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## INNOVATIONS IN THE COMPANY'S EARNINGS MANAGEMENT: THE CASE FOR THE CZECH REPUBLIC AND SLOVAKIA

**Abstract.** Earning management is a collection of managerial decision that results in not reporting the true short-term, value-maximizing earnings as known to management. It is focused on the changes in financial reporting to mislead the stakeholders and achieve contractual benefits. Earnings management emphasizes the manipulation of accounting choices and operating cash flows, and it is known as a practice which chooses an accounting treatment that is either opportunistic (maximizing the utility of management only) or economically efficient. The paper deals with the possibilities of detection and quantification of trend, degree and scope of the earnings management of Slovak and Czech companies from 2015 to 2017. The paper aimed to create a systematic overview of the earnings management specificities considering the enterprises' innovation policy as the phenomenon of earnings management understood ambiguously, contradictory and without consensus. The paper is to explain various opinions of earnings management understanding and to propose methodical instrumentation for the detection and quantification of earnings management. The validity of the focus in question is multiplied by the possibility of smooth implementation in the transition countries, countries that even after almost thirty years of transformation, still show a significant degree of difference from countries with a developed market economy. In total, 29 earnings management detection models were subjected to forensic analysis. 2,155 Slovak and 4,842 Czech enterprises represented the statistical sample after the removal of extreme values. The most effective model to reveal manipulation with earnings is the Kothari model. Using the Friedman non-parametric test, trend, degree and scope of earnings management were tested. The results of the analysis showed interesting results – countries tend to manipulate earnings upwards. Detection of earnings management practices in enterprises is of vital importance provided that the real and correct data have to be presented to stakeholders and third parties to prevent any forms of financial and credit risks.

**Keywords:** earnings management, earnings management detection models, discretionary accruals.

**Introduction.** Profit is a kind of reward for taking on business risks. There are several ways to use profit. Businesses, especially after troubled years, try to use the actual profits to save the capital structure by reimbursing the losses of previous periods. The interest of individuals partners is also different; a shareholder who is primarily concerned with the payment of dividends, an employee who is interested in increasing their motivation in the form of shares in the economic result, investments in improving the

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working environment, increasing corporate funds, etc. Management, in addition to its bonuses, expects investments in new equipment, technologies or an increase in statutory funds. Thus, managing profits is an opportunity to generate higher revenues at certain costs and thus maximize profits (Stefko et al., 2019). The phenomenon of earnings management has become a crucial research topic in the field of accounting and financial decision-making. Empirical studies document different approaches to determine the behaviour of entities in managing profits. This trend is an increasingly attractive issue from several perspectives. Due to various accounting scandals, earnings management has become topical in discussions about the credibility of financial markets. Analysts and managers are interested in the latest practical and theoretical findings and studies related to the detection of earnings manipulation.

Ye (2006) determines earnings management as a tool to present a complex positive overview of corporate financial health and its business activities. Financial reports are legally modified using different techniques. As defined by Healy (1985), earning management is reasonable and legal management decision-making and reporting intended to achieve stable and predictable financial results. Earnings management helps to achieve specific targets involving the manipulation of accruals through discretionary choices (Krajnak, 2019). Thus, the emphasis is given to accrual earnings management, which does not influence the underlying corporate economics but involves the change in the accounting presentation of these economics (El Diri, 2018). For the first time in history, the term earnings management was used by Hepworth (1953). Since then, the investigation on the earnings management has made significant progress. The work of Healy (1985) should be mentioned as the author used the average total accruals for the first time to estimate the discretionary accruals (DA), and therefore to estimate earnings management. During the following years, authors increasingly treated the issue of earnings management. Table 1 summarizes the papers, which influence significantly the development of the earnings management (EM) research (only the highly cited papers over the years were considered).

