

Burlacu, Georgiana; Robu, Ioan-Bogdan

## Article

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# Analysis of accruals earnings management using the Jones Model. The case of Romania listed companies

Georgiana Burlacu<sup>1,a</sup> and Ioan-Bogdan Robu<sup>a</sup>

*<sup>a</sup>Faculty of Economics and Business Administration, Alexandru Ioan Cuza University of Iași, România*

## Abstract

**Research Question:** To what extent earnings management operations are used by Romanian entities listed on a regulated market and what is the impact of these operations on the quality of reported financial information?

**Motivation:** The financial statements reported by each entity are intended to provide useful information all the users, they are intended to describe clearly and honestly presents the financial position and performance and cash flows respectively. There are cases where, out of a desire to gain the trust of stakeholders (investors and other equity providers), some entities tend to commit manipulations in financial reporting using earnings management.

**Idea:** The study aims to assess the extent to which the operations of earnings management are used by the Romanian entities listed on a regulated market and the impact of these operations on the quality assurance of the reported financial information.

**Data:** This study was conducted based on the information collected from the annual financial statements of the entities that are listed on the Bucharest Stock Exchange, for the period between 2019-2021

**Tools:** The collected data were analyzed using the Jonse model based on the linear regression analysis.

**Findings:** Using the Jones model based on the linear regression analysis, the results of the study indicate a distortion of the results presented by the analyzed companies, a solid reason being given by the negative effects of the Covid-19 pandemic with a strong impact on the economic environment.

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<sup>1</sup> *Corresponding author:* Doctoral School of Economics and Business Administration, Alexandru Ioan Cuza University of Iasi, Romania, Carol I Blvd no. 22, email addresses: [burlacu.georgiana@feaa.uaic.ro](mailto:burlacu.georgiana@feaa.uaic.ro)

**Contribution:** This study provides an overview of the concept of earnings management based on information from the specialized literature. The analysis of earnings management practices was undertaken on the listed entities in Romania.

**Keywords:** earnings management, discretionary accruals, capital market, financial statement

**JEL codes:** C59, M41

## **1. Introduction**

Entities around the world are continuously concerned to achieve the best results and give stakeholders the best possible view of the entity's performance (Rus & Achim, 2020). Using the financial information of entities listed in a capital market, stakeholders have the benefit of finding out issues related to their status, performance, business plans. The quality of the decisions that are made by potential investors depends significantly on the reality of this information (Istrate *et al.*, 2015).

In the current economic context, entities around the world are faced with the problem of fraudulent activities, which can take many forms. Due to numerous accounting scandals, confidence in the reliability and objectivity of the financial statements of stakeholders has been significantly reduced (Bhattacharjee *et. al.*, 2016). Under the influence of financial frauds, respectively as a result of earnings management and other creative accounting techniques, the quality of information is affected, with a direct impact on the decrease of transparency in the reporting of financial information (Devi *et al.*, 2021). However, the financial information reported by the listed entities is subject to financial audit, whereby the auditor, as an independent professional, assesses that the financial statements are prepared in accordance with the referential of applied reporting (Carp & Istrate, 2021). However, a fraud can corrupt everything, even the independence and objectivity of the financial auditor, and, not infrequently, his complicity in concealing or committing fraudulent financial acts has been proven (Robu, 2014).

Earnings management (EM) is a very widespread concept that has aroused interest from researchers in the contemporary period, being considered one of the relevant aspects to be discussed in current accounting (Filip & Raffournier, 2014; Vladu & Cuzdriorean, 2014; Istrate, 2019). It occurs when "managers try to modify financial reports either to mislead some stakeholders about the underlying economic performance of the entity or to influence the results that depend on the reported accounting figures" (Healy & Wahlen, 1999).

This study aims to look at how accruals earnings management used to manipulate financial information are used by managers to manipulate reported results and how this information influences users in decision-making. The main objective of the study approach is to analyze and estimate the occurrence of distortions in financial reporting for the entities under analysis, as a result of the use earnings management determined by accruals. The purpose of this study is to review the main information on earnings management, based on a series of representative data on the case to be analyzed.

The present study has the following structure: in the first section, respectively the introduction, the problem that is intended to be analyzed is presented, the information that highlights the importance of the study, followed by the second section that includes conceptual elements in terms of earnings management, the most relevant Romanian studies that have focused their attention on the analysis and evaluation of earnings management for the Romanian entities quoted over time, in order to develop the research hypotheses, and last but not least, the presentation of some important aspects about the model to be used for accruals-based earnings management analysis for the selected period. The last part includes the part of the analysis itself, as well as the results obtained, followed by discussions and conclusions, limits, respectively future research perspectives.

