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Differences in Financial Management in Vehicle Industry from the Aspect of the COVID-19 Crisis

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Abstract: The automotive industry is a key Slovak employer. Due to its strong economic links to many other industrial sectors, it has an important multiplier effect on the economy. The automotive sector is one of the areas that has been impacted quite heavily by the Covid-19 pandemic. Our research aimed to compare the development of selected financial indicators, to analyze the asset and financial structure of selected companies operating in the vehicle sector in Slovakia, and to determine the effectiveness of financial management from the aspect of the pandemic. We examined the following indicators for the three largest players in the Slovak market: Return on Assets, Return on Equity, and Net Profit Margin. By applying the IN05 model bankruptcy possibilities were predicted for automotive companies. According to the study, Volkswagen Slovakia, a. s. managed its asset and financial structure the most effective and used its assets and also equity the most effective in the automotive industry in 2020. Only, the highest net profit generated from revenue gained in the period of was not produced by this company in 2020. Therefore, Volkswagen Slovakia, a. s. occupies the best position in terms of efficiency of financial management in the automotive market.

Keywords: vehicle industry; financial management; profitability indicators

JEL Classification: L62; G32; G33

1. Introduction

The vehicle industry is the most important pillar of the Slovak industry employing, directly and indirectly, more than 275,000 workers. The automotive industry has a strong tradition in Slovakia. Over the past 20 years, it has been an important source of foreign direct investment as well as industrial innovation. Slovakia belongs to the 20 biggest car producers in the world with an annual production of more than one million cars per year. Share of automotive industry makes 50% on total industrial production in 2021. 13% of the GDP of Slovakia is produced by the automotive industry (Sario, 2021). Covid-19 restrictions could have a significant impact on the financial position of companies in the vehicle industry. This article analyses the main differences in financial management between the key players of the Slovak automotive industry.

This study aimed to analyze and describe financial management by using profitability indicators, to analyze an asset and financial structure and to predict bankruptcy possibilities for automotive companies, and to determine the effectiveness of financial management from the aspect of the pandemic. The most important automotive enterprises in Slovakia are

Volkswagen Slovakia, a. s., Kia Slovakia s. r. o. and the youngest one Jaguar Land Rover Slovakia s. r. o. These 3 enterprises represent an important role as employers. In 2020 Volkswagen Slovakia, a. s. directly employed 11,473 employees. In 2020 Kia Slovakia s. r. o. directly employed 3,520 employees. In 2020 Jaguar Land Rover Slovakia s. r. o. directly employed 2,200 employees (Finstat, 2021). Their position in the market is so important for the Slovak economy that they used to be supported by the government. Financial support as a tax holiday or contribution to support job creation has been used by these enterprises and that is the fact why they fall under intense financial supervision (Finstat, 2021). Operating revenue including the sale of non-current assets and securities of sample is presented in Table 1.

Table 1. Operating revenue in 2018-2020 [€] (Finstat, 2021)

Operating revenue	2020	2019	2018
Volkswagen Slovakia, a. s.	9,754,823,000	10,390,134,000	10,380,075,000
Kia Slovakia s. r. o.	4,574,703,000	5,594,522,000	5,185,639,000
Jaguar Land Rover Slovakia s. r. o.	269,613,450	279,386,211	186,783,465

