The application of discretionary accruals as a measure of earnings management in the Republic of Croatia

Filipović, Ivica; Bartulović, Marijana; Pavić Kramarić, Tomislava; Šušak, Toni

THE APPLICATION OF DISCRETIONARY ACCRUALS AS A MEASURE OF EARNINGS MANAGEMENT IN THE REPUBLIC OF CROATIA

Ivica Filipović
University Department of Forensic Sciences, Split, Croatia
ivica.filipovic@unist.hr

Marijana Bartulović
University Department of Forensic Sciences, Split, Croatia
marijana.bartulovic@unist.hr

Tomislava Pavić Kramarić
University Department of Forensic Sciences, Split, Croatia
tomislava.pavic.kramaric@unist.hr

Toni Šušak
University Department of Forensic Sciences, Split, Croatia
toni.susak@unist.hr

Abstract. The accounting scandals that had occurred at the beginning of the 21st century have emphasized the importance of access to unbiased financial information. Those initial occurrences were only a prelude to the global wave of creative accounting cases involving large multinational companies which had not passed the Republic of Croatia either. There is a wide variety of motivational factors which provide companies with an impetus to manage earnings, as well as different types of earnings management measures, whose main features are presented in the theoretical part of this paper. The earnings management construct was measured using aggregate discretionary accrual measures. The main objective of the paper was to give an insight into the level of manipulation in accounting records of corporations listed at the capital market in the Republic of Croatia and to compare values of different accrual measures estimated for the period from 2017 to 2019. Also, the signs of discretionary accrual values were examined to determine if companies have the tendency of overestimating or underestimating their financial performance. The sample of companies was collected from publicly available financial information on the financial position, financial performance and cash flows disclosed by companies listed on the official website of the Zagreb Stock Exchange.

Key words: *aggregate discretionary accruals, Croatia, earnings management, listed companies, specific accruals*

1. Introduction

Firm's financial reports are expected to present trustworthy and factual situation about the firms' activities and financial position. Specifically, according to the Croatian Accounting Act (National Gazette 78/15, 134/15, 120/16, 116/18, 42/20, 47/20), "annual financial statements shall provide a true and fair view of the financial position and business performance of the respective entrepreneur".

Firms' earnings quality, considered as one of the key information required by investors in decision-making processes regarding common stock investments (Chansarn & Chansarn, 2016), reflects the credibility of earnings, i.e. the accurate firm performance.

However, it can be adversely impacted by earnings management or firm efforts to manipulate reported earnings. Moreover, it is also viewed as an adjustment of financial reports and structuring of firm activities with the aim of misleading investors about the firm economic performance (Li & Chen, 2020). This can be done, as suggested by Akers, Giacomino & Gissel (2007), through application of particular accounting methods and recognizing one-time non-recurring items, or, as documented by Oskouei & Sureshjani (2021), through deferrals of the expenses detection and acceleration of revenues recognition as well as via other means. Specifically, accounting uncertainties including provisions and accruals enable managers to present beneficial financial performance of the firms by using the most favourable method (Aladwan, 2019). As noted by Saona & Muro (2018), the discretionary accruals are usual means to purposely "manipulate earnings in favour of managers' interests" while Atieh & Hussain (2012) state that "working capital discretionary accruals are a superior indicator of earnings management than more commonly used measures of total discretionary accruals".

Although earnings management is regularly viewed as an undesirable behaviour of firms which can affect both their reputation and credibility as well as their stock performance (Chansarn & Chansarn, 2016), it is also, as suggested by Kliestik et al. (2021) citing Healy (1985), "reasonable and legal management decision-making and reporting intended to achieve stable and predictable financial results".

In recent decades the importance of earnings management has grown significantly (Türegün, 2020) gaining attention of managers, regulators and the general public. According to Kliestik et al. (2021), it is also "one of the most challenging, debated and controversial topics in finance and financial management." Thus, the objective of this paper is to provide more insight to the issue of earnings management and earnings management practices by examining the role of earnings management in an emerging market such as Croatian. Specifically, the authors will provide evidence whether earnings management practices are common in the national setting of Croatian non-financial firms listed on Zagreb Stock Exchange (ZSE) in the 2017 – 2019 period.