## **2. Literature review and hypothesis development**

One of the most widespread practices affecting the quality of the entity's financial reporting is given by the earnings management. Earnings management affects the process of financial reporting by exploiting accounting policies in the form of information that does not reflect their actual performance (Talab *et al.*, 2017).

### **2.1 The use of earnings management in the manipulation of financial statement**

Over time, numerous studies have provided definitions in terms of earnings management. In this regard, it can be mentioned Beneish (1999), who states that the extent to which results are manipulated has aroused interest from financial analysts, researchers, regulators.

Among the first to try to provide a definition of the concept of earnings management is Schipper (1989). He considers this concept as an intentional action in the financial reporting process, aimed at obtaining financial gains. For their part, Healy and Wahlen (1999) offers a broader definition of earnings management. According to their definition: earnings management occurs when managers modify financial reports to mislead some stakeholders about the underlying economic performance of the entity.

Dechow and Skinner (2000) believes that earnings management are practices legitimately used by management in order to deceive users information's users. Salno and Baridwan (2000) using an agency theory approach state that earnings management are influenced by conflicts of interest between managers (agent) and administrator (principal), which arise as a result of each party wanting to achieve or consider the level of prosperity they desire.

Scott (2003) defines outcome management as a choice on the part of management, accounting policies, to achieve certain goals. At the same time, other researchers consider that earnings management is the use of flexible accounting principles that allow managers to influence reported earnings so that the reported income is higher or lower than it would otherwise be (Davidson III *et al.*, 2004).

Based on these definitions, some studies nuance the idea that illegitimate management of the financial results obtained would naturally lead to fraudulent financial reporting, which in turn could mislead the users of this information (Ghazali *et al.*, 2015).

Earnings Management is classified into two categories, namely: ***accruals earnings management*** and ***real earnings management*** (Roychowdhury, 2006; Gunny, 2010; Andreas, 2017). *Accruals management* involves accounting choices that try to "hide" or "mask" true economic performance (Dechow & Skinner, 2000). It is based on the professional reasoning materialized in choosing certain accounting methods or making estimates, actions that have no direct consequences on cash flows (Carp & Georgescu, 2019). *Real earnings management* refers to changing the structure and time of the entity's normal activities in an attempt to achieve certain objectives (Roychowdhury, 2006; Huian *et al.*, 2018). Furthermore, actual earnings management is the manipulation carried out by the entity's operating activities that directly influence its cash flow (Sun & Lan, 2014, Susanto, 2017).

In the literature, REM practices are classified according to three categories of activities, namely: operating activities decisions, investment decisions and financing decisions (Roychowdhury, 2006; Sellami, 2015; Xu *et al.*, 2007). The advantages of REM practices compared to AEM practices are given by the ease of achieving the desired result and detection by regulators or auditors (Darmawan *et al.*, 2019). However, the detection of earnings management techniques also depends on the auditor's control (Doukakis, 2014). The disadvantage of real earnings management is the impact on the entity's future cash flow. Therefore, this practice must be anticipated by managers, in order not to endanger the normal activity of the entity (Darmawan *et al.*, 2019). REM practices are considered much more dangerous than AEM because they have a direct impact on the company's performance (Bedertscher, 2011; Sakaki *et al.*, 2017). In the literature, the most discussed and used form of results management is accruals earnings management (AEM) (Istrate *et al.*, 2015; Jackson, 2017; Wali, 2017, Christensen *et al.*, 2020, Alfadhael *et al.*, 2021). AEM

practices appear very often discussed in many studies, as well as their impact on the performance and value of the entity (Susanto, 2017, Sutrisno *et al.*, 2019, Anton & Carp, 2020, Indriani & Pujiono, 2021).

Callao *et al.* (2017) investigates earnings management through different models for emerging eastern European countries. They analyze four different and independent samples from emerging Eastern European countries: Poland, Hungary, Slovakia and the Czech Republic, since earnings management in Eastern European countries is still barely explored. Models used in the study are: Jones (1991), Modified Jones (1995), Kang and Sivaranakrishnan (1995), Shivakumar (1996), Key (1997), Teoh *et al.* (1998), Kasznik (1999), Yoon and Miller (2002), Dechow *et al.* (2003), Kothari *et al.* (2005). The empirical results indicate that among different earnings management models, the Jones (1991), Shivakumar (1996), Kasznik (1999) and Yoon and Miller model (2002) offer the most reliable results for detecting earnings management in emerging Eastern European economic environment.

