International Entrepreneurship Review

2023, Vol. 9, No. 1

10.15678/IER.2023.0901.07

# Accrual-based earnings management and organizational life cycles: Two-dimensional analysis

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**ABSTRACT**

**Objective:** The article aims to determine the relationship between the stage of a business life cycle and the scope and directions of accrual-based earnings management (AEM) in industrial companies listed on the Warsaw Stock Exchange (WSE).

**Research Design & Methods:** The assessment of statistical relationships between the patterns of earnings management in individual stages of an organization's life cycle (OLC) was carried out based on the Kruskal-Wallis test by ranks and the Mann-Whitney U test. The extraction of discretionary accruals was performed based on the Modified Jones model, while the Dickinson model evaluated OLC stages. The study investigated 297 industrial listed companies listed on the Warsaw Stock Exchange in the 2012-2020 period.

**Findings:** Empirical studies have shown that strategies of intentionally lowering the net result prevailed in the research sample. The scope of the AEM practices, estimated by discretionary accruals, was the largest in industrial companies in the growth and maturity phase. The frequency of big bath reporting was related to the OLC phases, with net losses exceeding 20% of total assets being most often reported among companies in the decline stage. On the other hand, the frequency of reporting small net incomes was even across all tested subpopulations.

**Implications & Recommendations:** The research indicates the need to continue scientific research on the issues of measuring the quality of reported accounting data and prediction tools of various techniques for shaping the financial result. Understanding the underlying motives and determinants that drive enterprises to performance management is a prerequisite for preventing this type of activity in business practice.

**Contribution & Value Added:** The article presents an innovative approach to assessing relationships between AEM and the OLC stages. It referred to examining the frequency of specific techniques of AEM (*e.g.* big bath and small net income) in companies characterized by specific patterns of generated cash flows.

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|---|---|
| **Article type:** | research article |
| **Keywords:** | accrual-based earnings management; life cycle stage; industrial enterprises; Warsaw Stock Exchange |
| **JEL codes:** | G30, M21, M4 |

Received: 3 July 2022 Revised: 21 December 2022 Accepted: 16 February 2023

**Suggested citation:**
Comporek, M. (2023). Accrual-based earnings management and organizational life cycles: Two-dimensional analysis. *International Entrepreneurship Review,* 9(1), 97-108. https://doi.org/10.15678/IER.2023.0901.07

## INTRODUCTION

The issues concerning the prerequisites of accrual-based earnings management (AEM) have been an area of interest since at least the 1950s (Erickson *et al*., 2006). Prevailing motives for the implementation of the AEM phenomenon identified in the literature are based on mutually interpenetrating and complementary theories, such as the agency theory (Jiraporn *et al*., 2008; Kałdoński & Jewartowski, 2017; Raoli, 2013;), the contract theory (Holthausen *et al*., 1995), the signalling theory (Fields *et al*., 2001; Smith & Pennathur, 2019), the institutional theory of the business enterprise (Jo, 2019; Stolovy & Breton, 2004;) or the threshold management theory (Degeorge *et al*., 1999; Wang *et al*., 2017). Most of them emphasize that the efforts of the management to meet the expectations of particular groups

of corporate stakeholders are limited by the competence and legal possibilities, and psychological barriers to modifying the reported financial result (Grabiński & Wójtowicz, 2019). However, research shows that managerial decisions in the context of earnings management vary depending on the corporate life cycle stage (*e.g.*, Chen, 2016; Chen, Yang, & Huang, 2010; Hussain *et al*., 2020).

The main objective of this article is to determine the relationship between the stage of a business life cycle and the values of discretionary accruals separated by the Modified Jones model (Dechow *et al*., 1995) in industrial enterprises listed on the Warsaw Stock Exchange (WSE). The outlined research approach aimed to obtain an answer to the question of whether the scope and directions of AEM practices differ significantly based on cash flow patterns suggested by Dickinson (2011). In turn, the minor objective of the article is to examine whether the frequency of reporting small income and big bath depends on the phase of the company's life cycle. The aforementioned two-dimensional perspective of the impact of the firm's life cycle on the strategies of intentional stimulation of the net profit (loss) can be considered a novelty compared to the current literature on the subject. Furthermore, an applied intra-sectoral approach allows for distinguishing specific AEM patterns in companies conducting their business activity in diversified branches of industry (*i.e*., fuels and energy, chemicals and raw materials, industrial production, construction and assembly, consumer goods sector).