**Table 1. Milestones of earnings management investigation**

<b>Authors</b>	<b>Year</b>	<b>Brief description</b>
Watts and Zimmerman	1986	Earnings-based compensation agreements
DeAngelo	1986	Incentives to reduce buyout compensation
McNichols and Wilson	1988	Provisions for bad debts
Schipper	1989	Asymmetry - management vs. shareholders
Jones	1991	Import relief incentives to manage earnings
DeAngelo, DeAngelo and Skinner	1994	High levered companies tend to manage earnings
Defond and Jiambalvo	1994	Debt covenant violations
Dechow, Sloan and Sweeney	1995	Alternative models to detect earnings management
Holthausen, Larcker and Sloan	1995	Use of real earnings management techniques
Burgstahler and Dichev	1997	Avoidance of earnings decrease and losses by EM
Teoh, Welch and Wong	1998	Report on higher net income
Healey and Wahlen	1998	Definition of earnings management
DeGeorge, Patel and Zeckhauser	1999	Earnings management to exceed thresholds
McNichols	2000	New approach: a principle of aggregate and specific accruals, distribution of earnings management
Peasnell, Pope and Young	2000	Cross-sectional estimation procedure
Yoon and Miller	2002	Effect of operating performance of DA
Skinner and Sloan	2002	Hide real image of the company
Klein	2002	Importance of audit committee
Xie, Davidson and DeDalt	2003	Role of the board of directors in preventing EM
Leuz, Nanda and Wysocki	2003	Investigation on investor protection (31 countries)
Burgstahler, Hail and Leuz	2006	Capital market pressure

Continued Table 1

Roychowdhury	2006	Real activities manipulations
Ye	2007	Cross-sectional vs. time-series models
Jeanjean and Stolowy	2008	Impact of IFRS standards on EM
Yague et al.	2009	Variation of stock market price and EM
Callao and Jarne	2010	Effects of IFRS on EM
Barth and Taylor	2010	Assets securitization and EM
Chen et al.	2010	Sophisticated investors and EM
Nwaeze	2011	Incentives of EM
Okamoto	2011	Collective intentionality and EM
Rodrigues, Marques and Craig	2011	EM induced by tax planning
Alhadab, Clacher and Keasey	2015	EM activities and IPO failure risk
Cimini	2015	2008 financial crisis and EM
Kothari, Mizik and Roychowdhury	2016	Earnings management in seasoned equity offering valuation
Lo, Ramos, Rogo	2017	EM and annual report readability
Collins, Pungaliya and Vijh	2017	Effect of firm growth on EM

Source: developed by the authors.

The newest findings in the field are focused on various issue. However, usually, the authors try to reveal the motives and incentives of earnings manipulation. Ding et al. (2018) suggested that politically affiliated enterprises were more likely than non-affiliated enterprises to engage in real activities to manipulate earnings. The mutual dependence between accrual and real earnings management is investigated by Hamza and Kortas (2019). The findings of Campa (2019) confirmed that the enterprise listed on the stock exchange is more affected by the income-increasing earnings management behaviours compared to unlisted enterprises. The mutual dependence between social trust environment and earning management is investigated in the research of Chen et al., (2019). Following the latest research, the originality of the research lies in exploring the issue on earnings management in Slovak and Czech economic conditions. The incentive is to analyse if the countries manipulate earnings. If yes, to measure the direction of manipulation (upward or downward manipulation of earnings) and the changes of manipulation over the years. The determination of the presence of earnings management help to reveal the motives of earnings manipulation.

The main objective of the paper is to clarify the questions of the earnings management in a cross-sectional analysis considering the unique country samples of Slovak and Czech business entities. Thus, the paper aimed to quantify the variant of earnings management detection models in the condition of both countries, Slovakia and Czechia, where the phenomenon of the earnings management has not been explored yet. The results of the study may extend the theoretical knowledge and practical implication of earnings management in both countries.