Financial management enables planning and managing financial flows more accurately. It enables the acquisition and allocates the financial resources of the company. Financial management enables us to decide responsibly on business investments and to ensure the necessary financial stability (Kajanová, 2018). The important part of financial management is an asset and financial structure. The challenge for management is how much of the asset base should be obtained through equity funding and how much through debt funding. Asset structure represents the proportion of various types of assets held by a firm as shown in the balance sheet. The financial structure is the proportion of liabilities and equities that a company uses to finance its assets. Capital structure is therefore part of a financial structure (Kasajová et al., 2018). Financial management focuses on decisions with a tendency to obtain the necessary capital. The asset structure is managed to maximize its market value (Čulková & Taušová, 2017). Profitability is the best measure of a company, without it, it cannot grow, and if it doesn't grow, then its stock will trend downward. Increasing profits show that a company can pay dividends and that the share price will trend upward. Creditors will loan money at a cheaper rate to a profitable company than to an unprofitable one. The common profitability measures compare profits with sales, assets, or equity: net profit margin, return on assets and return on equity. Although most financial services publish these ratios for most companies, they can be calculated independently by using net profit and total revenue from the Income Statement of a company's financial report, and total assets and stockholders' equity from the Balance Sheet (Komorník & Majerčáková, 2015). Return on assets (ROA) presents the overall efficiency of the inserted capital using regardless of the source of coverage. The indicator is released about the amount of profit-generated assets. Effective asset use is one of the key points of business success (Rajchlová, 2016). ROA is used as a profitability indicator because it eliminates the impact of capital structure and the effects of the tax shield (Kuč & Kaličanin, 2021). Return on equity (ROE) presents the profitability of capital inserted by shareholders or business owners. ROE is a key indicator based on which

investors decide to pick stocks. Value investors tend to pick the company that generates high ROE over the long term (Frazzini et al., 2018). Net profit margin represents the company's ability to achieve profit at a given sales amount (Husna & Desiyanti, 2016). Financial indicators provide relevant information that can help to determine whether it is likely that companies lead to bankruptcy or will have other financial problems in the future (Amandola et al., 2017). Financial indicators are capable to signalize the future bankruptcy of a company. It is demonstrated by the fact that even experienced companies regardless of their age may commit a failure process in which financial problems or performance decreases are not observable in the last financial report before bankruptcy (Lukason & Laitinen, 2019). Not only financial indicators are capable to signalize bankruptcy. The bankruptcy prediction model as Neumaiers IN05 index was developed in this paper. Neumaier's models are frequently used on data from the Central and Eastern Europe region (Papík et al., 2020). Due to the inclusion of financial data of Slovak automotive enterprises in this manuscript, the regional model of Neumaier's has been used.

In the Slovak automobile sector, research has not previously been done to compare the asset and financial structure and profitability indicators to determine the enterprise with the most effective financial management. Application of bankruptcy prediction model shows in numbers probability of company's financial solvency. In 2015 Sandu did similar research in the Romanian automotive industry with the focus on reputation importance concerning profit-generating (Sandu, 2015). She analyzed the relation between return on assets and reputation for seven reputable automotive companies. In 2016 Rybárová et al. researched the Slovak construction industry with the focus on the solvency of this sector by using the Altman Z-score bankruptcy model (Rybárová et al., 2016). The main contribution of this study is a comparison of financial management of 3 key enterprises of the automotive industry in Slovakia.

The research question is what are the differences in financial management between Kia Slovakia s. r. o., Jaguar Land Rover s. r. o. and Volkswagen Slovakia a. s. from the aspect of the COVID-19 crisis? We want to compare an attitude in financial management in the vehicle industry in the period of the COVID-19 crisis and to explore which attitude seems to be the best way.

The paper is structured as follows: in the introduction was carried out a literature review and were introduced basic research goals, in section 2 are introduced the data used in the analysis and the methodology. In the next step are presented results, which are discussed in section 4. Section 4 draws some conclusions as well.

2. Methodology

The analysis has been performed by using the data from the statistical database FinStat.sk, which monitors enterprises' income and business activities in the Slovak Republic and is the only source of microeconomic data based on harmonized bookkeeping principles. This database provides accounting information that has been necessary for our research. The Finstat database processes the number of data sources. Finstat analyzes the accounting resources of each company. Finstat cooperates with reliable resources such as Commercial

Register, Trade Register, Register of Financial Statements, Register Bankruptcies, Lists of Insurance Borrowers, and Judicial Decisions (Finstat, 2021).