2. Earnings management measures

In large number of models developed for measuring earnings management practices accruals or more precisely "discretionary accruals act as a proxy to earnings manipulation" (Goel, 2012). For example, Healy (1985) used total accruals as a measure of earnings management. Similar approach was adopted by DeAngelo (1986) and this model can be considered as a version of Healy model due to the fact that both models use "total accruals from the estimation period as proxy for expected nondiscretionary accruals" (Dechow et al, 1995). Total accruals are comprised of discretionary and nondiscretionary component. Discretionary accruals represent accrual component which cannot be observed directly from financial statements and therefore they should be estimated by adequate model.

To calculate discretionary component of total accruals models like Healy model (1985), DeAngelo model (1986), the Jones model (1991) or Modified Jones model were used. On-the other side, nondiscretionary accruals are "accounting-based adjustments in the cash flow of the financial statement" (Rao & Dandale, 2008, cited in Ilmas et al, 2018)

and they can be observed through financial statements. Thus, models developed for measuring earnings management are focused on measuring discretionary accruals.

The starting point in this process is determining total accruals which are usually calculated as difference between net income and net operating cash flows in year t. When total accruals are determined they are separated into a discretionary and a nondiscretionary component.

The Jones model (1991) and the modified Jones model (1995) are widely used in earnings management literature to divide total accruals into discretionary and nondiscretionary component and are also used for detecting earnings management practices on Croatian capital market. One of the main assumptions of the Jones model (1991) is the premise how nondiscretionary accruals are constant. Jones model is described as (Ilmas et al., 2018):

$$TA_{it} / A_{it-1} = \alpha_1 [1 / A_{it-1}] + \alpha_2 [\Delta REV_{it} / A_{it-1}] + \alpha_3 [PPE_{it} / A_{it-1}] + e_{it} \quad (1)$$

where:

TA_{it} = total accruals for company i at the end of financial year t,

A_{it-1} = total assets for company i at the end of previous financial year t–1,

ΔREV_{it} = difference in revenues between financial year t and financial year t–1 for company i,

PPE_{it} = property, plant and equipment for company i at the end of financial year t,

α_1, α_2 and α_3 = regression coefficients

μit = residual (measure of discretionary accruals).

Total accruals in the model are calculated as difference between net income and net operating cash flows for company i, in year t.

The Modified Jones model

One of the assumptions of the original Jones model is that revenues are nondiscretionary. In order to resolve issue of measuring discretionary accruals with error when management uses discretion over revenues, modified Jones model was formed. With Modified Jones model discretionary accruals are measured as follows (Ilmas et al., 2018):

$$TA_{it} / A_{it-1} = \alpha_1 [1 / A_{it-1}] + \alpha_2 [\Delta REV_{it} - \Delta REC_{it} / A_{it-1}] + \alpha 3 [PPE_{it} / A_{it-1}] + e_{it} \quad (2)$$

where:

TA_{it} = total accruals for company i at the end of financial year t,

A_{it-1} = total assets for company i at the end of previous financial year t–1,

ΔREV_{it} = difference in revenues between financial year t and financial year t–1 for company i,

ΔRECit = difference in account receivables between financial year t and financial year t–1 for company i,

PPE_{it} = property, plant and equipment for company i at the end of financial year t,

α_1, α_2 and α_3 = regression coefficients
μit = residual (measure of discretionary accruals).

In Modified Jones model total accruals are calculated same as in the original Jones model - as difference between net income and net operating cash flows in year t and residual value from the regression model represents the measure of discretionary accruals.

The Jones model and the Modified Jones model were used to measure discretionary accruals and determine the level of manipulation in financial statements of corporations listed at the capital market in the Republic of Croatia. Results of the Jones model and the Modified Jones model were compared in order to determine which model is better on developing market such as Croatian capital market.

Also, research was expanded by analysing the signs of discretionary accrual values to determine if companies have the tendency of overestimating or underestimating their financial performance. Research results are presented in the following section.