In his study, Susanto (2017) examines the influence of accruals earnings management and real earnings management on firm value in Indonesia. The analyzed sample consisted of 162 entities listed on the Indonesian Stock Exchange for the period 2012-2015. The collected data were analyzed using the multiple regression method. The results obtained showed that accruals earnings management positively and significantly influence the entity value, and real earnings management in the opposite direction. Sunardi (2018) examines the effect of earnings management on the value of the entity before and when IFRS implementation was moderated by the firm's life cycle. The sample analyzed comprises 192 listed entities in Nigeria, for the period 2010-2016, the period 2010-2011 was analyzed to explain what happened before IFRS was applied, while the period 2012-2016 explained the timing of IFRS application. The results of the study showed that earnings management had a positive and significant effect on the firm value with the application of IFRS. It was also found that increased sales and firm seniority strengthen the influence of revenue management on firm value prior to IFRS implementation.

Olantuji *et al.* (2020) focused on accrual-based earnings management and real-based earnings management and their effects on the firm value of a listed manufacturing firm in Nigeria. The study found that accrual-based earnings management, reflected by abnormal discretionary earnings (ADA), has a positive effect on is positively linked to return on equity (ROE), a measure of manufacturing companies' firm value. Indriani and Pujiono (2021) examines the earning management issue in companies listed on the Indonesian Stock Exchange using the modified Jones model. The sample consists of 450 entities, from 8 sectors of activity (essential and chemical

industry; consumer goods; services; mining, oil, natural gas; plantation; property and real estate; and banking). The period under review runs from 2015 to 2019. The results of the study indicate that there are differences in outcome management practices across different business sectors. Studies in the literature demonstrate that companies can use both accruals earnings management practices and real earnings management practices (Sellami, 2016, Das *et al.*, 2017, Shah *et al.*, 2020). Zang (2012) examines USA entities and demonstrates that entities substitute for the two methods of earnings management. Another study that reaches the same conclusion is that of Anagnostopoulou & Tsekrekos (2017), Elkalla (2020).

In the literature, it is stated that managers' attitude towards engaging in earnings management, whether through AEM or REM, remains an issue under analysis, as does the likelihood that managers practice AEM or REM (Comporek, 2020; Oruke *et al.*, 2021). In recent years, there are studies claiming that managers resort to both types of EM to achieve the maximum effect on the earnings ratio. Thus, the question of whether the two types of EM are used as substitute or complementary instruments has not yet been definitively answered (Al-Absy *et al.*, 2020).

At the level of Romania accounting practice, at least in the last decade, there is a concern regarding the study of earnings management, at the level of the listed entities of the Bucharest Stock Exchange. This concern also arises with the adoption in our country of IFRS (2012) in the preparation of financial statements for listed entities (Istrate, 2019). In this regard, the following studies can be listed:

**Table 1. Studies based on the analysis  
of the result management at the level of Romania**

Studies	Main ideas
<b>Matiş <i>et al.</i>, 2010</b>	<ul style="list-style-type: none"> <li>- analyze 36 listed entities for the financial year 2008 using the Jones, Dechow (modified Jones) and Kasznik models;</li> <li>- the reported results highlight that only Jones model is the most significant, from an applicative point of view for the Romanian economic environment, the other two models are insignificant.</li> </ul>
<b>Brad <i>et al.</i>, 2014</b>	<ul style="list-style-type: none"> <li>- analyzes 56 Romanian entities listed for the period 2011-2012; - uses the change in net income reported to total assets, the variation of cash flows reported to the variation on the net profit, and the Spearman correlation between total cash flow and accruals;</li> <li>- their results signaled a decrease in earnings management strategies in 2012, when listed entities switched to IFRS.</li> </ul>
<b>Nechita, 2015</b>	<ul style="list-style-type: none"> <li>- analyze a sample of 39 entities between 2005 and 2013;</li> <li>- the instruments used are: change in net income reported to total assets, the variation of cash flows reported to variation on the net profit and Spearman correlation between total cash flow and accruals;</li> </ul>

