FINANCIAL ANALYSIS OF TRANSPORTATION AND STORAGE SECTOR

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Abstract

Transportation and storage sector (section H according to CZ-NACE classification of economic activities) belongs among important sectors of the Czech Republic's national economy. This sector includes passenger and freight transport (both regular and irregular, by rail, by pipeline, by road and by air and by waterways) and related activities (for instance activities executed by terminals, parking and warehousing facilities, transit points). Rental of transport equipment with a driver or an operator as well as postal and courier services also belong to this sector. The paper is focused on the development of this sector in the Czech Republic. An external financial analysis of this sector is carried out in this paper. This analysis is based on the Ministry of Industry and Trade's data. Basic methods of financial analysis, horizontal analysis and vertical analysis of financial statements and financial ratios analysis, are applied. Financial analysis evaluates the development of selected ratios during the period from 2007 to 2016.

Key words: financial analysis, transport, storage

JEL Code: M21, G39

Introduction

Financial management is a very important part of management. It deals with both strategic issues (such as long-term capital and long-term assets) and tactical-operational issues (such as working capital management). Financial management must map past developments and it must decide on future developments. The starting point for financial planning is a financial analysis. The objective of a financial analysis is to evaluate data, based on past periods, to evaluate current financial situation and to provide support for decision-making processes. Financial statements are the most important sources of data for any financial analysis. Financial analysis's results are very important for managers, for employees, for creditors, for investors, for business partners, for competition as well as for the government. The paper focuses on Transportation and storage sector. The objective is to elaborate an external financial analysis of this sector.

1 Material and methods

The analysed sector – CZ_NACE section H – Transport and storage includes activities in passenger and freight transport (regular and irregular, by rail, by pipeline, by road, by waterways or by air) and related activities such as activities of terminals, parking and warehousing facilities, transit points and so on (Oficiální stránky Českého statistického úřadu, n.d.). This section also includes rental of transport equipment with a driver or operator, complementary activities in transport and postal and courier services.

This financial analysis of this sector is based on publicly available data – financial statements. Basic methods of financial analysis are applied (horizontal and vertical analysis and financial ratios analysis). Procedures recommended for financial analysis of individual companies are employed for the sector as a whole. This approach is in agreement with recommendations provided for instance by Baležentis, Baležentis and Misiunas (2012) who point out the possibility to utilize a financial ratios analysis both on the level of individual companies and in the sector as a whole or even for states.

Financial statements provide a lot of information that can be used for financial ratios analyses. Individual authors recommend ratio indicators constructed in various ways grouped into various groups (Ocal, Oral, Erdis and Vural, 2007; Ginevičius and Podvezko, 2009; Xidonas, Mavrotas and Psarras, 2009; Fabozzi and Drake, 2010). Basic classification of indicators is used in this paper and it is limited to liquidity, profitability, activity, and leverage ratios. In Table 1 there is the list of ratios used for external ratio analysis of this sector. We evaluate the development of these ratios during the period from 2007 to 2016. Besides time criteria also experts' recommendations are used as a reference base.

Altman's model is also used under financial analysis of this sector (Z-score). This model belongs to so called bankruptcy models (Altman, 1968; Altman, Haldeman and Narayanan, 1977). These models are used for evaluation of financial health on the basis of a complex characteristics concentrated into a single index. A modification of the original Altman's model (see Table 1) suitable for developing markets (Růčková, 2015) is applied within this analysis. According to the author this modification is advantageous because it utilizes information from financial statements.

Tab. 1: Ratios for financial analysis of the sector

Ratio	Ratio Construction
Current ratio	*current assets/short-term liabilities*
Quick asset ratio	*(current assets – inventories)/short-term liabilities*
Cash position ratio	*short-term financial assets/short-term liabilities*
Return on assets – ROA (%)	*(income before taxes/assets)·100*
Return on equity – ROE (%)	*(net income/equity) · 100*
Return on sales – ROS (%)	*(income before taxes/sales)*
Total assets turnover (days)	*assets/(sales/360)*
Inventory turnover (days)	*inventories/(sales/360)*
Average collection period (days)	*receivables/(sales/360)*
Creditors payment period (days)	*short-term liabilities/(sales/360)*
Equity to total assets (%)	*(equity/assets)·100*
Total debt to equity (%)	*(debts/equity)·100*
Total debt to total assets (%)	*(debts/assets · 100*
Altman's credibility index (Z-score)	$6{,}56 \cdot x_1 + 3{,}26 \cdot x_2 + 6{,}72 \cdot x_3 + 1{,}05 \cdot x_4$
x_1	*net working capital/total assets*
x_2	*retained profits/total assets*
x_3	*income before taxes /total assets*
x_4	*equity/payables*

Source: authors

2 Results

The horizontal analysis and the vertical analysis of this sector are based on Table 2. Table 2 represents selected items from assets, liabilities and equity, costs and revenues. Assets and liabilities and equity are always stated as of December 31 of the given year. Information about costs and revenues is stated for the current year.