3. Results of earnings management values estimation

In this section the earnings management construct was measured using aggregate discretionary accrual measures – values of Jones model from 1991 and Modified Jones model from 1995 were estimated for companies which were listed at the stock market in the Republic of Croatia during the three-year period from financial year 2017 to financial year 2019. The values of accounting items were gathered from financial statements publicly available at the Zagreb Stock Exchange official website. Financial data was analysed using statistical software Past (Hammer, Harper and Ryan, 2001).

For the estimation of regression models required for calculation of earnings management values only industries "with at least ten observations" were taken into account following the approach of Ayers, Jiang and Yeung (2006, p. 622), while other industries were eliminated from the further analysis. Also, "the overall propensity to earnings management is measured by estimating discretionary accruals in absolute value as accruals can be used opportunistically either to inflate or reduce earnings" (Kourdoumpalou and Drogalas, 2022, p. 68). When utilizing the approach with absolute values, its "higher value shows low earnings quality" (Rashid Khan, 2022, p. 376).

Table 1 Jones model and Modified Jones model - absolute values

	Jones model	Modified Jones model
2017	0,046	0,047
2018	0,060	0,057
2019	0,047	0,048
Total	0,051	0,051

Source: authors' calculations using financial statements publicly available at the Zagreb Stock Exchange official website.

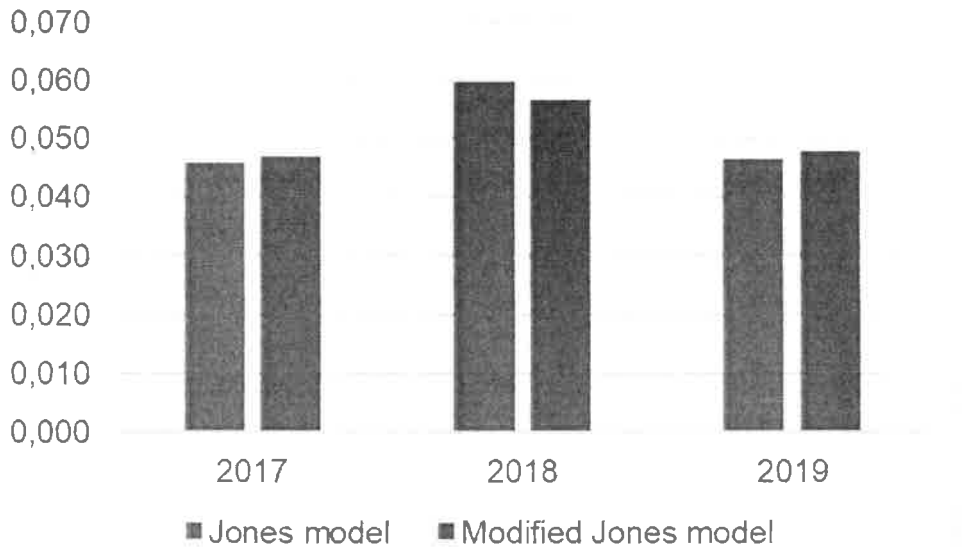

Figure 1 Jones model and Modified Jones model - absolute values
Source: authors' creation using financial statements publicly available at the Zagreb Stock Exchange official website.

Given that the only difference between the Jones model (Equation 1) and the Modified Jones model (Equation 2) is "the difference in account receivables between financial year t and financial year t–1 for company i" (Δ REC_{it}) as noted in Equation 2, it was expected that the values of these two model will not differ significantly. Results have proven that the presumption was valid. Correlation analysis indicated that there is extremely strong correlation between the values of those two models ($r = 0,97$; $p = 0.00001$). The results of the correlation analysis mentioned above are also visible when analysing the results in Table 1 and Figure 1 because the values do not differ significantly. Earnings management values were at the highest point in financial year 2018, and at the lowest point in financial year 2017.

Table 2 Jones model and Modified Jones model – standard deviations

	Jones model	Modified Jones model
2017	0,066	0,066
2018	0,091	0,089
2019	0,055	0,056
Total	0,072	0,071

Source: authors' calculations using financial statements publicly available at the Zagreb Stock Exchange official website.