This article is divided into three parts. The first part will present the theoretical backgrounds of undertaken issues. The second one will scrutinize the research framework, focusing on research methods or data samples on hand. Finally, the third part will refer to the obtained empirical results, including the verification of hypotheses and further discussion.

## LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The implementation of the accrual principle and the resulting matching principle is accompanied by a certain degree of freedom that managers have in recognizing revenues and profits as well as costs and losses determining the financial result. The cognitive space of AEM refers to the use of the adopted policies (principles) and estimates in accounting that define implementable, often creative and non-standard practices within the framework of the applicable legal conditions. Healy and Wahlen (1999) note that AEM appears when executives use judgment in financial reporting and structuring transactions to alter reported book values to either mislead some groups of the company's stakeholders about the economic performance of the enterprise or to influence contractual outcomes that might depend on implemented accounting practices. The multitude of AEM objectives, contained in stakeholders' expectations and changing over time, both in the layer of forecasting and planning and ex-post evaluation, raises the simultaneous concerns of violating accounting standards in the processing and presenting of economic events.

Preparing a systematic classification of AEM processes in an organization can be tricky, because practically every accounting rule may be integrally associated with the earnings management phenomenon. Thus, earnings management methods can be prioritized due to the consequences (obtained results) arising from implemented actions or due to the manner of achieving the assumed aims of these activities. Following the first of the aforementioned distribution keys, the most important AEM techniques include income smoothing and big bath charges. The purpose of income smoothing is the managerial desire to reduce the fluctuations of reported results from one period to another in such a way as to present the relative stability of reported earnings in the longer term (Fudenberg & Tirole, 1995). However, when earnings are expected to fall below or significantly exceed target earnings, managers can be expected to engage in AEM to decrease the net profit or increase the net loss, implementing the big bath technique. The main motive for undertaking actions classified as a big bath is the conviction that the capital market may treat the reported high financial loss as a one-off event and will focus its attention to a greater extent on the valuation of the company based on forecasts of future profits.

The concepts of the organizational life cycle (OLC) are derived from the theory of biological determinism and are inspired by metaphors and analogies taken from the natural world. The division of the company's life cycle into phases, as well as their number, names and sequences, are contractual (*e.g.*, Drazin & Kazanjian, 1990; Miller & Friesen, 1984; Quinn & Cameron, 1983). The general

principle stated by theoreticians of OLC models assumes that the transition to the next phases of the organization's development is associated with several changes that occur in the enterprise, including changes in the company's organizational structure, management style, and the level of owner's involvement. As emphasized by Kuś and Żurakowska-Sawa (2017), in the last two decades, there has been a noticeable growth of interest in applying the OLC theory in the research in the field of accounting and finance, including the AEM phenomenon.