<b>Studies</b>	<b>Main ideas</b>
	<ul style="list-style-type: none"> <li>- the results obtained could lead to the conclusion that income uniformity practices were not used after the implementation of IFRS by listed Romanian entities.</li> </ul>
<b>Istrate <i>et al.</i>, 2015</b>	<ul style="list-style-type: none"> <li>- analyzes a number of 63 entities listed on the Bucharest Stock Exchange for the period 2006-2014;</li> <li>- use the original Jones model to calculate total accruals;</li> <li>- the results obtained showed that the adoption of IFRS reduced discretionary accruals and the presence of earnings management techniques is higher for negative discretionary accruals.</li> </ul>
<b>Huian <i>et al.</i>, 2018</b>	<ul style="list-style-type: none"> <li>- analyzes a number of 67 listed Romanian entities for the period 2006-2015;</li> <li>- to evaluate earnings management uses the Kothari Leone and Wasley model (2005), and to test the relevance of accounting information in the presence of EM strategies uses the model proposed by Callao, Cimini and Jarne (2016);</li> <li>- The study shows that earnings management is more present in the case of entities that use the indirect method to present operating cash flow.</li> </ul>
<b>Istrate, 2019</b>	<ul style="list-style-type: none"> <li>- conducts a study regarding the detection of earnings management using Benford's Law;</li> <li>- the analyzed sample is represented by listed Romanian entities, and the period under analysis is 2001-2017;</li> <li>- the variables used are represented by net income, period, size, category of auditor, audit opinion, sex of the financial director;</li> <li>- The results obtained highlight that, depending on the size of the entity, there are differences in the handling of reported revenues, but nevertheless, for better precision, other tests should be considered.</li> </ul>
<b>Tache, 2021</b>	<ul style="list-style-type: none"> <li>- analyze the impact of earnings management on audit quality, taking into account the transparency of financial reporting in accordance with IFRS;</li> <li>- the sample includes entities from 14 countries (5014 comments), the period analyzed is 2010-2019;</li> <li>- uses the Jones model to estimate audit quality;</li> <li>- the results show that the positive relationship between earnings management and audit quality is strongly influenced by the accuracy of financial reporting under IFRS.</li> </ul>
<b>Burcă <i>et al.</i>, 2022</b>	<ul style="list-style-type: none"> <li>- carry out a study of the impact of earnings management on the likelihood of fraud in the financial statements;</li> <li>- analyzes entities in the most developed countries, such as Canada, France, Germany, Italy, Japan, Russia and the United States of America;</li> <li>- the analyzed sample includes 1,355 entities and the analyzed period is between 2014-2020;</li> </ul>



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Studies	Main ideas
	<ul style="list-style-type: none"> <li>- the analyzed variables are represented by F score, discretionary accruals, REM, Bankruptcy score, total assets, capital market performance, financing structure, rate of return, audit fee and compensation score;</li> <li>- the results obtained show that, in the long run, the F-score is negatively affected by real earnings management activities. In contrast, the innate component of accrual accounting appears to reverse over time, having no significant long-term impact on the likelihood of fraudulent financial reporting.</li> </ul>

*Source:* authors' processing

As can be seen, in most of the studies submitted above, the criteria used by the authors in the selection of samples are different from one study to another, i.e. the periods studied. The transition of listed entities to IFRS was an important milestone in the analysis of accruals-based earnings management.

### **Earnings management practices during financial crises and pandemics**

The COVID-19 outbreak has led to drastic changes in the internal and external environment of entities (Ding *et al.*, 2021), so they had a strong incentive to conduct earnings management (Yan *et al.*, 2022).

The Covid-19 pandemic has affected every business in all industries, including tourism, transport, energy and manufacturing, with implications for deteriorating business performance and increasing economic uncertainty (Ryu & Chae, 2022).

With the advent of the Covid-19 pandemic, the performance of entities around the world has been negatively affected due to various factors, including increased uncertainty, supply and demand shocks and government-imposed lockdown (Ozili & Arun, 2020). According to the report published by PwC 2021 (Global Crisis Survey), over 70% of entities have been negatively affected by the Covid-19 crisis (PwC, 2021). It can be argued that in times of economic turmoil and financial downturns, companies are more likely to engage in greater earnings management, as methods of mitigating the negative effects of crises on their financial performance, reporting better financial information and conveying a positive image of the entity (Filip & Raffournier, 2014; Ozili, 2017; Ozili & Arun, 2020).

The Covid-19 pandemic was not only a public health crisis, but also an unprecedented economic crisis (Ali *et al.*, 2022). This pandemic has also led to the impairment of social relations, as a consequence of which the way in which entities produce and generate jobs and income respectively around the world (Pak *et al.*, 2020).

There is a high probability that relevant economic differences will be identified during this crisis compared to other periods of economic instability, given that the pandemic has little in common with other crises of the twentieth and twenty-first centuries (Foroni *et al.*, 2021). Considering all these aspects, the study aimed to analyze to what extent the Covid-19 pandemic has stimulated the use of earnings management by listed Romanian entities. An analysis of this kind is appropriate to the extent that this crisis constitutes an exogenous shock to the economy, so as to make it possible to compare incentives for earnings management in times of crisis in economic environments with different growth trajectories and capital market configurations.

An important aspect that differentiates this study from others that assessed potential earnings management practices in times of crisis comes from the fact that the Covid-19 pandemic has affected nations in a reasonably similar way, causing problems in the practice of trade and restrictions on industrial production, culminating in a reduction in economic activities in terms of supply and demand.