The paper is divided into three main parts. The Methods section describes the dataset of enterprises entering the analysis and the linear regression detection models used to reveal the manipulation with corporate earnings. This section also specifies the methodological steps of empirical research. Results and Discussion section is focused on the description of all findings, resulting in the suggestion of the model, which should be used in the specific conditions of the selected countries to detect problems with earnings manipulation. Section Conclusions unveils the major findings and suggests the future orientation of the research in this field.

**Methodology and research methods.** Data for this analysis were obtained from the Amadeus database operated by Bureau Van Dijk (BvD). Sampling criteria were adapted to the goal of this paper. The database was formed of those enterprises, whose sales are higher than 3,000,000 €, the value of total assets is higher than 5,000,000 €, and their profit is more than 100,000 € in the period 2014 to 2017.

6,700 Czech and 2,769 Slovak enterprises met these criteria. However, not all the variables were available for every year and every enterprise. Therefore, the data had to be sorted out and incomplete and missing data discarded, and outliers eliminated, the final databased consists of 4,842 Czech and 2,155 Slovak enterprises. The main effort of the analysis is to determine and describe the model, which is the most suitable in the conditions of these countries when revealing the manipulation with earnings. Analysis of available relevant literature sources identified 29 models suitable for the detection of earnings management. Earnings management models use divergent input variables, and only those should be used to reveal the manipulation with earnings, which information values are the most accurate. The research methodology was as follows:

1. In the analysis, the first step was to choose an appropriate earnings model. Accrual-based earnings management aims to obscure true economic performance by changing accounting methods or estimates within the generally accepted accounting principles. Real earnings management alters the execution of real business transactions. Thus, the focus is on the models of accrual-based earnings management and therefore, it was necessary to exclude the models of Roychowdhury (2006), Gunny (2010) and Zang (2012). The appropriateness of using earnings models for assessed in the next step and models of Healy (1985) and DeAngel (1986) were removed. Both authors assumed a non-discretionary accrual consistency and, at the same time, imply the level of manipulation, a thus it is not possible to judge their strength. Furthermore, the model of Ronen and Sadan (1981) was excluded because they do not rank the overall accrual. Some variables were not available. Thus, those earnings models were excluded from the further analysis.

The component model (Kang and Sivaramakrishnan, 1995) was removed from further analysis due to an undetectable variable (economic operation costs). Other models were given out of the analysis as the information about all the variables entering the model was not available in the database. Herewith, the model by McNichols (2002) was not considered due to several variables which were not provided in the Amadeus database. In turn, in the synthetic models of Ye (2006) and Yoon and Miller (2002), non-monetary working capital and economic operation costs could not be determined for all analyzed enterprises. The Beneish model (1997) was not applied due to the undetectable value of corporate fixed costs. The model of Larcker and Richardson (2004) lacks the market value. The Stubben (2010) model was not taken into account due to missing quarterly data on revenue development. Except for the described ones, these models were also not considered due to missing or undetectable data, industrial model (Dechow and Sloan, 1991), Margin model (Peasnel et al., 2000), Pae model (2005), Dunmore model (2013), Spathis model (2002), Dechow and Dichev model (2002), Hribar and Collins model (2002), etc. Finally, seven models were chosen to be analyzed (Table 2) as calculation of other models was not possible due to the missing or not available data in the Amadeus database.

2. Suppose the most appropriate model has to be chosen. In that case, each model needs to be assessed following the relevant statistical measures: adjusted R squared, predicted sign of variables, the standard deviation of the variables and significance level of the model and its variables, statistical significance were tested at 5% significance level (Valaskova and Durana, 2020).

3. Based on the most relevant earnings management detection model, the discretionary accruals are estimated. Besides, the direction and extent of manipulation are detected together with the sign, magnitude and dimension of earnings management using the proportional ratio and means of absolute values of positive and negative discretionary accruals.

4. The changes in the earnings manipulation over the years are calculated by the non-parametric Friedman test (the normality of the dataset was not confirmed). Suppose there is a significant difference over the years. In that case, the p-value of the Friedman test is less than the significance level 0.05, and it can be claimed that the distribution of discretionary accruals over the years are not the same.