The sector showed significant fluctuations in the individual asset items in the period 2007-2016. Total assets decreased by more than 107 billion CZK during the period from year 2007 and 2009. This decrease was caused primarily by long-term assets decrease. In the period 2010 to 2011 there was a slight increase in assets (by 24 billion CZK). In year 2012 there was again cut in assets by 45 billion CZK. In the period from 2013 to 2014 assets increased by 66 billion CZK. This increase was caused by significant investments into long-term assets. Year 2016 saw again an increase in assets to total 441.7 billion CZK. In the period 2007-2012 (with the exception of year 2010) current assets had declining trend (cut by 24.5 billion CZK). Years 2013 and 2016 saw a significant increase in current assets value.

The structure of assets was changing during the monitored period, but long-term assets had, for the entire duration of this period, the biggest representation in total assets (from 76% to 79%). The most important component in current assets was receivables (with the exception of two years).

During the monitored period also the structure of financing changed. For the entire observed period, equity was used more – it represented 56-71% of total liabilities and equity.

The value of debts declined between years 2007 and 2010 (by 70 billion CZK); year 2011 saw an increase of 26 billion CZK. In the period 2012-2014 debts increased; in this period the value of debts increased by 56 billion CZK. Debts in total liabilities and equity increased (from 35% in year 2012 to 43% in year 2014).

Tab. 2: Basic information about the sector (billion CZK)

Item	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total assets/Total liabilities and equity	501.6	482.7	394.4	402.4	418.3	373.2	391.4	439.0	427.6	441.7
Long-term assets	393.3	377.6	308.1	312.4	329.2	287.4	296.0	344.6	333.6	336.8
Current assets	108.3	105.1	84.2	87.4	86.2	83.8	92.8	91.5	91.3	102.4
• Inventories	6.5	6.5	7.0	5.2	5.8	5.6	6.1	5.9	5.3	6.2
• Receivables	68.2	73.0	53.4	56.8	56.2	47.7	51.1	40.1	40.8	49.7
• Short-term financial assets	33.6	25.6	23.8	25.3	24.2	30.5	35.6	45.6	45.1	46.5
Equity	319.4	333.0	272.9	284.7	274.6	238.9	244.2	247.7	243.3	262.5
Debts	182.2	149.6	116.4	112.5	138.8	131.0	143.6	187.1	180.6	175.5
• Short-term payables	128.6	94.0	61.0	59.2	58.7	57.0	64.7	58.5	49.6	64.5
• Long-term payables	53.6	55.6	55.4	53.3	80.1	74.0	78.9	128.5	131.0	111.0
Total sales	299.2	303.7	207.0	217.7	216.5	230.4	249.1	255.4	230.0	233.2
Production consumed	163.0	168.4	99.8	106.9	107.2	109.1	111.8	117.0	115.5	166.0
Income before taxes	21.7	18.3	8.5	23.5	15.9	12.7	11.3	14.7	15.1	17.5
Net income	9.6	7.2	5.5	18.7	12.7	9.7	8.5	11.4	11.9	13.9

Source: Analytické materiály (n.d.)

Short-term payables had the biggest representation in debts in the period from 2007 to 2010 (in year 2007 short-term payables represented 71% of debts). Since year 2011 the structure of debts had been changing. In year 2013 short-term payables represented only 45% of debts and it was 27% in year 2015.

This sector reported, for the observed period, net income from 5.5 billion CZK (year 2009) to 18.7 billion CZK (year 2010). For the entire period the sector showed profit, even during the economic crisis. The biggest sales were received in year 2008; the lowest sales were received in 2011.

Table 3 shows the development of selected ratios for the sector.