In times of crisis or with economic difficulties, it has been found that companies resort to the use of several earnings management practices to mitigate the adverse effects of crises on their economic and operational performance (Healy & Wahlen, 1999; Ozili, 2017; Ozili & Arun, 2020). Other studies nuance the idea that periods of economic stress and crises can also be associated with adjustments in income reduction and fewer earnings management practices (Kousenidis *et al.*, 2013; Filip & Raffournier, 2014; Li *et al.*, 2020).

## **2.2 Model Jones for earnings management analysis**

Over time, many studies that have focused their attention on earnings management analysis within an entity, typically use aggregated arrangement models (distribution tests - Burgstahler and Dichev (1997), changes in accounting procedures - Healy (1985); Healy and Palepu (1990); Sweeney (1994), respectively components of discretionary cash flows - Dechow and Sloan, 1991).

A multitude of commitment models have been used in recent years. Most of these are actually a variation of the Jones model (Stubben, 2010), based on a paper by Jones (1991). The original context of the Jones model (Jones, 1991) was to test whether managers use earnings management to model accounting figures for financial benefits (Costa & Soares, 2022). Jones (1991) calculates the total accruals without without considering the exclusion of long-term debt and income tax portion due to the lack of data. The variables necessary for calculate TAAit are found in the financial statements represented by the balance sheet, income statement and cash flow statement (Paulo, 2007). Through this model, Jones (1991) attempts to control the effects of changes in a firm's economic circumstances on nondiscretionary accruals. This model indicates that changes in total assets, gross revenues and gross

value of property and equipment facilities (PPE) are the drivers of non-discretionary accruals (Bešlić *et al.*, 2015).

Jones (1991) uses a three-step approach to divide total accruals into three categories, namely discretionary and non-discretionary components. In the first step, total accruals (TA) are estimated using the balance sheet approach. In the second stage, the model was used to calculate non-discretionary accruals (NDAs). All variables in initial models are deflated by total assets at the beginning of the year (year t-1) to mitigate heteroscedasticity. In the third step, after calculating total accruals (TA) and non-discretionary accruals (NDAs), discretionary accruals (DAs) were calculated using the equation:

$$DA_{it} = TA_{it} - NDA_{it}$$

A multitude of accruals models have been used in recent years. Most of these are actually a variation of the Jones model (Stubben, 2010), a model based on a work by Jones (1991). Over the years, changes have been proposed on this model by different researchers (for example: Dechow *et al.*, 1995; Peasnell *et al.*, 2000; Dechow & Dichev, 2002; Francis *et al.*, 2005; Kothari *et al.*, 2005; Dechow *et al.*, 2012; Byzalov & Basu, 2019). However, Dechow *et al.*, (2010) argue that the changes may induce errors in estimating discretionary accruals (Nguyen *et al.*, 2022).

Although, various models have been developed to detect earnings management, the Jones model (1991) and the modified Jones model developed by Dechow *et al.* (1995) are the most widely used in identifying discretionary commitments. The only difference between these is given by the inclusion of changes in the receivables of the accounts in the modified Jones model. In these models, non-discretionary or normal liabilities are estimated as a linear function of changes in gross income and fixed assets. Models are usually estimated by industry and per year, and the residual is given by the estimate of discretionary accruals (Stubben, 2010). The Jones model considers variable dependent on total accruals and independent variables as controls for increasing income, fixed assets and receivables (Matiş *et al.*, 2010).

With regard to the detection and evaluation of earnings management, previous studies have mainly used time series data (Dechow *et al.*, 1995; Jones, 1991), respectively cross-sectional data (Bartov *et al.*, 2001; DeFond & Subramanyam, 1998). Studies based on time series assume the temporal stationarity of parameter estimates, while cross-sectional studies assume homogeneity between entities in the same industry (Matiş *et al.*, 2010).

The definition of total accruals, in the model, is presented in the equation:

$$TA_{it} = \Delta CurrentAssets_{it} - \Delta Cash_{it} - \Delta CurrentLiabilities_{it} - \Delta DAE_{it} \quad (1)$$

where

$TA_{it}$  = total accruals in year  $t$  for firm  $i$ ;

$CurrentAssets_{it}$  = current assets in year  $t$  less current assets in year  $t - 1$  for firm  $i$ ;

$\Delta Cash_{it}$  = cash in year  $t$  less cash in year  $t - 1$  for firm  $i$ ;

$\Delta CurrentLiabilities_{it}$  = current liabilities in year  $t$  less current liabilities in year  $t - 1$  for firm  $i$ ; and

$DAE_{it}$  = depreciation and amortization expense in year  $t$  for firm  $i$ .