Previous studies on the relationship between the OLC and the practices of intentional manipulation of the reported earnings provide varied results and conclusions. Michalkova (2021) gathered evidence that tourism companies in the Visegrad countries apply accounting manipulations through AEM practices in a highly differentiated way. Firstly, she proved that enterprises in the introduction stage tend to use income-increasing discretionary accruals to manage earnings upward to the greatest extent. In turn, companies in the growth or decline phases strive to increase earnings slightly, and observed AEM activities had a similar positive value concerning variance. As a rule, firms generating cash flows characteristic for the mature and shake-out phases of the OLC might aim to reduce balance sheet results. Durana *et al*. (2021) tested the impact of the OLC on the earnings management phenomenon based on a sample of companies from the emerging economies of the CEE region. The empirical research underlined that operations aimed at increasing financial results intensified in the group of companies in the start-up and decline phases. This remark was evidenced by high, positive average values of discretionary accruals computed for these enterprises. After reaching satisfactory levels of profitability in the maturity phase, the tested companies changed the direction of intentional impact on the reported financial results, striving to reduce it. This pattern of downward earnings management is explained by the authors predominantly by tax motives. In turn, companies in the shake-out phase implemented AEM practices to the least extent, as discretionary accruals have the lowest variability among all tested OLC phases. An interesting observation is also the insight that the industry effect had a minimal effect on the scope and techniques of AEM practices in the tested sample. Different conclusions were observed by Hastuti *et al*. (2017), who by using the data panel from the Indonesian capital stock exchange, proved that the OLC did not affect the AEM activities significantly. The relevant findings were found by Indraswono and Kurniawati (2020), who gathered pieces of evidence that the values of discretionary accruals statistically differ in the growth-mature and mature-stagnant stages of the OLC. To be precise, the discretionary accruals computed for the firms in the mature phase have a mean value higher than the abnormal accruals estimated for companies in the growth phase. Da Silva Roma *et al*. (2020) found that American and Brazilian firms do not tend to manage earnings similarly across their life cycles. They underlined that companies in the early and late stages of the OLC manipulate earnings to a larger extent than the remaining groups. More specifically, they discovered that enterprises in the introduction or decline stages strive to intensify activities in the field of AEM while mature firms are less involved with this practice. Khuong and Anh (2022) examined public companies in Vietnam and discovered that during a downturn, listed enterprises show deterioration in accrual quality. In general, company executives prefer to reduce the AEM practices in the developing or mature OLC stages, which is explained by the fact that in this stage, firms tend to improve production processes, so the accounting earnings management s behaviour can decrease. Moreover, they proved that boosting reported earnings through accelerating sales and liberalizing credit policy is widespread across the company's life cycle, but in the tested sample, real earnings management (REM) activities are less likely to be used than AEM. Jaggi *et al*. (2022) found that managers intensify the AEM activities to upward the reported level of earnings during the introduction stage to demonstrate better economic results or provide a good base for the estimation of earnings in subsequent periods. In addition, due to the satisfactory actual performance or achievable market expectations for the growth and maturity phases, the lack of use of positive discretionary accruals to increase earnings is characteristic. However, they gathered evidence that managers may be motivated to adjust the reported earnings downward in the growth or maturity OLC stages to save some safety buffer for future volatile periods. Finally, in the decline stage, firms strive to manipulate earnings upward to demonstrate the economic conditions of the company in a positive way. Referring to public enterprises listed on the WSE, Comporek (2022) showed that real earnings management (REM) activities differed in a statistically significant way due to the

phase of the OLC. In the tested sample, a particular intensification of REM activities was noticeable in firms operating in the introduction or decline phases. This assumption was evidenced by high negative values of discretionary operating cash flows and positive values of discretionary production cost estimated for companies classified to the indicated sub-populations. Although these remarks do not apply to direct relationships between the OLC and AEM phenomenon, it should be noted that many researchers stress that managers can use AEM and REM practices alternately, treating them as specific substitutes of intentional impact on the reported earnings in the company (Zang *et al*., 2019).

In the vast majority of the conducted research studies, the category representing the phase of the life cycle of an enterprise is treated as one of the independent variables in regression or logit modelling, explaining the values of discretionary accruals. However, there is a lack of research into the influence of individual OLS phases on the frequency of implementing particular AEM techniques (such as big bath, income smoothing, and window dressing). These prior empirical results made it possible to assume the following research hypotheses:

**H1:** In the tested sample, enterprises in growth or decline OLC stages are characterized by higher earnings management than companies classified in other OLC phases.

**H2:** The industry effect had a statistically significant influence on the differences in applying AEM techniques in enterprises classified in a particular phase of the life cycle.

**H3:** The frequency of large losses and small net incomes depends on the phase of the company's life cycle.

## RESEARCH METHODOLOGY

In order to assess the degree of AEM practices in the tested sample, the Modified Jones model was used (Dechow et al., 1995). The mentioned model assumes that the value of discretionary accruals (DACC) is calculated as a residual value from the following regression model:

$$\frac{TACC_{i,t}}{TA_{i,t-1}} = \alpha_1 \left(\frac{1}{TA_{i,t-1}}\right) + \alpha_2 \left(\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{TA_{i,t-1}}\right) + \alpha_3 \left(\frac{PPE_{i,t}}{TA_{i,t-1}}\right) + \varepsilon_{i,t} \quad (1)$$

where:

$TACC_{i,t}$ - total accruals of the company $i$ in year $t$ (calculated as a difference between net income and operating cash flows);

$TA_{i,t}$ - an average value of total assets of the company $i$ in year $t$;

$REV_{i,t}$ - sales revenues of the company $i$ in year $t$;

$REC_{i,t}$ - short-term receivables of the company $i$ in year $t$;

$PPE_{i,t}$ - an average value of the gross property, plant, and equipment of the company $i$ in year $t$;

$\alpha_i$ - specific regression parameters;

$\varepsilon_{i,t}$ - error term in the regression model.