Table 2. Description of analyzed models measuring earnings management

Models	Equations
Jones model (1991)	$\frac{NDA_{it}}{A_{it-1}} = \frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it}$
Modified Jones model (1995)	$\frac{NDA_{it}}{A_{it-1}} = \frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it}$
Jeter and Shivakumar model (1996)	$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \alpha_3 \frac{CFO_{it}}{A_{it-1}} + \varepsilon_{it}$
Kaszniak model (1999)	$\frac{NDA_{it}}{A_{it-1}} = \frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \alpha_3 \frac{\Delta CFO_{it}}{A_{it-1}} + \varepsilon_{it}$
Key model (1997)	$\frac{NDA_{it}}{A_{it-1}} = \frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \alpha_3 \frac{IA_{it}}{A_{it-1}} + \varepsilon_{it}$
Teoh, Welch and Wong model (1998)	$\frac{NDA_{it}}{A_{it-1}} = \frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta SALE_{it} - \Delta REC_{it}}{A_{it-1}} + \varepsilon_{it}$
Kothari model (2005)	$\frac{NDA_{it}}{A_{it-1}} = \frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \alpha_3 \frac{ROA_{it-1}}{A_{it-1}} + \varepsilon_{it}$
variables	<p><math>TA_{it}</math> total accrual in the year t</p> <p><math>A_{it-1}</math> total assets in the year t-1</p> <p><math>\Delta REV_{it}</math> annual change in the value of revenues in the year t</p> <p><math>\Delta REC_{it}</math> annual change in the value of receivables in the year t</p> <p><math>PPE_{it}</math> long-term tangible assets in the year t</p> <p><math>CFO_{it}</math> operating cash flow in the year t</p> <p><math>CFO_{it-1}</math> operating cash flow in the year t-1</p> <p><math>IA_{it}</math> long-term intangible assets in the year t</p> <p><math>\Delta SALE_{it}</math> annual change in the value of revenues in the year t</p> <p><math>ROA_{it-1}</math> return on assets in the year t-1</p> <p><math>\varepsilon_{it}</math> prediction error</p>

Source: developed by the authors based on (Valaskova and Durana, 2020).

**Results.** The paper assesses the ability of selected earnings models to reveal the earnings manipulation and identify, which of them reflect the country specificities more appropriately. Each model considers different variables. Their descriptive statistics are analysed in Table 3.

The research problem includes the application of several models used to detect the earnings manipulation, based on the linear regression analysis, which is the most commonly used method for detecting earnings management (Hoglund, 2010). All the models described in Table 2 were calculated for every enterprise in each country and subsequently were judged by the determining criteria.

The first criterion is the adjusted R squared coefficient measuring the explanatory power of each earnings model in both countries. Table 4 portrays the overview of this coefficient in individual years under investigation and its mean value.

The adjusted R squared explains the variability and relevance of analyzed models considering the results in time horizon and among models. The results indicate that the variability of the total accrual changes over the years and its values, in general, are relatively low. However, the Kothari model is the model with the highest level of coefficient of determination and explain, on average, 12.68% of the total accrual variability.