Changes in short-term liabilities are excluded from accruals because they relate to financing transactions as opposed to operational activities (Leuz *et al.*, 2003).

Although other models have been proposed over time for determining the AEM, all these models are not error-free. Under these circumstances, the original Jones model is recommended in the literature as the best choice among existing accruals models for estimating discretionary accruals. The Jones model has sustained its resistance to criticism for over 20 years, it remains one of the most common models in calculating discretionary accruals (Lee & Vetter, 2015).

### 2.3 Development of research hypotheses

Literature on earnings management focuses heavily on accruals earnings management (revised by Schipper, 1989; Healy & Wahlen, 1999; Fields *et al.*, 2001). A smaller stream of literature investigates the possibility of managers manipulating real trades to distort earnings. Many such studies examine managerial discretion over research and development expenses (Baber *et al.*, 1991; Dechow & Sloan, 1991; Bushee, 1998; Cheng, 2004). Based on the above, in order to detect earnings management through the Romanian listed entities, the following general hypothesis is proposed for testing and validation in the present study:

**H:** *At the level of the Romanian BSE listed companies, the accruals earnings management are used in order to manipulate the information in the financial statements.*

Some studies have examined earnings management in times of economic turmoil and financial downturns and have highlighted the fact that in such difficult times for the economy, entities resort to earnings management provide a better picture of their financial situation (Watts & Zimmermann, 1978; Jones, 1991; Han & Wang, 1998; Flores *et al.*, 2016). They have various motivations for earnings manipulation, such as raising issue prices (Nikbakht *et al.*, 2021), to maximize executive compensation (Li & Kuo, 2017). According to signal theory, earnings management can effectively communicate private information about future performance to investors (Sun, 2011). On the other hand, the agency's theory suggests that management can opportunistically manipulate gains for their own interests at the expense of the interests of other stakeholders. Also, earnings management can be represented either by revenue growth or by activities to decrease it (Liu & Sun, 2022).

Several methods have been proposed in the literature for the separation of total accruals into abnormal (discretionary) and normal components (non-discretionary). The most commonly used models are the Jones (1991) modified-Jones model as suggested in Dechow *et al.* (1995). Dechow *et al.* (1995) presented evidence suggesting that the modified Jones model is more powerful in detecting earnings management than the original Jones model (1991). Accrual-based earnings management involves the intervention of managers in the process of financial reporting by exercising their discretion and reasoning regarding accounting choices. Importantly, accruals management tends to distort the basic operations of entity in the registers, but does not generally involve changing the operations themselves (Kotari *et al.*, 2005).

Based on the above, the study proposes to test the following working hypothesis:

***H<sub>1</sub>: The Jones model is relevant for the analysis of earnings management in the case of Romanian listed companies***

The Covid-19 pandemic has had the most important impact on the financial situation of the world (Aljawaheri *et al.*, 2021). Most economists and researchers have defined the financial crisis as a sharp and significant drop in the face value of financial assets (Al-Mughrabi, 2020). According to Mishkin (1992), a disruption of the financial market causes the aggravation of problems such as adverse selection and moral hazards that, as a result, negatively affect the ability of the market to effectively allocate available funds for investments and adequate and productive business ideas. Therefore, as the economy moves away from balance, investors and lenders lose confidence in the market valuation of assets. During the financial crisis, in order to attract the attention of investors and get more funds, managers are likely conducting revenue growth earnings management to show high-quality earnings in their reports (Kazemi, 2022). Based on the above, the study proposes to test the following working hypothesis:

***H<sub>2</sub>: Earnings management practices through discretionary accruals have been more accentuated during the COVID-19 crisis.***

Starting from the hypotheses proposed for testing, the analysis will be carried out to see if during the analyzed period the managers used to accruals earnings management to manipulate the information in the financial reports.

### **3. Research methodology: population, sample, models and variables, data source, data analysis methods**

In order to test the research hypotheses, a statistical approach is proposed (Jaba, 2002; Robu, 2021) which considers: identification of the population, selection of the sample, choice of variables, establishment of data analysis methods and proposal of econometric models to be analyzed, data collection and processing, as well as obtaining the research results and their interpretation (Grosu *et al.*, 2023).

### 3.1 The studied population and analyzed sample

In order to conduct the study, the studied population was represented by all companies listed on the Bucharest Stock Exchange (BSE) subject to mandatory financial audit, in accordance with the Law no. 162/2017 on mandatory audit of annual financial statements and annual consolidated financial statements and amending certain regulatory acts, published in the Official Gazette of Romania no. 548/12 July 2017. The sample selected comprises only companies on the regulated market. At national level, the main capital market regulated by law is the Bucharest Stock Exchange. The BVB section comprises two important categories of entities, namely: in category I are included listed entities that meet a series of criteria regarding the minimum size of the share capital, the minimum period of operation, financial performance and liquidity, and in category II are included the rest of the entities, which must meet only the minimum condition of the size of the share capital (Filip & Raffournier, 2010).