The measurement of individual techniques of AEM is tricky as there is no conclusive evidence that, for example, all reported significant net losses can be treated as a result of managerial interference in the level of reported financial data. For this reason, there are alternative approaches to the big bath estimation (Behn *et al*., 1998; Elliott & Shaw, 1988; Miller & Skinner, 1998). Following the observations of Barth *et al*. (2008), this article assumes that a net loss greater than 20% of the total assets would testify about the big bath. Similarly, by comparing the values of net financial results and total assets, it is considered that net income is small if it constitutes from 0 to 0.5% of the total assets.

As mentioned earlier, the separation of individual phases of the organization's life cycle was carried out using the Dickinson (2011) approach. Dickinson points out the possibility of using eight cash flow pattern combinations based on a juxtaposition of cash flow balances at the end of the financial year and thus distinguishes five phases of the OLC (Table 1). A broader explanation of the patterns of cash flows in individual phases of the OLC based on economic theory was explained, among others, in the studies of Spence (1979), Jovanovic (1982), and Wernerfelt (1985).

The assessment of statistical relationships between the observed patterns of earnings management in individual stages of OLC was carried out primarily based on the Kruskal-Wallis test which is used to test the null hypothesis that all *k* independent samples come from populations having equal means against the alternative hypothesis that at least one population varies (Sherwani *et al*., 2021). In addition, the study used the Mann-Whitney *U* Test which is used to determine whether two independent samples are selected from populations having the same distribution (Kornacki & Bochniak, 2019). Noteworthy, the one-way analysis of variance ANOVA in this study was not used due to the failure to meet the assumptions regarding the homogeneity of variance and the distribution of results of the dependent variable in each of the analysed groups close to the normal distribution.

**Table 1. Cash flow patterns of different OLC stages in industrial companies listed on the WSE in 2012-2020**

| Cash flow / OLC stage | Introduction | Growth | Maturity | Shake-out | | | Decline | |
|---|---|---|---|---|---|---|---|---|
| Operating cash flow | - | + | + | - | + | + | - | - |
| Investing cash flow | - | - | - | - | + | + | + | + |
| Financing cash flow | + | + | - | - | + | - | + | - |

Source: own elaboration based on Dickinson (2011).

Empirical research has been carried out among industrial, public companies listed on the WSE (both on the regulated Main Market and the New Connect alternative market), that shares have been permanently traded for at least ten years with the 2011-2020 reference period. Consequently, the study investigated 297 listed companies that provided a sample of 2673 observations.

In addition, the intra-sector division of companies engaged in production activities was carried out based on the WSE sector classification standards, taking into account such variables as revenue structure based on annual reports, the structure of assets, and the Polish Classification of Activities number. In this way, the tested companies could be classified into one of the following groups: fuels and energy (sector 200: 29 enterprises), chemicals and raw materials (sector 300: 45 enterprises), industrial production, construction and assembly (sector 400: 154 enterprises), and consumer goods (sector 500: 69 enterprises). All empirical data was obtained from the Notoria Service database.

## RESULTS AND DISCUSSION

The first step of empirical research was to estimate the characteristics of extracted discretionary accruals in the various stages of the company life cycle. Table 2 shows descriptive statistics of DACC separated by the Modified Jones model. The obtained data show that the lowest values of discretionary accruals were characteristic of enterprises in the growth or maturity phases. However, in each of the analyzed stages of OLC, the mean values of discretionary accruals were lower than the median values, which indicates a left-asymmetric distribution of a tested variable (left-sided asymmetry means that statistical observations cluster at feature values greater than the arithmetic mean). It is noticeable that the calculated values of discretionary accruals were characterized by intense or even very intensive volatility determined based on the coefficient of random variation, which requires particular caution in formulating grounds for reliable conclusions on implemented earnings management strategies.