**Table 3. Descriptive statistics of assessed variables**

Descriptive statistics	Year		
	2015	2016	2017
<b>Total assets [coefficient]</b>			
Mean value	1.1191	1.0695	1.1269
Standard deviation	0.3371	0.2081	0.2435
Median	1.0641	1.0436	1.1027
<b>Receivables [coefficient]</b>			
Mean value	0.2223	0.2131	0.2242
Standard deviation	0.2254	0.1958	0.2020
Median	0.1712	0.1656	0.1755
<b>Sales [coefficient]</b>			
Mean value	1.7031	1.5769	1.6701
Standard deviation	1.4725	1.2986	1.3681
Median	1.4141	1.3174	1.3934
<b>Long-term intangible asset [coefficient]</b>			
Mean value	0.0052	0.0048	0.0051
Standard deviation	0.0154	0.0141	0.0151
Median	0.0005	0.0006	0.0006
<b>Long-term tangible assets [coefficient]</b>			
Mean value	0.3978	0.3811	0.3982
Standard deviation	0.3212	0.2713	0.2814
Median	0.3652	0.3524	0.3748
<b>Return of assets [%]</b>			
Mean value	6.8647	6.2765	6.2152
Standard deviation	7.1066	7.1679	7.1727
Median	5.1802	4.7892	4.9167
<b>Cash flow [coefficient]</b>			
Mean value	0.1237	0.1132	0.1175
Standard deviation	0.0962	0.0851	0.0895
Median	0.1045	0.0983	0.1039
<b>Net profit [coefficient]</b>			
Mean value	0.0784	0.0688	0.0716
Standard deviation	0.0886	0.0786	0.0821
Median	0.0563	0.0501	0.0547

Source: developed by the authors.

**Table 4. R squared coefficients by models**

Model	Adjusted R squared			
	2017	2016	2015	mean
Jones	0.1444	0.0792	0.0873	0.1036
Modified Jones	0.1494	0.0878	0.0878	0.1083
Jeter and Shivakumar	0.1463	0.0791	0.0872	0.1042
Kaszniak	0.1467	0.0849	0.0981	0.1099
Key	0.1487	0.0822	0.0918	0.1076
Teoh, Welch and Wong	0.0158	0.0118	0.0042	0.0106
Kothari	0.1592	0.1047	0.1165	0.1268

Source: developed by the authors.

Except for Teoh, Welch and Wong model, the R squared of other models exceeds the level of 10%. Despite the fact, that higher values of R squared indicate better explanation power of the model, a lot of quality data can be generated with low R-squared as discussed in the studies of Barclay (1991) or Locke and Wellelage (2014). Predicted sign of variables reveals the relation between the expectations of the coefficients of specific variable value (calculated in the regression analysis) with the real value achieved. The mutual match is judged in each year, and the average values are portrayed, Table 5.

**Table 5. Predicted sign of variables by models**

Model	Prediction	2017	2016	2015	% success
<b>Jones model</b>					
Δ REV	+	-	-	-	0 %
PPE	-	-	-	-	100%
<b>Modified Jones model</b>					
Δ REV - Δ REC	+	-	-	-	0 %
PPE	-	-	-	-	100%
<b>Jeter and Shivamkumar model</b>					
Δ REV	+	-	-	-	0 %
PPE	-	-	-	-	100%
CF	-	+	-	+	33 %
<b>Kaszniak model</b>					
Δ REV	+	-	-	-	0 %
PPE	-	-	-	-	100%
ΔCF	-	+	+	+	0%
<b>Key model</b>					
Δ REV	+	-	-	-	0%
PPE	-	-	-	-	100%
IA	-	-	-	-	100%
<b>Teoh, Welch and Wong model</b>					
Δ REV - Δ REC	+	-	-	-	0 %
<b>Kothari model</b>					
Δ REV - Δ REC	+	-	-	-	0 %
ROA	-	-	-	-	100%
PPE	-	+	+	+	100%

Source: developed by the authors.

Analyzing the results, none of the models meets the predicted sign of all estimated parameters. Thus, judging the detection models using the criterion of the predicted sign is not reliable. The most problematic is the variable dedicated to the changes if the value of revenues, which is the most important indicator, and thus the results of this criterion would not be considered in the final assessment of the model.

Standard deviation characterizes the variability of variables in each model and compares the results of standard deviations and values on variables by models. However, to ensure the lucidity of the results, Table 6 summarizes the comparison based on the mean values.

