

The Impact of the Financial Stability on the Earnings Management Practices

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Abstract

Research background: In recent years, the world economy has changed. Earnings management, as a modern phenomenon, plays an important role within the financial world under the condition of globalization. The academic community deals with the issue of the informative value of the reported financial results. The informative value of these results becomes questionable when we realize that managers have not only the motivation but also the ability to use the earnings management techniques to influence these results.

Purpose of the article: The aim of the contribution is earnings management detection by using a model with the highest explanatory power, as well as verifying hypotheses about the existence of a statistically significant relationship between earnings management practices and financial stability within a sample of companies.

Methods: Based on the results of the explanatory power examination, the modified Jones model is recommended for earnings management detection within the sample of V4 companies. Data were obtained from the Amadeus database. The sample contains 1,480 financial reports of companies from 2019 to 2017. Research is focused on V4 companies that have the sum of total assets higher than 2,000,000 EUR, as well as the sum of operating revenue is higher than 100,000 EUR. Also, the Pearson correlation coefficient was used to test the hypotheses about the existing statistically significant relationship between financial stability and earnings management practices.

Findings & Value added: The article provides an overview of the earnings management issue within V4 countries. It examines the earnings management practices and the impact of financial stability on the level and direction of earnings management practices.

Keywords: *Earnings; Earnings Management; Financial Stability; V4*

JEL Classification: *F61; F65; C83; M4*

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1 Introduction

The financial stability of a company is one of the basic principles of its operation. It influences its achieved financial results, as well as financial results in the future. Some authors define financial stability as a state of corporate accounts that guarantees its continued solvency. As a result of the implementation of any economic operation, the financial situation of the enterprise may remain unchanged or improved or worse. Perception of financial stability through solvency is common. On the other hand, authors also perceive financial stability through the complex of indicators. It indicates the overall balance in the company expressed through the results of financial and economic analysis. Based on this statement, it can be said that the financial stability of the company is affected by a number of factors, as well as a satisfactory level of financial stability is in the interest of the company. The source of information for assessing the financial stability of the company is financial statements. If an enterprise seeks to demonstrate the highest possible level of financial stability, it is questionable to what extent this will affect the informative value of its financial statements. Earnings management practices represent a legal opportunity for a company to influence the reported financial results in its favour. Earnings management is the use of accounting techniques to produce financial statements that present an overly positive view of a company's business activities and financial position. Many accounting rules and principles require that a company's management make judgments in following these principles. Earnings management takes advantage of how accounting rules are applied and creates financial statements that inflate or "smooth" earnings. Earnings management practices are used to manipulate financial records achieved by the company to improve its appearance and financial position. The informative value of these results becomes questionable when we realize that managers have not only the motivation but also the ability to use earnings management techniques to influence these results.

It could be assumed that the deteriorating financial situation in the company in previous years may affect the level of use of the earnings management practices to improve the image of the company's financial stability. The aim of the contribution is earnings management detection by using a model with the highest explanatory power, as well as verifying hypotheses about the existence of a statistically significant relationship between earnings management practices and financial stability within a sample of companies.

2 Theoretical Background

The authors Ronen and Yaari offer a comprehensive view of the issue of different understanding of the term "earnings management". Based on these authors, three types of the earnings management perceptions can be distinguished, namely "White EM; Gray EM; Black EM. White EM takes into account the ability to use the flexibility in choosing an accounting policy to signal a manager's private information about future cash flow. Gray EM takes into account that the ability to use the flexibility in choosing an accounting policy can lead to maximizing economically efficient or the manager's utility. In these cases, EM is used as a tool for achieving the goals set by management. Black EM is defined as initiatives to misrepresent or reduce the relevance and reliability of financial reports. The intention to use earnings management techniques is still not clearly defined (Connolly – Barker et al., 2020).

Surveys dealing with the earnings management issue have been carried out within abroad. Academic community has started dealing with the issue of earnings management practices since at least the 1960s (Grofcikova, 2020; Savova, 2021). It is assumed that this topic has not yet been examined within Slovak academics. Nevertheless, the company's effort to reduce costs in order to show a lower basis for calculating income tax is known both to the academic

community and to the entrepreneur himself. It is therefore questionable whether this procedure is not an example of earnings management practiced by Slovak companies for a long time before the very concept of EM began to penetrate into Slovak research. Based on the bibliometric analysis performed obtaining data from the Web of Science database, the interest of the earnings management issue has been significantly growing from 2000. Most studies were published from 2011 to 2021. From 2011 to 2018 more than 100 studies were published every year. From 2019 to 2020 more than 200 studies were published. 176 studies have been published in 2021. Most of the studies have been published in fields: Business Finance, Management, Economics, Business. Some studies have been also published within fields: Public Administration, Ethics, Operations Research Management Science, as well as Social Sciences Interdisciplinary, Computer Science Information Systems or Educational Research. These results confirmed significant interest in this issue within academic community. Following Figure 1 shows times cited and publication dealing with earnings management issue over time.

