Globalization and its Socio-Economic Consequences 2020

Beneish M-score: A Measure Of Fradulent Financial Transactions In Global Environment?

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Research background:

Earnings is a source of information for capital owners, potential investors, competitors, customer and supplier of the company. Managers have the direct motivation and knowledge and use adequate techniques to adjust legally the reported earnings to meet the specific requirements of the company and achieve stable financial results. Thus, earnings management is currently the most provocative and highly topical issue in the field of finance and accounting at the global perspective.

Purpose:

The main purpose of the paper is to detect the manipulation with earnings in a specific sector of economy, following the global principles of financial reporting, and to reveal the degree of manipulation of enterprises in the selected countries of the Visegrad grouping.

The model of Beneish M-score is applied using the sectoral data and compares the level of manipulation in the period 2015-2019. The Beneish model is a mathematical-statistical model that uses financial ratios calculated with accounting data of a specific enterprise aimed to detect if an enterprise is likely that the reported earnings of the company were manipulated.

Methods:

Findings & Value added:

The paper monitors the development of the manipulation with earnings in the given sector (enterprises tend to manage earnings upwards), and analyses the influences of macroeconomic factors on the phenomenon of earnings management. The detection of earnings management by M-score helps protect business partners of an enterprise against fraudulent behaviour, especially in the global environment.

Literature review

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Data and Methodology

◦ Beneish M-score uses eight indicators which are grouped into two different categories – indicators of aggressive accounting practices and fraudulent techniques

$$M = -4.84 + 0.92 \cdot DSRI + 0.528 \cdot GMI + 0.404 \cdot AQI + 0.892 \cdot SGI +$$
$$+0.115 \cdot DEPI - 0.172 \cdot SGAI - 0.327 \cdot LVGI + 4.697 \cdot TATA$$

DSRI   days sales in receivables index
GMI   gross margin index
AQI   asset quality index
SGI   sales growth index
DEPI   depreciation index
SGAI   sales general and administrative expenses index
LVGI   leverage index
TATA   total accruals to total assets

◦ The limit value of the M-score equals to -2.22. If the calculated manipulation score is less than the limit value, an enterprise is unlikely to be a manipulator.

	Slovak Republic (thous. €)				Czech Republic (thous.€)			
	Mean	Median	St.dev.	CV	Mean	Median	St.dev.	CV
Sales	26,198.18	16,525.36	27,913.77	1.06	52,690.51	19,479.79	183,227.78	3.48
Tangible assets	10,320.96	4,810.32	14,546.26	1.41	37,059.80	3,032.76	236,438.15	6.38
Total assets	21,130.38	11,564.46	23,397.60	1.11	52,868.01	9,889.66	230,218.35	4.20
Receivables	4,106.29	2,796.96	5,033.15	1.23	7,472.27	2,912.92	21,394.98	2.83
Net profit	1,374.66	793.66	1,788.32	1.30	3,097.96	902.52	8,254.04	2.63
Gross profit	1,853.05	1,115.25	2,334.56	1.26	3,840.07	1,197.74	10,191.35	2.63
Cash flow	2,891.61	2,108.10	2,797.54	0.97	5,666.52	1,525.03	17,398.95	3.05
Depreciation	1,516.95	877.41	1,756.52	1.16	2,568.56	578.16	10,829.33	4.22
Non-current liabilities	3,720.52	1,280.82	5,874.26	1.57	5,115.51	239.72	22,310.26	4.35
Current assets	9,658.26	5,634.34	11,027.88	1.14	17,622.25	5,291.09	51,947.13	2.95
Current liabilities	5,771.46	4,167.53	5,847.67	1.01	12,405.25	3,346.68	47,714.79	3.87

Results

Indicator	Slovak republic			Czech republic		
	2018/2017	2017/2016	2016/2015	2018/2017	2017/2016	2016/2015
DSRI	1.09	1.28	1.05	1.24	1.09	2.39
GMI	0.99	1.09	1.00	0.98	0.98	1.00
AQI	4.70	4.48	2.59	8.33	6.79	4.60
SGI	1.09	1.04	1.10	1.11	1.02	1.08
DEPI	0.99	1.02	1.07	0.92	1.55	1.07
SGAI	1.10	1.19	1.21	2.27	1.33	1.14
LVGI	1.00	1.01	0.94	1.03	0.99	0.99
TATA	0.37	1.32	0.98	0.59	1.17	0.93