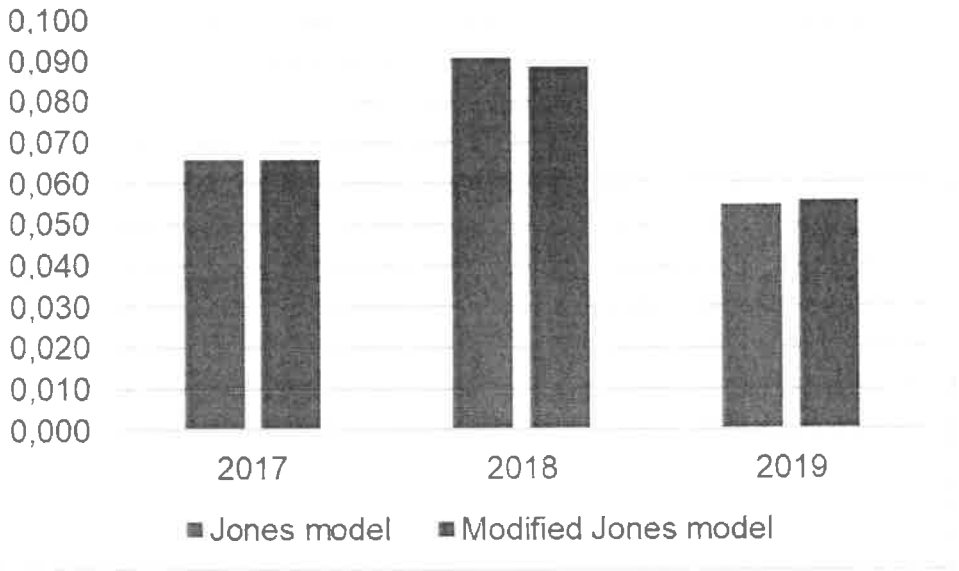

Figure 2 Jones model and Modified Jones model – standard deviations
Source: authors' creation using financial statements publicly available at the Zagreb Stock Exchange official website.

As it is evident from the Table 2 and Figure 2, highest variability of the absolute values of discretionary accruals for the Jones model and the Modified Jones model was calculated for financial year 2018 (SD = 0,091 and 0,089), while the lowest variability was calculated for the financial year 2019.

Table 2 Jones model - number of companies with positive and negative discretionary accruals

	Positive discretionary accruals	Negative discretionary accruals
2017	24	37
2018	31	30
2019	30	31
Total	85	98

Source: authors' calculations using financial statements publicly available at the Zagreb Stock Exchange official website.

Table 3 Modified Jones model - number of companies with positive and negative discretionary accruals

	Positive discretionary accruals	Negative discretionary accruals
2017	25	36
2018	34	27
2019	29	32
Total	88	95

Source: authors' calculations using financial statements publicly available at the Zagreb Stock Exchange official website.

Table 4 Jones model - values of positive and negative discretionary accruals

	Positive discretionary accruals	Negative discretionary accruals
2017	0,058	-0,038

2018	0,055	-0,065
2019	0,048	-0,046
Total	0,053	-0,049

Source: authors' calculations using financial statements publicly available at the Zagreb Stock Exchange official website.

Table 5 Modified Jones model - values of positive and negative discretionary accruals

	Positive discretionary accruals	Negative discretionary accruals
2017	0,057	-0,04
2018	0,051	-0,064
2019	0,051	-0,046
Total	0,053	-0,049

Source: authors' calculations using financial statements publicly available at the Zagreb Stock Exchange official website.

Also, the distinction between positive and negative discretionary accruals was made. As it is shown in Tables 3 and 4, there were more companies with negative accruals in financial year 2017 and 2019, while there were more companies with positive discretionary accruals in financial year 2018. Results in Table 5 and 6 show that positive discretionary accruals were highest in financial year 2017, and at the lowest point in financial year 2019. Intensity of negative discretionary accruals was highest in financial year 2018, and lowest in financial year 2017.

