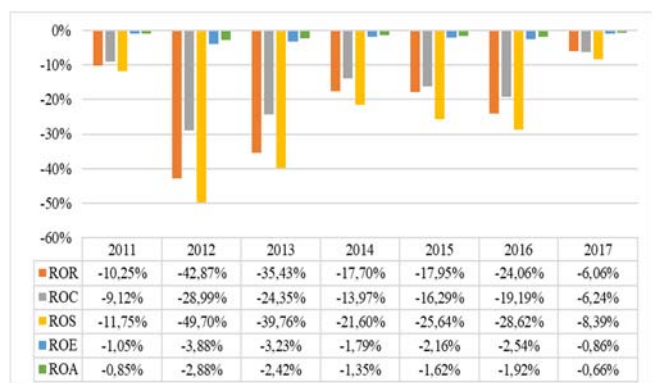


Figure 8 Development of selected profitability ratios (of EBIT) from 2011 to 2017

Source: authors based on [18]

Figure 9 shows comparison of profitability ratios (ROA, ROE and ROS) among international airports in 2017. We measure profitability based on EBITDA. The main reason is difference in tax policy and depreciation policy in the Slovak and Czech Republic. In addition, asset structure, reason is to eliminate impact of funding assets in the form capital from creditors. Bratislava Airport reached positive profitability ratios because EBITDA is positive value compared with EBIT. The highest rate in the form ROA (of EBITDA) was reached by Prague Airport (almost 46 %), on the other hand Bratislava Airport (only 3 %).

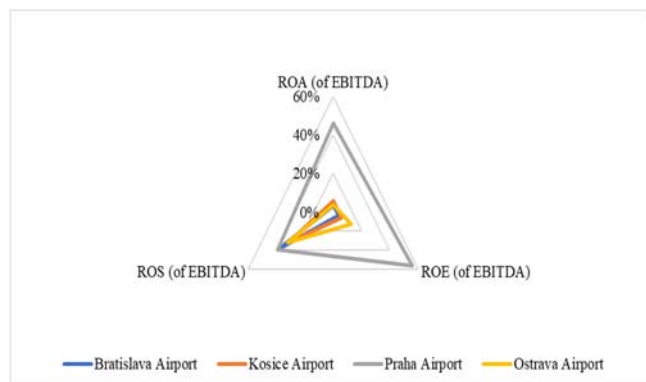


Figure 9 Comparison of selected profitability ratios (of EBITDA) among international airports in 2017

Source: authors based on [18]

Cash-flow ratios. The selected ratios include cash liquidity, ROA and ROE. During analysed period cash liquidity (of CF) have fluctuating trend. It is mainly caused with rapid decrease of current liabilities. Moreover, profitability ratios reached positive rate from 0.22 – 2.44 %. The trend is changeable due to fluctuating CF. Figure 10 shows detailed information on cash-flow ratios from 2011 to 2017.

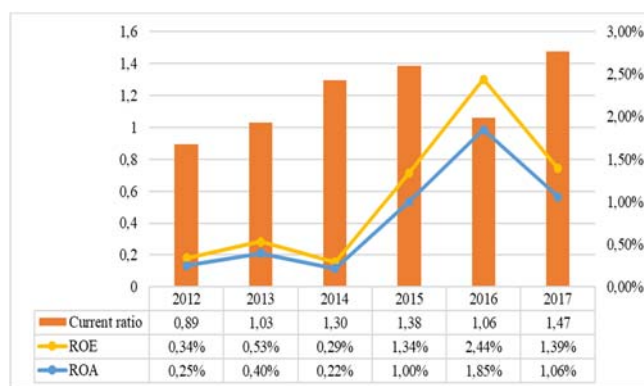


Figure 10 Development of selected cash flow ratios from 2011 to 2017

Source: authors based on [18]

5. Discussion

The aim of paper was to evaluate financial situations at Bratislava Airport. Based on methods of financial analysis we identified strengths and weaknesses of Bratislava Airport in compared with significant international airports in the Slovak and Czech Republic. We concluded that Bratislava Airport has relatively good results in current assets management. During analysed period, international airport has increased cash ratio from 0.02 to 1.04. The reason is decrease of current liabilities and gradually cash increase at bank accounts. It is obvious that reason of improvement is mainly harmonization of receivables maturity, of liabilities maturity and optimization of NWC. Moreover, Bratislava Airport achieve relatively low debt ratio, but Interest Coverage Ratio (of EBIT, of CF) indicate that debt ratio is “unhealthy” for international airport. The debt ratios have negative influence on profitability ratio. In the case of analysed enterprise doesn’t apply relationship in the form of $ROE > ROA > \text{interest expenses}$. Bratislava Airport is not able to assess external sources, for instance, current bank loans, long-term bank loans, etc. Company must necessarily make better use of existing airport capacity. The airport must improve the property efficiency that is confirmed by asset management ratios compared with selected international airports. The primary reason is relatively lack of sales revenues. The serious problem is that Bratislava Airport is in loss because costs are greater than sales revenues.

Future research. We can apply the results of financial analysis to evaluate the multicriterial methods - Data Envelopment Analysis (DEA) and Malquistov Productivity Index (MPI). Among authors who applied DEA belong, for instance, Lai et al. (2015), then Fragoudaki et al. (2016) who measured the effectiveness of international airports in Greece. Furthermore, Orku et al. (2016) who focused on the Turkish airports [20, 21, 22].

6. Conclusion

At present, Bratislava Airport has relatively positive results in terms of passenger number. The main reason is to

extend destinations and increase of flight frequency in compare with previous period.

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