Low values of standard deviation demonstrate that the data are very close to the mean value. The model is better to explain the issue of earnings manipulation. Thus, only those models are accepted, whose change in the standard deviation of all independent variables does not exceed 15%. Three models meet the requirements, modified Jones model, Teoh, Welch and Wong model and Kothari model.

Following the last criterion, the significance level of each model and its variables, the truthfulness of results is evaluated. The significance of the model was considered, based on the value of significance F of ANOVA test and the significant variables were detected using the p-values of coefficients of variables

– the results were compared with the significance level. In the monitored period 2015-2017, all analysed earnings models appear to be statistically significant.

**Table 6. Standard deviation and mean values of variables by models and countries**

Model / Mean values	Coeff.	St.dev	change %
<b>Jones model</b>			
intercept	0.0265	0.0040	
Δ REV	-0.0271	0.0051	18.82
PPE	-0.1858	0.0079	4.25
<b>Modified Jones model</b>			
intercept	0.0284	0.0039	
Δ REV - Δ REC	-0.0461	0.0054	11.71
PPE	-0.1866	0.0079	4.23
<b>Jeter and Shivakumar model</b>			
intercept	0.0226	0.0048	
Δ REV	-0.0284	0.0053	18.66
PPE	-0.1871	0.0080	4.28
CF	0.0371	0.0263	70.89
<b>Kasznik model</b>			
intercept	0.0266	0.0039	
Δ REV	-0.0356	0.0054	15.17
PPE	-0.1886	0.0079	4.19
Δ CF	0.2045	0.0368	17.99
<b>Key model</b>			
intercept	0.0313	0.0041	
Δ REV	-0.0264	0.0051	19.32
PPE	-0.1886	0.0079	4.19
IA	-0.5708	0.1564	27.40
<b>Teoh, Welch and Wong model</b>			
intercept	-0.0460	0.0025	
Δ REV - Δ REC	-0.0405	0.0057	14.07
<b>Kothari model</b>			
intercept	0.0061	0.0047	
Δ REV - Δ REC	-0.0532	0.0054	10.15
ROA	-0.1768	0.0079	4.47
PPE	0.0029	0.0003	10.34

Source: developed by the authors.

The same result is observed when assessing the statistical significance of individual variables in the reference years, when all variables are calculated as statistically significant, except for the Jeter and Shivakumar model, which shows statistical insignificance for the cash flow variable in 2016 and 2017. Thus, the percentage of statistical significance is only 33.33%.

The analysis of 6,997 Slovak and Czech enterprises proves that the Kothari model seems to be the most appropriate to detect earnings management. Thus, using the equation of this model, the discretionary accruals were calculated. Figure 1 portrays the level of manipulation and its direction in individual enterprises of both countries.

Enterprises do not manipulate earnings if the value of discretionary accruals is zero (light orange line in Figure 1). To confirm that there are statistically significant differences in the level of manipulation in the investigated period, the data of both countries were analysed in the Friedman test, Table 7.



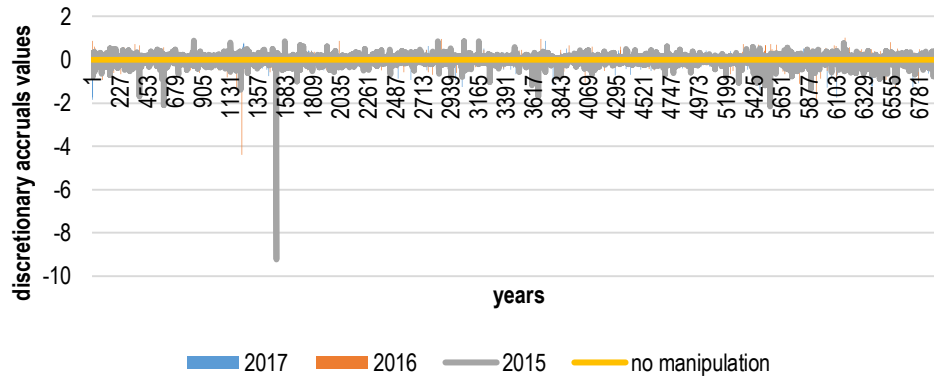


Figure 1. Earnings management in Slovakia and Czechia

Source: developed by the authors.