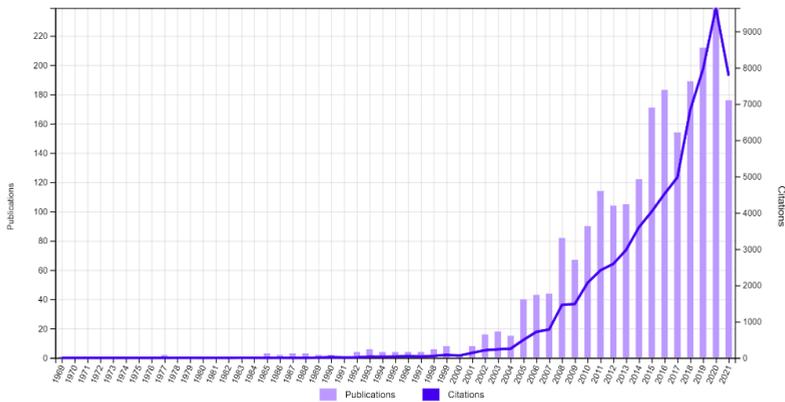


Figure 1. The interest of the earnings management issue over time

Source: Own processing based on the Web of Science database (2021)

Author Lo (2008) is dealing with earnings management and earnings quality. He states that viewing the detection of earnings management from the perspective of a crime scene investigator sheds new light on prior research on earnings management and its close relative, earnings quality. Das et al. (2009) investigate whether the pattern of quarterly earnings changes can provide an indication of earnings management. Based on their results, the capital market appears to attach lower credibility to earnings reported by the reversal samples. Authors Achleitner et al. (2014) examine the effects of family firms on real earnings management (REM) and accrual-based earnings management (ABEM). Findings suggest that family firms use earnings management activities strategically, avoiding those that inhibit the firm's long-term value (i.e. REM) and engaging in those that help families retain transgenerational control (i.e. ABEM). Paper by Burgstahler and Dichev (1997) provides evidence that firms manage reported earnings to avoid earnings decreases and losses. Authors Beyer et al. (2019) studied a model of earnings management and provide predictions about the time-series properties of earnings quality and reporting bias. Luis and Sun (2011) found that firms with large negative (positive) changes in operating cash flows manage accruals upward (downward). Very interesting are also studies by Mitchell et al. (2021), Bailey et al. (2021) or Dutta and Gigler (2002). The last one shows that earnings management is more likely to follow high earnings forecasts than low earnings forecasts. There are also Slovak studies dealing with the issue of earnings management by authors Kliestik, Durana, Valaskova, Vagner, Michalkova, Svabova etc. (Durana et al., 2021; Svabova et al., 2020;

Vagner et al., 2021). As it can be seen, the academic community is still dealing with the issue of earnings management. One of the main reasons is the informative value of the reported financial results. The informative value of these results becomes questionable when we realize that managers have not only the motivation but also the ability to use the earnings management techniques to influence these results. Purpose of the article is earnings management detection by using a model with the highest explanatory power, as well as verifying hypotheses about the existence of a statistically significant relationship between earnings management practices and financial stability within a sample of companies.

3 Hypothesis Development and Methodology

Data was obtained from the Amadeus database. It is a wide-spread known database containing financial information about companies across Europe. The database is provided by Bureau van Dijk, a Moody's Analytics company. The sample contains 1,480 companies from Slovakia, Czech Republic, Poland and Hungary. Observed years are 2019, 2018, 2017. Each country is represented by an equal number of companies. Research is focused on V4 companies that have the sum of total assets higher than 2,000,000 EUR, as well as the sum of operating revenue is higher than 100,000 EUR. According to the NACE classification, companies are included in various sector. Companies without relevant data for variables calculation were excluded from observation. In the final step, the Interquartile range method (IQR) was used to identify outliers. . Borders set by the author of this method - Turkey are as follow.

$$IQR = Q_3(\text{the third quartile}) - Q_1(\text{the upper quartile}) \quad (1)$$

Outlier can be defined as a value below $Q_1 - 1.5(IQR)$ or above $Q_3 + 1.5(IQR)$. Based on the outliers detection, 132 companies were excluded.