**Table 2. Descriptive statistics of discretionary accruals in individual stages of OLC computed for industrial companies listed on the WSE in 2012-2020**

| Statistical measure / OLC stage | introduction | growth | maturity | shake-out | decline |
|---|---|---|---|---|---|
| **mean** | -0.094 | -0.344 | -0.336 | -0.142 | -0.001 |
| **median** | -0.068 | -0.321 | -0.329 | -0.099 | 0.011 |
| **standard deviation** | 0.432 | 0.314 | 0.249 | 0.367 | 0.350 |
| **variance** | 0.186 | 0.099 | 0.062 | 0.135 | 0.123 |
| **CV** | -4.596 | -0.913 | -0.741 | -2.585 | -350.00 |

Source: own elaboration.

During the investigation, using the Kruskal-Wallis test, attempts were made to examine whether the calculated values of discretionary accruals differed statistically within individual phases of the organization's life cycle. The null hypothesis of the Kruskal-Wallis test is that the mean ranks of the groups are the same. However, the results of empirical research obtained and presented in Table 3 allow for its rejection. These results mean that the size of the accounting type of earnings management in public companies listed on the WSE differed due to the phase of the company's life cycle reflected by the nature of the generated cash flows. However, the mentioned result of the Kruskal-Wallis test required further multiple comparisons, thanks to which it was possible to determine between which subpopulations there are statistically significant differences in the shaping of the *DACC* variable.

**Table 3. The results of Kruskal-Wallis test comparing the distributions of the DACC variable in individual OLC stages in industrial companies listed on the WSE in 2012-2020**

| OLC stage | N | Mean Rank | Test statistics Kruskal-Wallis H | p-value |
|---|---|---|---|---|
| **introduction** | 323 | 1640.44 | 498.938 | **0.000** |
| **growth** | 452 | 1075.69 | | |
| **maturity** | 1060 | 1048.26 | | |
| **shake-out** | 536 | 1606.64 | | |
| **decline** | 302 | 1938.43 | | |

Source: own elaboration.

In-depth empirical analyses, using the U Mann-Whitney test, showed potential statistical differences between the *DACC* values in the comparisons between the two groups. These studies showed that the median values of discretionary accruals in individual phases of the enterprise life cycle differed statistically in eight out of ten tested cases (Table 4). In the conducted research, no statistically significant differences in the shaping of the *DACC* coefficients were found, only in the case of comparisons of enterprises in the phases: introduction and shake-out, as well as growth and maturity.

**Table 4. Pairwise comparison of the distributions of the DACC variable across OLC stages in industrial companies listed on the WSE in 2012-2020**

| Sample 1 -Sample 2 | N | Mean Rank | Sum of Ranks | Test statistics Mann-Whitney U | p-value |
|---|---|---|---|---|---|
| **I-G** | 323 | 479.54 | 154893.00 | 43429.000 | **0.000** |
| | 452 | 322.58 | 145807.00 | | |
| **I-M** | 323 | 925.52 | 298942.00 | 43429.000 | **0.000** |
| | 1060 | 620.84 | 658094.00 | | |
| **I-S** | 323 | 441.73 | 142678.00 | 82776.000 | 0.282 |
| | 536 | 422.93 | 226692.00 | | |
| **I-D** | 323 | 279.65 | 90328.00 | 38002.000 | **0.000** |
| | 302 | 348.67 | 105297.00 | | |
| **G-M** | 452 | 758.56 | 342869.00 | 238629.000 | 0.905 |
| | 1060 | 755.62 | 800959.00 | | |
| **G-S** | 452 | 389.40 | 176009.00 | 73631.000 | **0.000** |
| | 536 | 583.13 | 312557.00 | | |
| **G-D** | 452 | 284.65 | 128663.00 | 26285.000 | **0.000** |
| | 302 | 516.46 | 155972.00 | | |
| **M-S** | 1060 | 681.45 | 722336.00 | 160006.000 | **0.000** |
| | 536 | 1029.98 | 552070.00 | | |
| **M-D** | 1060 | 581.85 | 616760.00 | 54430.000 | **0.000** |
| | 302 | 1031.29 | 311443.00 | | |
| **S-D** | 536 | 376.10 | 201588.00 | 57672.000 | **0.000** |
| | 302 | 496.53 | 149953.00 | | |

Note: I – introduction stage; G – growth stage; M – maturity stage; S – shake-out stage; D – decline stage.
Source: own elaboration.