The research question is what are the differences in financial management between Kia Slovakia s. r. o., Jaguar Land Rover s. r. o. and Volkswagen Slovakia a. s. from the aspect of the COVID-19 crisis? These 3 enterprises have been chosen because they are key representants of the Slovak vehicle sector (Sario, 2021). The financial statements of these 3 enterprises have been used as resources for our research. We have analyzed financial statements for determining differences in asset and financial structure, calculating profitability indicators and bankruptcy IN05 index.

Financial statements and data from them of automotive companies in Slovakia in 2020 have been collected to fulfill the aim of the study. For comparison of 3 different size enterprises, it has been done vertical common-size analysis (Corporate Finance Institute, 2021). Therefore, the application of vertical common-size analysis might determine the structure of assets, liabilities, and equities. The database Finstat provides already calculated profitability indicators for every vehicle company in 2020 and this paper's results of indicators have been compared. In this study profitability indicators have been used: ROA, ROE, and net profit margin. The calculation for profitability indicators is expressed in Table 2.

Table 2. Profitability indicators formula (Kabát et al., 2013)

Profitability indicators
$ROA = \frac{Net\ Profit}{Total\ Asset}$
$ROE = \frac{Net\ Profit}{Total\ Equity}$
$Net\ Profit\ Margin = \frac{Net\ Profit}{Total\ Revenue}$

Return on Asset (ROA) is the net profit expressed as a percentage of the total asset. A higher ROA number means better utilization of the company's assets. Return on Equity (ROE) is net profit expressed as a percentage of the total equity. ROE expresses how profitably the company is using the owners/shareholders' funds to yield profits. Net profit margin is the percentage of profit a company produces from its total revenue. It measures the amount of net profit a company obtains per euro of revenue gained (Kabát et al., 2013).

Five-factor IN05 model is frequently used on data from Central and Eastern Europe region. Calculation of IN05 model is expressed in following form (1):

$$IN05 = 0.13 \times A + 0.04 \times B + 3.97 \times C + 0.21 \times D + 0.09 \times E \quad (1)$$

Individual variables used to calculate the IN05 index are shown in Table 3.

Table 3. IN05 model variables (Neumaier & Neumaierová, 2005)

Variable	**Formula**
A	total assets/total liabilities;
B	earnings before interest and taxes/interest paid;

C	earnings before interest and taxes/total assets;
D	revenues/total assets;
E	current assets/current liabilities;

If the value of IN05 > 1.6, the financial position of a company is favorable. The interval between 0.9 and 1.6 represents a grey zone which means that a company stagnates. If IN05 < 0.9, a company does not produce a value and could go bankrupt.

Based on numerous results of the IN05 model the probability of bankruptcy for each company will be predicted. This study firstly has analyzed and described financial management by using profitability indicators, it has analyzed asset and financial structure and predicted bankruptcy possibilities for automotive companies. Based on research results this study has compared the effectiveness of companies' financial management and thus deduced the conclusion, which company from our research sample applied the most effective financial management in the Covid-19 crisis.

3. Results

Balance sheet common-size analysis was performed to determine the percentage ratio in the asset structure and financial structure. The common-size analysis enables to compare different size companies. The result for Kia Slovakia s. r. o. asset structure is presented in Figure 1. The result for Kia Slovakia s. r. o. financial structure is presented in Figure 2.

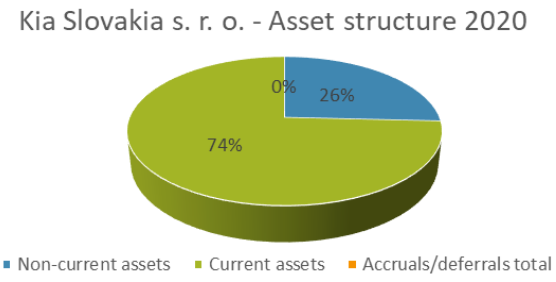

Figure 1. Kia – Asset structure (Finstat, 2021)