3.1 Earnings management estimation

As was mentioned above, a wide range of foreign models for the earnings management measurement is known. The present paper is focused on the most known model with the higher explanatory ability within V4 countries – The modified Jones model (Sadiq et al., 2020; Savova, 2021). Earnings management estimation by using this model is as follow.

The sum of total accruals has to be calculated. Balance sheet approach was used by using following formula.

$$TA = \Delta CA - \Delta CL - \Delta Cash + \Delta STD - Dep. \quad (2)$$

Where:

<i>TA</i>	the sum of total accruals;
ΔCA	the change in current assets;
ΔCL	the change in current liabilities;
$\Delta Cash$	the change in cash and cash equivalents;
ΔSTD	the change in the current maturities of long-term debt and other short-term debt included in current liabilities;
<i>Dep</i>	depreciation and amortization expenses.

In the further step, the level of earnings management practices can be estimated by using following formula.

$$\text{Modified Jones Model} \quad \frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it}. \quad (3)$$

Where:

TA_{it}	the sum of total accruals in year t;
A_{it-1}	the sum of assets in year t-1;
ΔREV_{it}	the change in revenues between year t and t-1;
ΔREC_{it}	the change in receivables between years t and t-1.
PPE_{it}	the sum of the property, plant & equipment in year t;
ε_{it}	statistical error.

3.2 Financial stability estimation

As was mentioned above, the authors defined financial stability through many indicators. For the purposes of our article, financial stability is defined through the following indicator of financial – economic analysis.

- Quick ratio
- Total debt ratio
- Credit indebtedness
- Days sales outstanding
- Debt payable outstanding
- Return on assets
- Return on sales
- Indicator characterizing the imminent decline of the company

Table 1. Calculation of selected indicators

Selected Financial Indicator	Calculation	
Quick Ratio	$\frac{\text{Financial Accounts} + \text{Short – term Receivables}}{\text{Short – term Foreign Resources} + \text{Short – term Accrued Liabilities}}$	(4)
Total Debt ratio	$\frac{\text{Foreign Resources} + \text{Accrued Liabilities}}{\text{Total Assets}}$	(5)
Credit Indebtness	$\frac{\text{Credits} + \text{Borrowings}}{\text{Total Assets}}$	(7)
Days Sales Outstanding	$\frac{\text{Trade Receivables}}{\text{Revenues from Sales of Goods, Products and Services}}$	(8)
Days Payable Outstanding	$\frac{\text{Trade Payable}}{\text{Total Cost}}$	(9)
Return on Assets	$\frac{\text{Earning After Taxes}}{\text{Total Assets}}$	(11)
Return on Sales	$\frac{\text{Earning After Taxes}}{\text{Sales}}$	(12)
Indicator characterizing the imminent decline of the company	$\frac{\text{Equity}}{\text{Liabilities}}$	(13)

Source: Own processing.

3.3 Hypothesis development and its verification

The following hypothesis were verified.

H_0 There is no statistically significant relationship between financial stability described by selected indicator of financial – economic analysis and the level of earnings management practices.

H_1 There is statistically significant relationship between financial stability described by selected indicator of financial – economic analysis and the level of earnings management practices.

To confirm the existence of statistically significant relationship the correlation coefficient was used. The test statistic has a Student t-distribution with $(n - 2)$ degrees of freedom.

$$T = r \cdot \sqrt{\frac{n - 2}{1 - r^2}} \quad (14)$$

Where:

n sample size;

r Pearson correlation coefficient.

If T is less than the critical value from the table of Student distribution at alpha (we set alpha at 0.05) level with $(n - 2)$ degrees of freedom, we can assume that there is a statistically significant relationship between the surveyed indicators. The strength of this dependence is expressed by Pearson correlation coefficient. In interpreting the results Cohen's interpretive of Pearson correlation coefficient was used as follow: $0 < |r| \leq 0.1$ trivial dependence, $0.1 \leq |r| \leq 0.3$ small dependence, $0.3 < |r| \leq 0.5$ moderate dependence, $0.5 < |r| \leq 0.7$ large dependence, $0.7 < |r| \leq 0.9$ very large dependence, $0.9 < |r| \leq 1$ nearly perfect correlation.

4 Results and Discussion

At the beginning, selected indicators described within methodology part of the contribution were calculated. The sample contains of 1,480 companies. The following table shows the results of indicators within 5 selected companies.

Table 2. Calculation of selected indicators within sample of companies.