The intra-sector analysis provided several other results that are worthy of comment. In the companies in the fuels and energy sector (200) and industrial production, construction and assembly sector (400), the lowest average discretionary accruals values were shown concerning companies in the OLC stages: maturity and growth. Interestingly, the mean positive values of *DACC* coefficients extracted by the Modified Jones model were recorded for companies in the decline phase. For companies classified in the chemicals and raw materials sector (300), above-average, negative mean values of discretionary accruals were recorded for enterprises in the: introduction, growth, maturity, and shake-out stages. A similar trend accompanied the *DACC* variable distribution in the consumer goods sector (500) companies (Table 5).

**Table 5. Descriptive statistics of discretionary accruals in individual stages of OLC computed for industrial companies listed on the WSE in 2012-2020 (cross-sector comparison)**

| Sector | Statistical measure / OLC stage | introduction | growth | maturity | shake-out | decline |
|---|---|---|---|---|---|---|
| **200** | mean | -0.085 | -0.348 | -0.396 | -0.010 | 0.072 |
| | median | -0.021 | -0.248 | -0.373 | -0.020 | 0.022 |
| | std. deviation | 0.612 | 0.437 | 0.375 | 0.441 | 0.549 |
| | variance | 0.374 | 0.191 | 0.140 | 0.194 | 0.301 |
| **300** | mean | -0.183 | -0.431 | -0.457 | -0.213 | -0.028 |
| | median | -0.160 | -0.424 | -0.438 | -0.117 | -0.077 |
| | std. deviation | 0.468 | 0.399 | 0.199 | 0.325 | 0.328 |
| | variance | 0.219 | 0.159 | 0.040 | 0.106 | 0.108 |
| **400** | mean | -0.039 | -0.296 | -0.299 | -0.136 | 0.006 |
| | median | -0.057 | -0.274 | -0.290 | -0.099 | 0.037 |
| | std. deviation | 0.384 | 0.287 | 0.245 | 0.321 | 0.307 |
| | variance | 0.148 | 0.083 | 0.060 | 0.103 | 0.094 |
| **500** | mean | -0.139 | -0.369 | -0.311 | -0.184 | -0.067 |
| | median | -0.137 | -0.365 | -0.291 | -0.110 | -0.035 |
| | std. deviation | 0.384 | 0.247 | 0.202 | 0.427 | 0.345 |
| | variance | 0.147 | 0.061 | 0.041 | 0.182 | 0.119 |

Source: own elaboration.

Moreover, the statistical tests emphasized that in each of the analysed industry sectors, the calculated values of discretionary accruals differ statistically from the perspective of the phase of the organization's life cycle in which the tested enterprises are found (Table 6).

**Table 6. The results of Kruskal-Wallis test comparing the distributions of the DACC variable in individual OLC stages in industrial companies listed on the WSE in 2012-2020 (cross-sector comparison)**

| Sector | OLC stage | | | | | Test statistics Kruskal-Wallis H | p-value |
|---|---|---|---|---|---|---|---|
| | introduction | growth | maturity | shake-out | decline | | |
| | Mean Rank | | | | | | |
| **200** | 154.23 | 111.04 | 93.80 | 161.33 | 175.97 | 48.46 | **0.000** |
| **300** | 254.26 | 181.45 | 160.23 | 258.48 | 307.76 | 71.66 | **0.000** |
| **400** | 869.04 | 547.34 | 531.11 | 791.43 | 993.78 | 268.83 | **0.000** |
| **500** | 379.21 | 239.54 | 270.33 | 382.00 | 445.88 | 83.16 | **0.000** |

Source: own elaboration.

The conducted empirical research allowed for a negative verification of the first hypothesis, stating that growth and decline enterprises are characterized by a higher degree of earnings management, estimated by discretionary accruals. In the conducted analyses, it turned out that the accountant's earnings management scope was by far the largest in companies in the growth and maturity phase. Additionally, gathered shreds of evidence that the OLC stage can be considered an important factor in determining the scope of AEM practices in industrial listed companies from the WSE. However, regardless of the phase of the organization's life cycle, practices in the intentional lowering of the financial result dominated the studied sample. There was also no sufficient evidence to positively verify the

second research hypothesis that the industry effect had a statistically significant influence on the differences in applying AEM techniques in enterprises classified in a particular phase of the life cycle. The empirical research shows that regardless of the sector to which the enterprise has been classified, AEM patterns are similar. However, this remark applies to the problem of shaping the value of discretionary accruals extracted by the Modified Jones model. There is a suspicion that the separation of the discretionary accruals from other models could lead to slightly different conclusions.