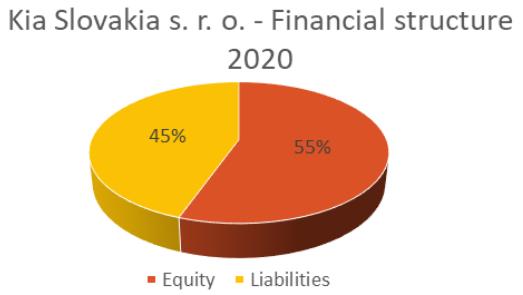

Figure 2. Kia -Financial structure (Finstat, 2021)

In 2020, Kia had a strategic approach to asset management. Non-current assets accounted for only 25.79% of all assets. Kia focused more on current assets, which accounted for up to 74.19%, with the largest item current receivables 52.77%. Sources of asset coverage distributed 55.44% of equity and at the level of 44.56% liabilities. The highest items among external sources were current liabilities 18.96% and bank loans 11.75%. Compared to 2019, bank loans increased significantly from 0.32% to 11.75%.

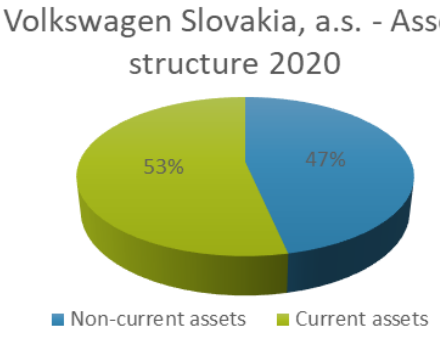

Figure 3. Volksw. – Asset structure (Finstat, 2021)

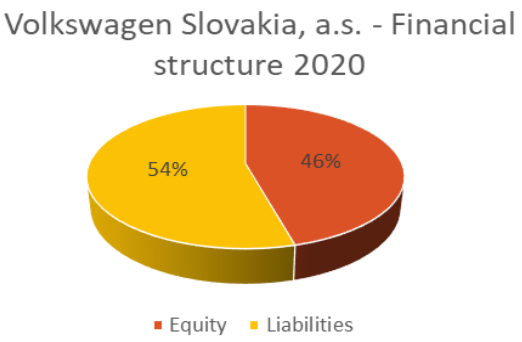

Figure 4. Volksw. – Financial structure (Finstat, 2021)

The result for Volkswagen Slovakia, a. s. asset structure is presented in Figure 3. The result for Kia Slovakia s. r. o. financial structure is presented in Figure 4.

In 2020, Volkswagen managed its non-current assets at 46.60%. Current assets accounted for 53.40%, of which the largest item was current receivables 29.72%, but a significant part was also financial accounts 14.86%. Volkswagen had assets covered by 45.81% of equity and 54.19% of liabilities. The highest items among external sources were current liabilities 49.78%.

The result for Jaguar Land Rover s. r. o. asset structure is presented in Figure 5. The result for Jaguar Land Rover s. r. o. financial structure is presented in Figure 6.

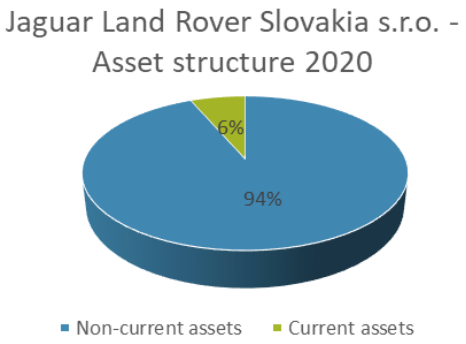

Figure 5. Jaguar L. R. – Asset structure (Finstat, 2021)

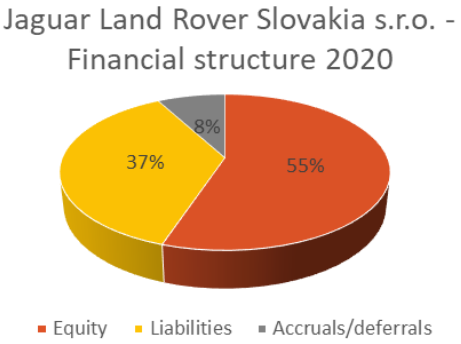

Figure 6. Jaguar L. R. – Financial structure (Finstat, 2021)

In 2020, Jaguar Land Rover managed its non-current assets at 93.51%. Current assets were at the level of 6.49%, current receivables achieved 5.55%. Jaguar Land Rover had 55.11% of equity and 36.97% of liabilities. Accruals and deferrals created 7.91%. As in competing companies, current liabilities accounted for the highest level 32.51%.