Table 7. Mean ranks of Friedman's two-way analysis of variance

		Friedman
Sig.		0.000
Mean rank	2015	2.02
	2016	1.88
	2017	1.93

Source: developed by the authors.

Assessing the means ranks of Friedman test, there was a gradual decrease in the manipulation of earnings between 2015 and 2016 with a slight decrease in 2017. The changes in the manipulation of earnings might be a consequence of the decrease in the volume of gross domestic product (annual rate of change) in 2016/2017. These results are also confirmed in the study of Habib et al. (2012). They claim that management of unhealthy (unstable) enterprises tends to practise income-decreasing manipulation of earnings compared to their healthy (stable) firm counterparts. The gross fixed capital formation was negative in 2016 (increasing again in 2017) explaining that the new value-added in the economy is consumed rather than invested. The negative development of gross domestic product challenged managers to maintain the stability of enterprises (Sosnowski, 2018). Besides, the findings of Lisboa and Kacharava (2018) suggest that inauspicious development has an impact on the corporate tendency to manage financial results. However, the country effect is not statistically. It is in divergence with the study of Geiger et al. (2006) who confirm that perception of earnings management differs across countries. The results indicate that enterprises tend to manipulate earnings. However, the extent of manipulation differs throughout the years. The sign of manipulation is given by the proportional ratio of companies with the positive or negative sign of calculated discretionary accruals to the total number of companies. Table 8 summarizes the percentage of companies with positive and negative discretionary accruals (DA) in each year and the mean value.

Table 8. Discretionary accruals in enterprises

	2015	2016	2017	Mean value
% of enterprises + DA	65.16 %	53.08 %	55.45 %	57.90 %
% of enterprises - DA	34.84 %	46.92 %	44.55 %	42.10 %

Source: developed by the authors.

Comparing the share of positive and negative accruals, more than half of the companies operating in both countries tend to manipulate earnings upwards, as the ratio of positive discretionary accruals exceeds the ratio of negative discretionary accruals. Once the direction of the manipulation with earnings is determined, the magnitude of manipulation, using the average values of discretionary accruals, is calculated. The average values, expressed as a coefficient, are given in Table 9.

**Table 9. Calculation of the earnings management magnitude**

	2015	2016	2017	mean
Mean value +DA	0.1074	0.0797	0.0834	0.0902
Mean value -DA	0.1311	0.1026	0.1040	0.1126
Difference (+DA-(-DA))	-0.0238	-0.0228	-0.0206	-0.0224

Source: developed by the authors.

The average value of the discretionary (negative) accrual in 2015 is higher than the average value of the discretionary (positive) accrual. Comparing the average values of discretionary accruals in 2016, the average value of the discretionary (negative) accrual is again higher than the average value of the discretionary (positive) accrual. There was no change in 2017, which suggests that in each year, the manipulation of profits by decreasing it is more considerable than manipulating profits by increasing earnings. The determination of the presence of earnings management may help reveal the motives of earnings manipulation. One of the most relevant incentives is taxation. Enterprises manipulate earnings downwards to decrease their tax expenses calculated based on the volume of total earnings (Van Tendeloo and Vanstraelen, 2008). El Diri (2018) alerted that taxation mitigates aggressive earnings management as huge differences between book income. In turn, a tax income can be easily noticed by the tax authorities. Moreover, the flexibility in tax laws gives a chance to manage earnings, for instance, allowing income adjustments for tax purposes drives enterprises to manage earnings downwards. Herewith, reducing taxes over specific periods in the future drives enterprises to shift earnings forward (Gramlich, 1991; Maydew, 1997 in El Diri, 2018). The influence of one- and two-book systems on earnings management is discussed by Watrin et al. (2014). In the research of Godsell et al. (2017), the basic incentives of earnings management are clearly identified; accounting data directly affect the tariffs imposed in the trade investigation. On the contrary, the tendency to engage in earning management is also given by the cultural factors, which remain influential in explaining differences in the magnitude of earnings management among different countries (Gray et al., 2015). Also, the macroeconomic development of the countries plays an important role, which is in detailed portrayed in the study of Dimitras et al. (2015) and Reverte (2008).