The empirical research conducted showed that in 2012-2020 the frequency of reporting large losses on the net profit side of industrial companies listed on the WSE was 8.12% (Table 7). Concerning all tested enterprises, it can be noted that the frequency of net losses exceeding 20% value of the total assets was clearly differentiated depending on the OLC phase. The big bath was the least frequently shown among firms in the following OLC stages, namely: the growth stage (3.10% of all observations in a given subgroup) and the maturity stage (2.64%). In turn, the most frequent occurrence of significant net income losses was characteristic of industrial enterprises in the decline phase (22.85%). Importantly, these proportions differed in relation to the industry sector in which the economic activity was conducted. For example, in the group of companies in the 300 sectors (chemicals and raw materials), 44% of companies in the decline phase reported net losses exceeding 20% of the value of total assets. On the other hand, among the industrial enterprises belonging to the 500 sectors (consumer goods), nearly 20% of companies entering the market (introduction phase) reported the big bath phenomenon in their financial reports.

**Table 7. The frequency of reporting big baths in industrial companies listed on the WSE in 2012-2020**

| Sector | OLC stage | introduction | growth | maturity | shake-out | decline | TOTAL |
|---|---|---|---|---|---|---|---|
| **All tested companies** | number of observations | 44 | 14 | 28 | 62 | 69 | 217 |
| | % of observations (in sub-population) | 13.62 | 3.10 | 2.64 | 11.57 | 22.85 | 8.12 |
| **200** | number of observations | 5 | 4 | 3 | 9 | 8 | 29 |
| | % of observations | 12.82 | 8.16 | 3.57 | 16.36 | 23.53 | 11.11 |
| **300** | number of observations | 4 | 1 | 2 | 12 | 11 | 30 |
| | % of observations | 8.51 | 1.15 | 1.17 | 16.00 | 44.00 | 7.41 |
| **400** | number of observations | 17 | 6 | 13 | 27 | 40 | 103 |
| | % of observations | 11.72 | 2.80 | 2.53 | 8.44 | 20.73 | 7.43 |
| **500** | number of observations | 18 | 3 | 10 | 14 | 10 | 55 |
| | % of observations | 19.57 | 2.94 | 3.44 | 16.28 | 20.00 | 8.86 |

Source: own elaboration.

Contrary to the issue of the big bath charges, the frequency of small net incomes was quite similar in the studied subpopulations based on the generated cash flow patterns (Table 8). In the entire tested sample, net income constituting from 0 to 0.5% of the total assets appeared in 8.08% of observations. The phenomenon of income smoothing most often appeared in the group of enterprises in the introduction phase (8.98%) and least often in the case of mature companies (7.08%). Depending on the industry sectors in which the economic activity was conducted, the frequency of small net income in particular sub-populations could differ. Attention should be paid, among other things, to an above-average percentage of companies reporting a low and positive net profit in the group of growing enterprises of the 200 sectors (fuels and energy) or an above-average percentage of companies smoothing incomes in the growth stage, operating in the 300 sectors (chemicals and raw materials).

The empirical analyses allow for positive verification of the third research hypothesis stating that the frequency of large losses and small net incomes depends on the company's life cycle phase. However, it should be clearly emphasized that there is no clear evidence that all reported net losses which exceed the value of 20% of the balance sheet total (defined as the big bath) or fall within the range of 0-0.5% of the total assets (considered as a small net income) should be treated as a result of managerial interference in the level of reported financial data.

The existing literature indicates that different OLC phases may have diversified impacts on implemented AEM techniques. The results of empirical research were consistent with previous evidence confirming that listed companies in the maturity phase and shake-out tend to manipulate earnings downward (Durana *et al*., 2021; Michalkowa, 2021). However, unlike Jaggi *et al*. (2021), no positive average values of discretionary accruals for firms operating in the introduction or decline stages were found in the group of industrial companies listed on the WSE. It has also yet to be shown that companies from the early and late stages of the organization's life cycle intensify their earnings management activities (da Silva Roma *et al*., 2021). However, this inference may be distorted due to the high variability of the discretionary accruals computed for the enterprises in the introduction and decline phases.