The results for the ROA indicator in the period from 2018 to 2020 are aggregated according to individual vehicle companies and are presented in Figure 7.

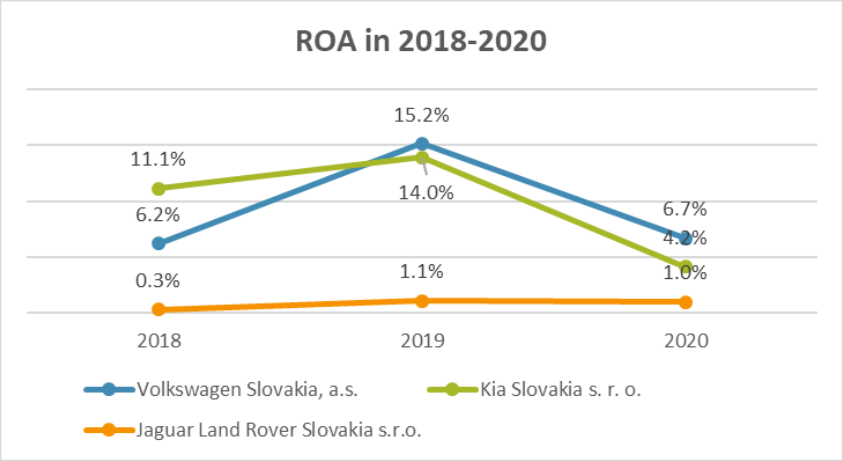

Figure 7. ROA growth in vehicle sector 2018-2020

The ROA indicator expresses the net profit as a percentage of the total asset. A higher ROA number means better utilization of the company's assets. Based on results in Figure 7 there is a significant depression of ROA indicator from 2019 to 2020 in Volkswagen Slovakia, a. s. and Kia Slovakia s. r. o. In terms of the ROA indicator in 2020, Volkswagen performed best at 6.7%. In other words, every 1 euro of assets produced 6.7 cents of net profit. Kia produced 4.2 cents of net profit for every 1 euro of assets. In comparison, Jaguar Land Rover produced only 1 cent of net profit for every 1 euro of assets but we should notice that only Jaguar Land Rover achieved the approximately constant level of ROA from 2018 to 2020.

The results for the ROE indicator in the period from 2018 to 2020 are aggregated according to individual vehicle companies and are presented in Figure 8.