Tab. 3: Ratio analysis

Indicator	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Current ratio	0.8	1.1	1.4	1.5	1.5	1.5	1.4	1.6	1.8	1.6
Quick asset ratio	0.8	1.0	1.3	1.4	1.4	1.4	1.3	1.5	1.7	1.5
Cash position ratio	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.8	0.9	0.7
ROA (%)	4.33	3.78	2.17	5.83	3.81	3.39	2.88	3.34	3.54	3.95
ROE (%)	3.00	2.17	2.00	6.58	4.61	4.08	3.47	4.61	4.90	5.30
ROS (%)	7.27	6.01	4.13	10.78	7.36	5.50	4.52	5.74	6.58	7.49
Total assets turnover (days)	604	572	686	665	696	583	566	619	669	682
Inventory turnover (days)	8	8	12	9	10	9	9	8	8	10
Average collection period (days)	82	87	93	94	93	75	74	56	64	77
Creditors payment period (days)	155	111	106	98	98	89	94	83	78	100
Equity to total assets (%)	63.68	69.00	69.18	70.77	65.65	64.00	62.40	56.43	56.91	59.43
Total debt to equity (%)	57.04	44.93	42.66	39.50	50.54	54.83	58.80	75.52	74.23	66.85
Total debt to total assets (%)	36.32	31.00	29.51	27.95	33.18	35.09	36.69	42.61	42.24	39.73

Source: authors

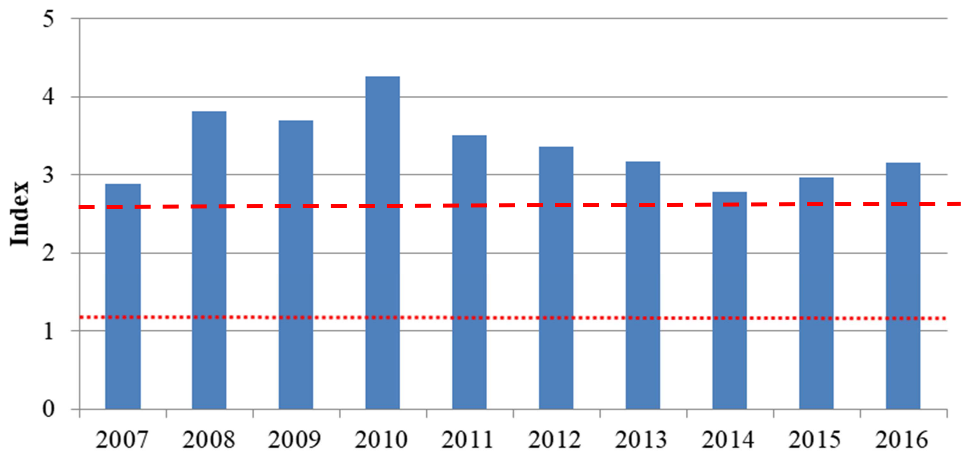
Current and quick asset ratios had a growing nature with the exception of years 2013 and 2016. Recommended interval for current ratio is 1.6-2.5; for quick asset ratio it is 0.4-1.5 (Kislingerová et al., 2010). The sector started to reach these recommended values of current ratio only in year 2014. Until that year more passive strategy had been applied. In the area of quick asset ratio the sector oscillated in the recommended interval. Value of 0.2 is recommended for cash position ratio (Kislingerová et al., 2010). The sector showed higher values of cash position ratio (in the range 0.3-0.9); capital was tied in less profitable assets items, which reduced return on capital employed.

All three profitability ratios have similar history. In period 2007-2009 profitability decreased, there was some improvement in year 2010 but this improvement was not continuing in the period 2011-2013. From year 2014 profitability of the sector improved; all three ratios were gradually growing. In year 2016 the sector showed higher ROE and ROS than in year 2007. But the sector has not yet achieved the performance of year 2007 in case of ROA (by 0.38 p.p. less than in year 2007).

Total asset turnover during the monitored period was on average 634 days. The longest period of asset turnover was recorded in year 2011; in year 2013 the asset turnover period was the shortest. Inventory turnover was 8 to 12 days. The highest difference between the average collection period and the creditors payment period in this sector was in year 2007 (73 days).

Equity to total assets oscillated from 56 to 71%, the total debt to equity was 43-76%. The total debt to total assets was not too high, for the entire period equity was bigger than debts.

Fig. 1: Development of Altman's index in years 2007-2016



Source: authors

It is evident from Figure 1 representing the development of Z-score values in the individual years that the sector did not show any signs of financial distress in the monitored period. The highest value (4.27) was reached in year 2010; the lowest value (2.87) was reported in 2007.

3 Discussion

It has issued from the analysis that between years 2007 and 2009 there was a significant cut in total assets. Long-term assets represent the most important item in assets. Long-term assets had been gradually depreciated, or removed due to wear and tear or due to sell off. In years 2010 and 2011 investment activities slightly increased; year 2012 saw yet again decline in assets. In years 2013-2014 the sector renewed its investment activities and there was a significant increase in investments into long-term assets. This trend continued also during year 2016. The sector must pay attention to investment projects, particularly to investment into long-term tangible assets. Decisions about investments belong among very important strategic decisions. Such investments are a very complex issue where on one the hand there is insufficient investment into reconstruction of existing long-term assets and on the other hand also situations where the sector is not able to make the best use of market opportunities opening for the sector and the sector does not invest into development projects. This lack of activity could lead to declining economic performance of the sector and to cuts in values of the individual companies operating in this sector. Investment decisions must thus be properly designed. Benefits of individual projects must be evaluated with high level of expertise taking into consideration possible impacts on the financial situation of the company as well as any environmental and social impacts of such investments. Also from a financial point of view it is essential to consider what resources shall be used for such investments (Synek et al., 2011).