4. Conclusion

The main objective of the paper was to give an insight into the level of manipulation in accounting records of corporations listed at the capital market in the Republic of Croatia and to compare values of accrual measures estimated for the period from financial year 2017 to financial year 2019. As expected, the values of Jones model and the Modified Jones model did not differ significantly over the analysed three-year period, what was expected due to the slight differences between these two models. Highest intensity of absolute discretionary accruals was registered in financial year 2018, while the lowest values were registered in financial year 2017, despite the fact that the differences in comparison to financial year 2019 were slight. Similar to the values of earnings management intensity, variability of discretionary accruals was at the highest point in financial year 2018. Besides the values of absolute discretionary accruals, the signs of discretionary accrual values were also examined to determine if companies have the tendency of overestimating or underestimating their financial performance. The highest difference between companies with negative accruals and companies with positive discretionary accruals was recorded in financial year 2017 in favour of negative discretionary accruals, which means that majority of companies underestimated their financial results. Finally, the timespan included in analysis should be prolonged in future research to investigate correlations between different approaches.

References

Accounting Act (National Gazette 78/15, 134/15, 120/16, 116/18, 42/20, 47/20)

Akers, M. D., Giacomino, D. E., & Gissel, J. L. (2007). Earnings management and its implications. The CPA Journal, 77(8), 64-68.

Aladwan, M. (2019). Accrual Based and Real Earning Management Association with Dividends Policy "The Case of Jordan". Italian Journal of Pure and Applied Mathematics, 41, 691-707.

Atieh, A., & Hussain, S. (2012). Do UK firms manage earnings to meet dividend thresholds?. Accounting and Business Research, 42(1), 77-94.

Ayers, B. C., Jiang, J., & Yeung, P. E. (2006). Discretionary accruals and earnings management: An analysis of pseudo earnings targets. The Accounting Review, 81(3), 617-652.

Chansarn, S., & Chansarn, T. (2016). Earnings Management and Dividend Policy of Small and Medium Enterprises in Thailand. International journal of business and society, 17(2), 307-328.

Dechow, P. M., Sloan, R. G. & Sweeney, A. P. (1995) Detecting Earnings Management. The Accounting Review, 70 (2), 193-225.

Goel, S. (2012). Demystifying Eranings Management Through Accruals Management: An Indian Corporate Study. Vikalpa, 37 (1), 49-56.

Hammer, Ø., Harper, D. A. T., & Ryan, P. D. (2001). PAST: Paleontological Statistics Software Package for Education and Data Analysis. Palaeontologia Electronica 4(1), 9.

Ilmas, F., Tahir, S. & Asrar-ul-Haq, M. (2018). Ownership structure and debt structure as determinants of discretionary accruals: An empirical study of Pakistan. Cogent Economics & Finance, 6 (1) 1-27.

Jones, J. (1991). Earnings management during import relief investigations. Journal of accounting Research, 29, 193-228.

Kliestik, T., Belas, J., Valaskova, K., Nica, E., & Durana, P. (2021). Earnings management in V4 countries: The evidence of earnings smoothing and inflating. Economic Research-Ekonomska Istraživanja, 34(1), 1452-1470.

Kourdoumpalou, S., & Drogalas, G. (2022). Non-conforming tax aggressiveness and earnings management: Evidence from Greek public companies. Journal of Accounting and Taxation, 14(1), 64-75.

Li, X. Y., & Chen, P. W. (2020). Meeting Dividend Thresholds Through Earnings Management of Listed Companies in South Africa. Advances in Management and Applied Economics, 10(6), 77-95.

Oskouei, Z. H., & Sureshjani, Z. H. (2021). Studying the relationship between managerial ability and real earnings management in economic and financial crisis conditions. International Journal of Finance & Economics, 26(3), 4574-4589.

Rao, N. & Dandale, S. (2008). Earnings management: A study of equity rights issues in India. ICFAI Journal of Applied Finance, 14, 20-34.

Rashid Khan, H., Khidmat, W. B., Habib, M. D., & Awan, S. (2022). Academic directors in board and corporate expropriation: Evidence from China. Managerial and Decision Economics, 43(2), 372-397.

Saona, P., & Muro, L. (2018). Firm-and country-level attributes as determinants of earnings

management: An analysis for Latin American firms. Emerging Markets Finance and Trade, 54(12), 2736-2764.

Türegün, N. (2020). Does financial crisis impact earnings management? Evidence from Turkey. Journal of Corporate Accounting & Finance, 31(1), 64-71.