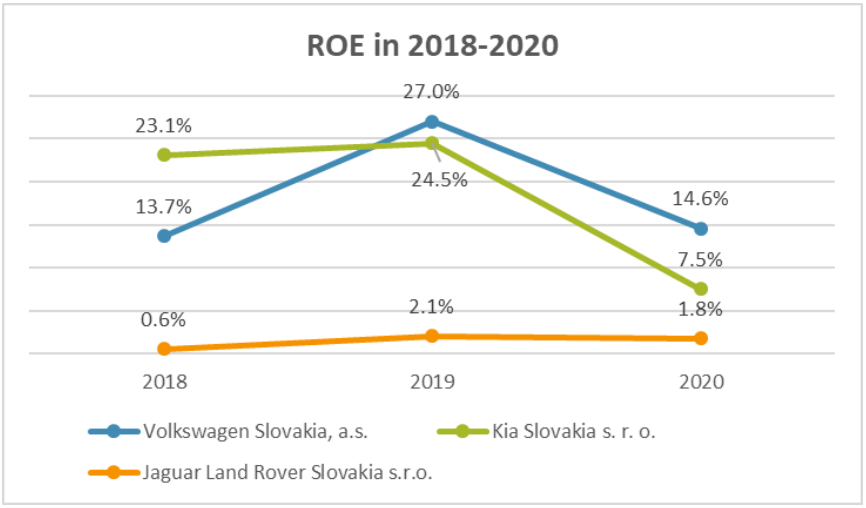

Figure 8. ROE growth in vehicle sector 2018-2020

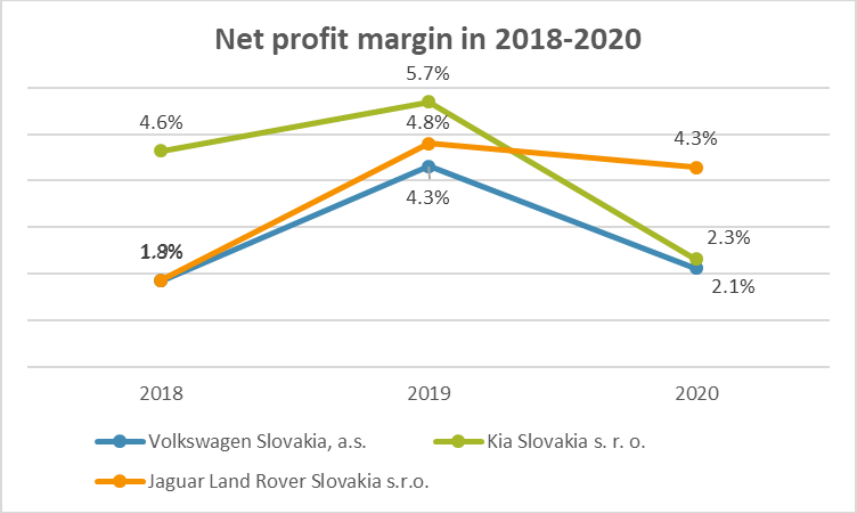

Figure 9. Net profit margin growth in vehicle sector 2018-2020

The ROE indicator expresses net profit as a percentage of the total equity. Based on results in Figure 8 there is a significant depression of ROE indicator from 2019 to 2020 in Volkswagen Slovakia, a. s. and Kia Slovakia s. r. o. In terms of the ROE indicator in 2020, Volkswagen performed best at 14.6%. In other words, every 1 euro of assets produces 14.6 cents of net profit. Kia produced 7.5 cents of net profit for every 1 euro of equity. In comparison, Jaguar Land Rover produced only 1.8 cents of net profit for every 1 euro of assets but we should notice that only Jaguar Land Rover achieved the approximately constant level of ROE from 2018 to 2020. The results for the net profit margin indicator in the period from 2018 to 2020 are aggregated according to individual vehicle companies and are presented in Figure 9.

Net profit margin is the percentage of net profit a company produces from its total revenue. It measures the amount of net profit a company obtains per euro of revenue gained. there is a significant depression of net profit margin indicator from 2019 to 2020 in Volkswagen Slovakia, a. s. and Kia Slovakia s. r. o. The net profit margin of Jaguar Land Rover in 2020 decreased only moderately. In terms of the net profit margin indicator in 2020, Jaguar Land Rover performed best at 4.3%. In other words, every 1 euro of total revenue produced 4.3 cents of net profit. Kia Slovakia s. r. o. produced 2.3 cents of net profit for every 1 euro of total revenue. In comparison, Volkswagen Slovakia, a. s. produced only 2.1 cents of net profit for every 1 euro of total revenue.

The results for the IN05 model in 2020 are aggregated according to individual vehicle companies and are presented in Figure 10.