Quick Ratio [coef.]	Total Debt Ratio [coef.]	Credit Indebtedness [coef.]	Days Sales Outstanding [days]	Days Payable Outstanding [days]	Return on Assets [coef.]	Return on Sales [coef.]	Indicator characterizing the imminent decline of the company [coef.]
1.07	0.88	0.70	168.04	90.82	0.05	0.02	0.40
0.61	0.80	0.63	16.99	42.36	0.08	0.01	0.60
0.91	0.75	0.59	142.77	77.16	0.04	0.02	0.34
1.45	1.19	0.95	227.86	123.15	0.07	0.03	0.54
0.77	0.64	0.51	121.36	65.59	0.04	0.01	0.29
...

Source: Own processing.

Based on the formulas 2 and 3, earnings management practices were estimated. Earnings management detection is based on the estimation of the sum of discretionary accruals. According to the modified Jones model, the sum of the discretionary accruals can be set as residuals of calculated regression. The value of discretionary accruals determines if a company uses earnings management practices to increase or decrease profit. If the value of

discretionary accruals is higher than 0, the company used accrual-based earnings management to increase profit and vice versa. Within the sample, the results are as follow:

- almost 59% (873 out of 1,480) companies used earnings management practices to increase their profit in 2019;
- the remaining almost 41% (607 out of 1,480) companies used earnings management practices to decrease their profit in 2019;
- almost 32% (474 out of 1,480) companies used earnings management practices to increase their profit in 2018;
- the remaining almost 68% (1,006 out of 1,480) companies used earnings management practices to decrease their profit in 2018;
- the average sum of the discretionary accruals was -0.0005301, median was -0.0035237, and standard deviation was 0.0830728 in 2019;
- the average sum of the discretionary accruals was 1.231402, median was 0,001016 and standard deviation was 0.104117 in 2018.

In the final step, hypotheses were verified. Results can be seen in following table 3.

Table 3. Results of hypothesis verifying.

Hypothesis	T-Value	Critical Value $t_{\alpha}(n-2)$	Result
There is statically significant relation between quick ratio indicator determining financial stability of company and the level of earnings management.	15.39	1.645	Statically significant relation is confirmed
There is statically significant relation between total debt ratio indicator determining financial stability of company and the level of earnings management.	18.82	1.645	Statically significant relation is confirmed
There is statically significant relation between credit indebtedness determining financial stability of company and the level of earnings management.	22.20	1.645	Statically significant relation is confirmed
There is statically significant relation between days sales outstanding determining financial stability of company and the level of earnings management.	6.37	1.645	Statically significant relation is confirmed
There is statically significant relation between days payable outstanding determining financial stability of company and the level of earnings management.	13.98	1.645	Statically significant relation is confirmed
There is statically significant relation between return on assets determining financial stability of company and the level of earnings management.	15.37	1.645	Statically significant relation is confirmed
There is statically significant relation between return on sales determining financial stability of company and the level of earnings management.	35.17	1.645	Statically significant relation is confirmed
There is statically significant relation between indicator characterizing the imminent decline of the company determining financial stability of company and the level of earnings management.	5.00		Statically significant relation is confirmed

Source: Own processing.

Table 4. The level of dependence.

Selected Financial Indicator	Pearson Correlation Coefficient	Interpretation By Cohen
Quick Ratio	-0.201	negative small linear correlation
Total Debt ratio	-0.392	negative small linear correlation
Credit Inebtedness	-0.498	negative moderate linear correlation
Days Sales Outstanding	-0.056	negative trivial positive correlation
Days Payable Outstanding	0.042	positive trivial linear correlation
Return on Assets	0.275	positive small linear correlation
Return on Sales	0.499	positive moderate linear correlation
Indicator characterizing the imminent decline of the company	-0.879	negative very large correlation

Source: Own processing.

5 Conclusion

The aim of the contribution is earnings management detection by using a model with the highest explanatory power, as well as verifying hypotheses about the existence of a statistically significant relationship between earnings management practices and financial stability within a sample of companies. The modified Jones model was used for the earnings management estimation. This model is takes into account as the model with the highest explanatory power for V4 countries by many studies. the financial stability of the company is affected by a number of factors, as well as a satisfactory level of financial stability is in the interest of the company. The source of information for assessing the financial stability of the company is financial statements. If an enterprise seeks to demonstrate the highest possible level of financial stability, it is questionable to what extent this will affect the informative value of its financial statements. Earnings management practices represent a legal opportunity for a company to influence the reported financial results in its favour. Earnings management is the use of accounting techniques to produce financial statements that present an overly positive view of a company's business activities and financial position. As it can be seen, there is a statistically significant relationship between selected indicators represent financial stability of the company and the level of earnings management practices using within companies. This fact can significantly influence the perceiving the financial stability calculated by indicators which source of calculation are financial statements.

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