Slovak Republic

○ Detected manipulation

	2018	2017	2016
Total	53	53	68
% of the sample	78 %	78 %	100 %

○ Number of eneterprises

	1 year	2 years	3 years
Total	8	14	46
% of the sample	12 %	21 %	68 %

Czech Republic

○ Detected manipulation

	2018	2017	2016
Total	84	84	131
% of the sample	62 %	62 %	97 %

○ Number of enterprises

	1 year	2 years	3 years
Total	29	45	60
% of the sample	21 %	33 %	44 %

Earnings management in transporting sector

SK   CZ
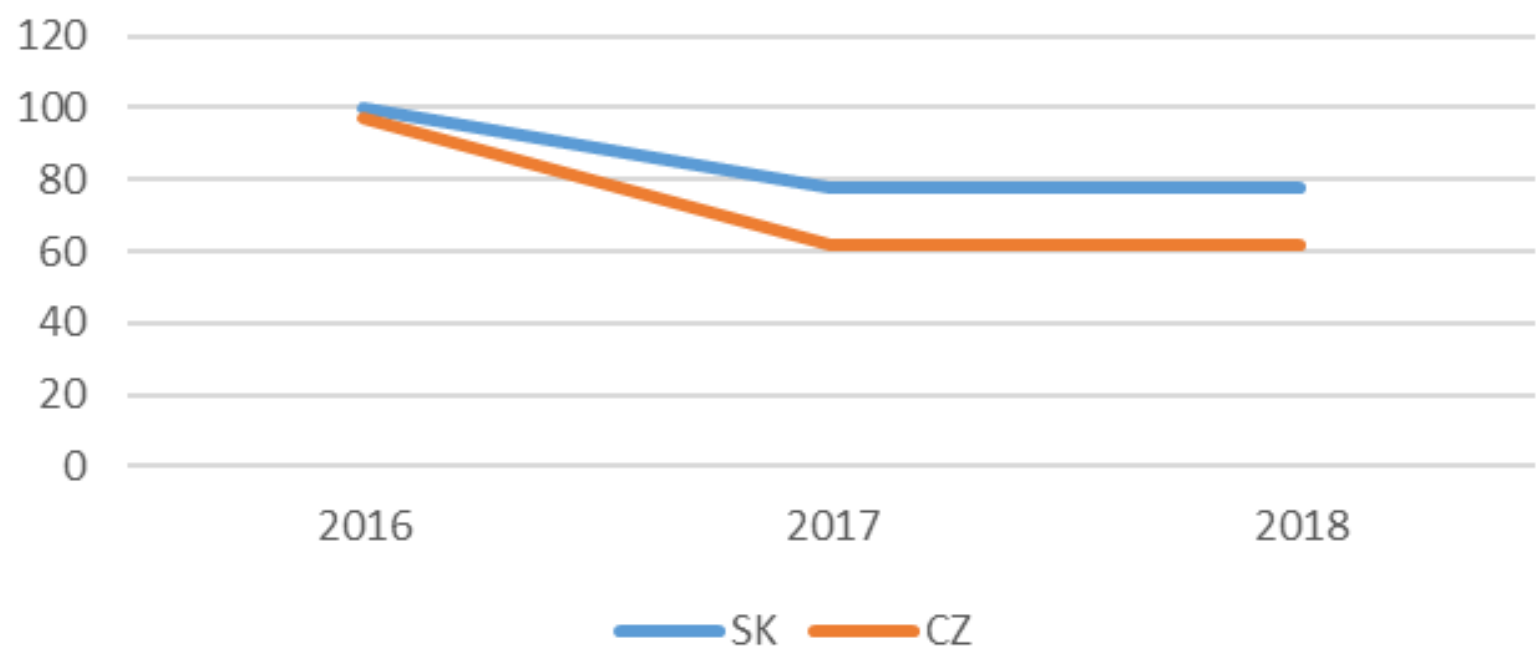
Discussion

	Slovak republic			Czech republic		
	2015-16	2016-17	2017-18	2015-16	2016-17	2017-18
Corruption	18.1	19.2	8.3	13.2	11.3	9.6
Bureaucracy	16.6	14.8	4.3	21.8	19.7	16.9
Taxation (rate)	11.4	17.2	15.8	5.7	10.0	10.9
Restrictive labour regulations	11.3	8.9	3.8	7.6	7.0	8.3
Tax regulation	9.5	10.8	8.8	10.4	16.0	17.6
Unstable policy	8.8	5.6	4.6	12.7	10.6	9.8
Low educated labour force	6.6	7.4	6.9	7.1	7.3	7.3
Access to finance	3.5	1.6	21.1	3.5	3.7	2.8

Conclusions:

- **Theoretical contribution:**
  - Awareness in the field of earnings management detection

- **Practical contribution:**
  - Use of Beneish model for the detection of earnings manipulation with high probability ratio

- **Limitation:**
  - Sectoral orientations (Nace H – Transporting and Storage)

- **Further research:**
  - Application of Beneish manipulation score in global context

Thank you for your attention.

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