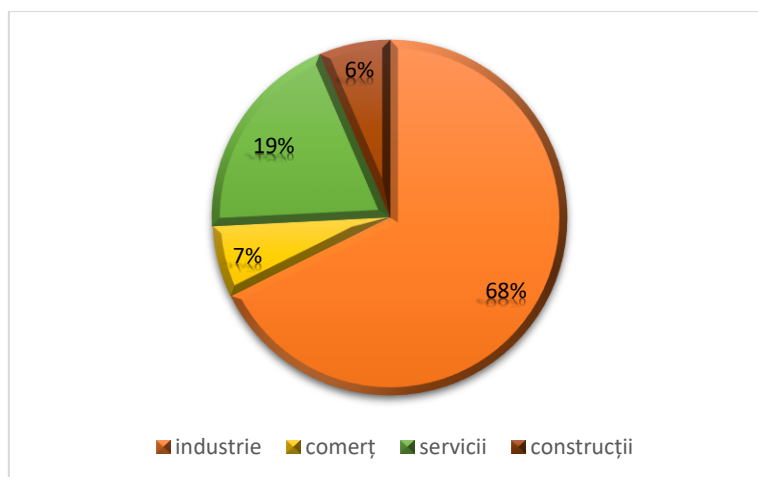
From the total number of entities listed during the analyzed period (2018 -2021) were excluded entities in the financial-banking, insurance and financial intermediation fields, because they apply other criteria in financial reporting, as well as entities for which not all the information necessary for the analysis was found. Thus, a sample of 62 listed entities was reached, for which the information was selected from the financial statements for the period considered, with 248 comments being made.

**Table 2. The studied population and sample analyzed**

<b>The BSE population</b>	<b>Sample analyzed</b>
<b>83 entities</b>	- <b>62 entities, of which:</b>
	- 42 industry entities
	- 12 entities in the field of services
	- 4 entities in the field of trade
	- 4 entities in the field of construction

*Source:* authors' processing

Regarding the object of activity, the sample analyzed includes entities operating in various fields, namely: in the manufacturing industry (68%), entities in the field of services (19%), entities in the construction field (7%) and entities in the field of trade (6%). In Figure no. Article 1 is shown the distribution of the entities included in the sample by field of activity.



**Figure 1. Structure of the sample analysed according to the object of activity**  
Source: authors' processing

According to the data presented in the accompanying figure, the sample under analysis consists of a number of 62 entities, which operate in different fields, and whose values are traded on the Bucharest Stock Exchange. All data were manually collected from individual financial statements available on the Bucharest Stock Exchange website and processed and analyzed using IBM SPSS Statistics 22.

### 3.2 Variables analyzed, data source and models proposed for testing

Based on the specialized literature reviews of earnings management, one of the most widely used models was identified, namely the Jones model (Jones, 1991; Dechow *et al.*, 1995; McNichols, 2000; Kothari *et al.*, 2005). Based on the indicators in the financial statements, it proposes an alternative model for estimating total accruals, which is in the literature a benchmark for the accruals earnings management (Istrate *et al.*, 2015). Jones' proposed model for estimating accruals earnings management is presented in equation (2):

$$TA_t = [(\Delta CA_t - \Delta Cash_t) - (\Delta CL_t - \Delta STD_t)] - DEP_t \quad (2)$$

where:

$TA_t$  = total accruals in year t;

$\Delta CA_t$  = change in the current assets in year t from year t-1;

$\Delta Cash_t$  = change in the cash in year t from year t-1;

$\Delta CL_t$  = change in the current liabilities in year t from year t-1;

$\Delta STD_t$  = change in the short term debts in year t from year t-1;

$DEP_t$  = depreciations and amortisation in year t.

Jones (1991) proposes an econometric model, represented as follows:

$$TA_t/A_{t-1} = \beta_0(1/A_{t-1}) + \beta_1(\Delta REV_t/A_{t-1}) + \beta_2(PPE_t/A_{t-1}) + \varepsilon \quad (3)$$

where:

$TA$  = total accrual;

$A$  = assets;

$\Delta REV$  = change in revenues;

$PPE$  = gross property, plant and equipment;

$\varepsilon$  = error term, the discretionary part of  $TA$  scaled by  $A_{t-1}$ , named  $DA$  (discretionary accruals).

For the sampled entities, the information was collected manually from the reported financial statements, found on the Bucharest Stock Exchange website.