Also current assets in this sector had been changing in the course of this period. The value of current assets during years 2007-2012 declined (with the exception of year 2010). Major increase in the value of current assets was seen in year 2013 and 2016. The most important item in current assets is receivables. Liquidity and profitability areas very closely relate to the structure of current assets. Results of the ratio analysis revealed the fact that this sector reported higher cash position ratio than recommended. Sector capital was (regarding current assets) tied in asset items with high liquidity; the sector was thus able to repay liabilities on time. Too high liquidity is not very beneficial for this sector; higher liquidity decreases profitability (Synek et al., 2011). Based on this recommendations for this sector can be formulated – to strive for optimum liquidity and for optimum assets structure.

In the framework of this sector it is essential to pay attention to so called trade deficit (difference between average collection period and creditors payment period). Grünwald and Holečková (2007) point out that bad management of trade deficit may cause problems with cash flows management.

During the observed period also the capital structure of the sector was changing. Equity was however always higher than debts. Both short-term and long-term payables were used from debts. The structure of debts significantly changed in the observed period. Short-term payables were the most represented debts in the structure of debts in the period from 2007 to 2010. From year 2011 it was long-term payables that doubled during this period. It can be recommended to companies in this sector to pay attention to capital structure optimization connected to minimum total cost of capital (Marek et al., 2009).

The positive aspect here is the fact that during the entire monitored period the sector realized profits, also during the economic crisis years. Sales development significantly impacts financial health of this sector. Financial analysis showed that total sales, after decline in year 2009, had gradually increased till year 2014. Year 2015 saw decline in total sales, however sales for year 2016 were yet again higher than in the previous year. However, sales in year 2016 did not reach the level of year 2008, the best year for sales in the entire observed period. The level of sales impacts cash flows needed by the sector for day-by-day financial management of operating activities, but sales are also a source of capital for investment activities and financial activities (repayment of long-term bank loans, payment of dividends and similar). Also costs have a significant impact on income and on profitability. Companies with a well-designed system of cost management are not only more successful, but also more resistant to trade risks which is very important in period of crises when there is a significant decline in sales. Generally it is possible to recommend to this sector to make overhead costs more transparent, to reduce fixed costs, to better control the variability of the portfolio of provided services (small orders lead to excessive scope of alternatives, they thus block potentially more interesting orders and they have high preparation costs), to optimize effectiveness of executed production and to implement relevant cost (managerial) accounting.

Production consumed (consumption of material and energy, services) is the most significant cost item – see Table 4.

Tab. 4: Development of production consumed to total sales in years 2007-2016

Item	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total sales (billion CZK)	299.2	303.7	207.0	217.7	216.5	230.4	249.1	255.4	230.0	233.2
Production consumed (billion CZK)	163.0	168.4	99.8	106.9	107.2	109.1	111.8	117.0	115.5	166.0
Production consumed to total sales (%)	54.5	55.4	48.2	49.1	49.5	47.4	44.9	45.8	50.2	71.2

Source: authors

Production consumed represented on average 48% of total sales in years 2009-2015. Year 2016 saw a significant increase in this ratio. From this development it is clear that it is essential to focus on management of production consumed in the framework of this sector. Any efforts to cut costs may lead to decline in value or in quality of services and such decline is reflected by customers; however, this must be prevented because of high level of competitiveness in this sector. Costs must be always purposefully linked to realised services; not all services contribute in the same way to income of a company and each company must find its own suitable system of cost management (Popesko and Papadaki, 2016).

Total assets turnover has an impact on profitability development. Total asset turnover period was on average 634 days in the observed period. The level of the ratio is influenced by high investments demand of the evaluated sector. What can be considered to be a negative feature is the fact that the total asset turnover period has been increasing since 2013. Realized sales as well as the amount of assets used by the sector in connection with realizing such sales have an impact on the ratio development.

Conclusion

Results of the financial analysis of the sector Transportation and storage – as presented in this paper may be used by individual companies operating in this sector as a base for comparison. Companies can evaluate their financial situation based on the development of the sector and to identify those aspects that are differentiating the company from the sector development as a whole. This point of view has its sense despite the fact that each company is different. The identified facts can be then used for decision-making support in financial management.

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