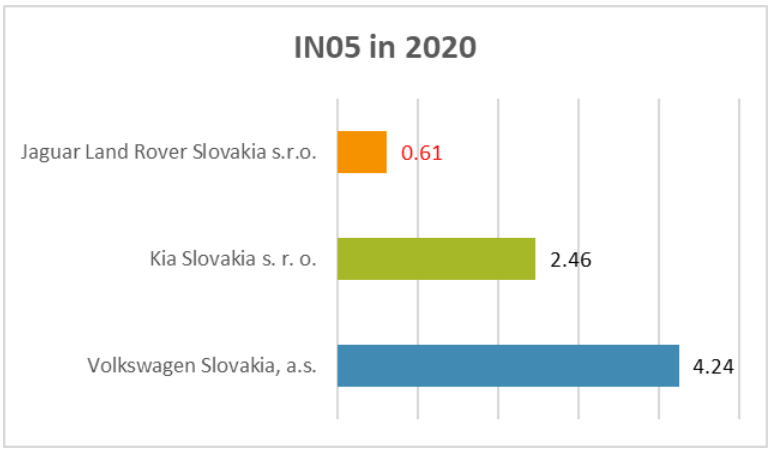

Figure 10. IN05 model in vehicle sector in 2020

Based on numerous results of the IN05 model the probability of bankruptcy for each company could be predicted. Volkswagen achieved a score of 4.24 and Kia achieved 2.46. According to IN05, Volkswagen and Kia created value, on the other hand, Jaguar Land Rover with 0.61 is described as a company that did not create value.

4. Discussion

The one part of the research was focused on the asset and financial structure of 3 vehicle companies and the differences between them. Kia Motors Europe sales fell 17% year-on-year in 2020. The company recorded a decrease in sales in 2020 due to a lockdown in various countries, including Slovakia, which affected the profitability in 2020. Profit also decreased due to currency fluctuations RUB against the EUR (Kia Motors Slovakia, 2020). In 2020, Kia had a strategic approach to asset management. Non-current assets accounted for only 25.79% of all assets. Kia focused more on current assets, which accounted for up to 74.19%. Sources of asset coverage distributed 55.44% of equity and at the level of 44.56% liabilities. Kia's approach to asset structure management is strongly current assets oriented. Current assets help stakeholders to decide how cash-rich a company is. Liquidation of the current assets affects cash balances. Current assets help in day-to-day business operational activities. We consider the approach to financial structure management as conservative with a high degree of uncertainty avoidance. When they exceed their resources, the company is more stable, more independent, and has a greater ability to survive a potential crisis. In the event of a crisis, such a company has the opportunity to lend an additional loan. Based on the Finstat database there is an obvious impact of the pandemic. Compared to 2019, current assets increased from 69.31% to 74.19% and bank loans increased significantly from 0.32% to 11.75%.

The business year 2020 was significantly affected by the extraordinary situation caused by the Covid-19 pandemic. The very volatile first half of the year was marked by a five-week interruption of production. Emphasis was placed on strictly reducing costs, increasing efficiency, as well as ensuring sufficient liquidity. Volkswagen managed to stabilize the production program, maintain jobs and achieve a financial result almost at the level of the year 2019 (Volkswagen Slovakia, 2020). In 2020, Volkswagen managed its non-current assets

at 46.60%. Current assets accounted for 53.40%. Volkswagen had assets covered by 45.81% of equity and 54.19% of liabilities. Volkswagen's approach to asset structure management is mostly current assets oriented, which supports cash flow. Liabilities exceeded own resources, which is healthy for the company because foreign capital is cheaper than own. Bank loans accounted for 0.00% so there is an opportunity to lend additional money. Based on the Finstat database there is an obvious impact of the pandemic. Compared to 2019, current receivables increased from 24.93% to 29.72% and current liabilities increased significantly from 32.77% to 49.78%. Based on these results a transformation process was getting longer, this fact harm to the business. On the other hand, current liabilities are the cheapest option to lend money without interest.