**Table 8. The frequency of small net income reporting in industrial companies listed on the WSE in 2012-2020**

| Sector | OLC stage | introduction | growth | maturity | shake-out | decline | TOTAL |
|---|---|---|---|---|---|---|---|
| **All tested companies** | number of observations | 29 | 40 | 75 | 46 | 26 | 216 |
| | % of observations (in subpopulation) | 8.98 | 8.85 | 7.08 | 8.58 | 8.61 | 8.08 |
| **200** | number of observations | 2 | 1 | 4 | 5 | 4 | 16 |
| | % of observations | 5.13 | 2.04 | 4.76 | 9.09 | 11.76 | 6.13 |
| **300** | number of observations | 6 | 12 | 10 | 8 | 3 | 39 |
| | % of observations | 12.77 | 13.79 | 5.85 | 10.67 | 12.00 | 9.63 |
| **400** | number of observations | 12 | 19 | 41 | 28 | 14 | 114 |
| | % of observations | 8.28 | 8.88 | 7.98 | 8.75 | 7.25 | 8.23 |
| **500** | number of observations | 9 | 8 | 20 | 5 | 5 | 47 |
| | % of observations | 9.78 | 7.84 | 6.87 | 5.81 | 10.00 | 7.57 |

Source: own elaboration.

The presented results of empirical research may be a signpost for further analyses concerning the quality of the financial result and the phases of the organization's life cycle. From a methodological point of view, it may be worth correlating the OLC phases with the values of discretionary accruals extracted using other research tools, including regression models taking into account leading variables (Dechow *et al*., 2003), thanks to which the values of DACC coefficients would constitute an additive function of changes in revenues also in next period. In turn, expanding the range of tools for predicting the quality of reported financial data, an interesting issue seems to be examining the dependencies between the phases of the company's life cycle and earnings persistence, earnings smoothness, timely loss recognition, or abnormalities of the earnings distribution.

## CONCLUSIONS

The company's life cycle can be seen as an important factor shaping each enterprise's organizational culture, leadership styles, and decision-making processes. The conducted research proved that OLC stages also influence managers' opportunistic actions to implement appropriate accrual-based earnings management techniques.

The conducted empirical research shows that the largest deviations of the discretionary accruals values from zero – which may, in principle, indicate the intensification of activities in the field of AEM – were noted in industrial companies in the growth and maturity phase. However, it should be underlined that the strategies of intentionally lowering the net financial result were dominant in all tested sample. On the other hand, the results of empirical analyses emphasize that even industrial companies in the decline phase do not show high, positive values of discretionary accruals.

Slightly different conclusions will be drawn from the analysis of the frequency of reporting big bath and small net incomes in the research sample. When it comes to the unusual big bath charges, net losses exceeding 20% of the total assets were reported particularly often in the companies of the decline phase and relatively often in the enterprises of the introduction and shake-out phases. On the contrary, the frequency of reporting small profits (not exceeding 0.5% of the balance sheet

total) was relatively homogeneous in all analysed sub-populations. In addition, the level and techniques of implementation of AEM practices varied to a greater or lesser extent depending on the industry sector in which the business was conducted.

The performed analyses do not meet the generalization condition for at least two reasons. Firstly, due to the limited nature of the research sample, they cannot be generalized to all industrial enterprises operating in the Polish capital market. Secondly, the applied research methods (such as the adopted method of extracting discretionary accruals or distinguishing the OLC phases) could have influenced the character of the obtained empirical results. However, these analyses drew attention to the need to continue scientific research on the issues of measuring the quality of reported accounting data and prediction tools of various techniques of shaping the financial result. This statement is important as understanding the underlying motives and determinants that encourage managers to implement earnings management is a prerequisite for preventing these activities in business practice.

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## Acknowledgements and Financial Disclosure

The author would like to thank the anonymous reviewers for their useful comments, which allowed to increase the value of this article.

## Conflict of Interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Published by Krakow University of Economics – Krakow, Poland

Ministry of Education and Science
Republic of Poland

The journal is co-financed in the years 2022-2024 by the Ministry of Education and Science of the Republic of Poland in the framework of the ministerial programme "Development of Scientific Journals" (RCN) on the basis of contract no. RCN/SP/0251/2021/1 concluded on 13 October 2022 and being in force until 13 October 2024.