**Conclusions.** Earnings management emphasizes the motives of corporate managers to manipulate earnings under different conditions and to meet the personal objectives of managers, defined corporate strategies and tasks, and fulfil the innovation strategy of enterprises. Earnings management is a complex process that involves the accounting judgment that underlies not only the income statement but also the other financial statements and related disclosures. It also involves the structuring of business decisions.

Assessment of different earnings management models proves that the Kothari model is the most appropriate to estimate the non-discretionary accruals in Slovak and Czech enterprises. The mean value shows that 58% of analysed enterprises tend to manage earnings to increase them. The level of the manipulation, given by the absolute values of discretionary accruals, indicates that the downward manipulation is significantly higher than the upward manipulation. The manipulation changes extent over the years because of the changed market environment in the countries. The future direction of the research may solve the limitations of the study. The attempt is to use the non-linear regression models, or neural networks to assess the problems with earnings management in enterprises as well as extend the database

of enterprises of more countries (considering various groupings of countries) or, vice versa, divide the enterprises according to the size, business orientation or industry sector. Thus, there should be a continuous focus on the issue of earnings management to unveil divergent earnings management techniques to protect investors from financial risk due to distorted information.

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#### **Інновації в системі управління доходами компанії: досвід Чехії та Словаччини**

У статті проаналізовано сучасні інструменти управління доходами компанії. Авторами зазначено, що проблеми маніпуляцій у бухгалтерській звітності це наслідок неефективних управлінських рішень щодо максимізації прибутку без звітування у короткостроковій перспективі. У статті наголошено, що така практика спрямована на внесення змін до фінансової звітності з метою викривлення інформації для стейкхолдерів компанії. Зазначено, що, як правило, маніпуляції із бухгалтерською звітністю найчастіше відбуваються на етапі подачі звітності та руху грошових потоків, тобто при опортуністичному стилі ведення бухгалтерської звітності. У статті розглянуто можливості виявлення, кількісного оцінювання ступеня та масштабу спотворення бухгалтерської звітності на прикладі словацьких та чеських компаній. Періодом дослідження обрано 2015-2017 роки. Головною метою дослідження є систематичний аналіз особливостей маніпуляцій у бухгалтерській звітності з урахуванням суперечливої інноваційної політики підприємств щодо управління доходами. Для досягнення поставленої мети у статті обґрунтовано низку підходів до розуміння проблеми маніпуляцій у бухгалтерській звітності. Авторами запропоновано методологічні рекомендації для виявлення вище зазначених випадків та їх кількісного оцінювання. Емпіричний аналіз базується на даних 2155 словацьких та 4842 чеських підприємств. У ході дослідження здійснено експертну оцінку 29 моделей виявлення випадків спотворення бухгалтерської звітності. Зокрема, найефективнішою визначено модель Котарі. Перевірку тенденції, ступеню та масштабу спотворення бухгалтерської звітності здійснено за допомогою непараметричного тесту Фрідмана. Результати аналізу свідчать про те, що на національному рівні маніпуляції простежуються в завищенні доходів. Авторами наголошено, що забезпечення реальних даних фінансової звітності дозволить підприємству уникнути будь-яких фінансових та кредитних ризиків, то виявлення випадків спотворення бухгалтерської звітності на підприємстві відіграє значну роль.

**Ключові слова:** бухгалтерська звітність, модель виявлення маніпуляцій у бухгалтерській звітності, дискреційні нарахування.

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