The Jaguar Land Rover's production was suspended from March 20 to May 11, 2020. The Company's management has considered the potential impacts of COVID-19 on its activities and business and has concluded that they do not have a material effect on the Company's going concern assumption (Jaguar Land Rover Slovakia, 2020). In 2020, Jaguar Land Rover managed its non-current assets at 93.51%. Current assets were at the level of 6.49%, current receivables achieved 5.55%. Jaguar Land Rover had 55.11% of equity and 36.97% of liabilities. Accruals and deferrals created 7.91%. As in competing companies, current liabilities accounted for the highest level 32.51%. Bank loans accounted for 0.00%. Jaguar Land Rover has only been operating on the Slovak market since the end of 2015. In the balance sheet, there are many items at the level of a start-up company. Based on the Finstat database and financial statements there is not an obvious impact of the pandemic. The start of Jaguar Land Rover production was in October 2018 so this enterprise is still represented as starting foreign direct investment.

Return on assets is an indicator of how well a company utilizes its assets in terms of profitability. Based on results in Figure 7 there is a significant depression of ROA indicator from 2019 to 2020 in Volkswagen Slovakia, a. s. and Kia Slovakia s. r. o. The depression of ROA was caused by total asset growth in 2020. In terms of the ROA indicator in 2020, Volkswagen performed best at 6.7%. Kia performed 4.2% and Jaguar Land Rover performed only 1%. Volkswagen Slovakia, a. s. used its assets the most effective in 2020.

Return on equity is the measure of a company's net income divided by its shareholders' equity. Based on results in Figure 8 there is a significant depression of ROE indicator from 2019 to 2020 in Volkswagen Slovakia, a. s. and Kia Slovakia s. r. o. The depression of ROE was caused by a huge increase in total equity. The optimal ROE level in the vehicle industry achieves approximately 14%. In terms of the ROE indicator in 2020, Volkswagen performed best at 14.6%. Kia performed 7.5% and Jaguar Land Rover performed only 1.8% of ROE. Volkswagen Slovakia, a. s. used its equity the most effective from 2019 to 2020.

Net profit margin is the percentage of net profit a company produces from its total revenue. There was a significant depression of net profit margin indicator from 2019 to 2020 in Volkswagen Slovakia, a. s. and Kia Slovakia s. r. o. The net profit margin of Jaguar Land Rover in 2020 decreased only moderately. In terms of the net profit margin indicator in 2020,

Jaguar Land Rover performed best at 4.3%. Kia Slovakia s. r. o. performed 2.3% Volkswagen Slovakia, a. s. performed only 2.1% of net profit margin. The reason was increased expenses.

According to IN05, Volkswagen and Kia created value, on the other hand, Jaguar Land Rover with 0.61 is described as a company that did not create value. This is due to the large volume of assets to the revenue ratio, which is normal for a start-up company.

Future research directions may also be highlighted in an impact of government financial support on the asset and financial structure of key enterprises in the vehicle industry. The limitation of this study was a small sized sample.

5. Conclusions

The vehicle industry is the most important pillar of the Slovak economy. The automotive industry has a strong tradition in Slovakia. Over the past 20 years, it has been an important source of foreign direct investment as well as industrial innovation. Slovakia belongs to the 20 biggest car producers in the world with an annual production of more than one million cars per year (Sario, 2021). Covid-19 restrictions had a significant impact on the financial position of companies in the vehicle industry. This article analyzed the main differences in financial management between the key players of the Slovak automotive industry.

This study aimed to analyze and describe financial management by using profitability indicators, to analyze an asset and financial structure, and to predict bankruptcy possibilities for automotive companies.

Generally, the results of this study showed that Volkswagen Slovakia, a. s. and Kia Slovakia s. r. o. produced effective financial management during the Covid-19 crisis. Jaguar Land Rover s. r. o. produced financial management at lower effectiveness. This is due to the start-up company numbers in financial statements. Based on this study in the period of a pandemic the Volkswagen Slovakia, a. s. managed its asset and financial structure the most effective and used its assets and also equity the most effective in the automotive industry. Only, the highest net profit generated from revenue gained in the period of was not produced by this company in 2020. Therefore, Volkswagen Slovakia, a. s. takes the best position in terms of financial management efficiency in the automotive market.

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Conflict of interest: none

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