## 4. Results and discussions

Following the analysis of the data collected at the level of the proposed sample in the period 2019-2021, the main results concern descriptive statistics, estimates of Pearson correlation coefficients, estimation of the parameters of the proposed model, as well as statistics corresponding to testing the existence of the influence of non-financial factors on discretionary initiatives and envelopes.

### *Descriptive Statistics*

For the variables introduced in the econometric model proposed by Jones, the annual average values for the period under review, i.e. 2019-2021, are presented in the table below.

**Table 3. Annual means for the variables included in the estimation of the DA**

Variable	Year		
	2019	2020	2021
$TA_t/A_{t-1}$	0.0184	0.0942	0.0998
$\Delta REV_t/A_{t-1}$	-0.1047	0.2568	0.2769
$PPE_t/A_{t-1}$	0.0579	0.0632	0.0679

*Source:* authors' processing in SPSS 22.0.

From the results obtained, it can be seen that during the analyzed period, the Romanian entities listed on the BVB register positive average values of the  $TA$ . The positive values of the  $TA$  show the existence of earnings management operations in the entities listed on the BVB, through the overvaluation of turnover, undervaluation of debts, amortisation and depreciation. It can be noted that the higher values of  $TA$  are recorded during Covid-19 and post-pandemic, respectively 2019-2020. With the exception of 2019, the values  $\Delta REV_t/A_{t-1}$  are positive and significant during the Covid-19 period of manifestation. This aspect can be attributed to the decrease in financial results, respectively of the equity capital during the pandemic period, which



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led to an overvaluation of the turnover through results management activities. Based on the data obtained, it could be found that  $PPE_t/A_{t-1}$  recorded a constant level, which explains the constant level of numbness and depreciation at the level of the listed Romanian entities. Moreover, the existence of earnings management operations that led to changes in turnover is also given by the correlations that are established between the analyzed variables with the estimated results presented in Table 4.

**Table 4. Correlations between the variables included in the estimation of the DA**

Variable	$TA_t/A_{t-1}$	$\Delta REV_t/A_{t-1}$	$PPE_t/A_{t-1}$
$TA_t/A_{t-1}$	1	0.502	0.661
Sig.		0.000	0.000
$\Delta REV_t/A_{t-1}$	0.502	1	0.223
Sig.	0.000		0.002
$PPE_t/A_{t-1}$	0.661	0.223	1
Sig.	0.000	0.002	

*Source: authors' processing in SPSS 22.0.*

From the data presented in Table 4 it can be stated that the existence of a significant correlation between  $TA_t/A_{t-1}$  and  $\Delta REV_t/A_{t-1}$  highlights that an increase in accruals is due to an increase in turnover. In this case, the earnings management operations are mainly aimed at an overvaluation of turnover, while depreciation and impairments associated with property, plant and equipment are possibly undervalued.

In order to determine the values of discretionary accruals, the estimated values of the residual component of the Jones model were used in the study. Estimates of the parameters of the regression model are presented in Table 5.

**Table 5. Estimations of the regression model parameters used to determine the DA**

Model	Constant	$\Delta REV_t/A_{t-1}$	$PPE_t/A_{t-1}$
B	1.855	0.183	0.415
Sig.	0.087	0.000	0.000

Notes -  $TA_t/A_{t-1}$  is the dependent variable,  $R^2 = 0,755$  and Adjusted  $R^2 = 0,565$

*Source: authors' processing in SPSS 22.0.*

From the data displayed in Table no. 5 it can be said that an increase in turnover corresponds to an increase DA. The explained (non-discretionary) part is much smaller than the part that is explained by the influence of other factors not included in the model (the discretionary part). The variation  $TA_t/A_{t-1}$  is explained by 7,55% by the change in the normal commitments, which shows the presence of earnings management operations materialised in abnormal accruals.

In order to test the second hypothesis, the study introduced the price per share as a dependent variable, in order to assess and test the relevance of the financial information. Significant amounts of the influence of financial information on

position and performance indicate the presence of relevance. In order to assess the relevance of financial information, that is information on financial position and performance, the following model is proposed in the study:

$$P_t = \beta_0(TA_t/A_{t-1}) + \beta_1(\Delta REV_t/A_{t-1}) + \beta_2(PPE_t/A_{t-1}) + \varepsilon \quad (4)$$

where,

$P$  represents the share price of the entity on 31 December

$\beta_i=0,...,3$  represent the parameters of the regression model, and

$\varepsilon \sim N(0,1)$ , random variable, error.

**Table 6. Correlations between the variables included in the equation**

Variable	Price	$TA_t/A_{t-1}$	$\Delta REV_t/A_{t-1}$	$PPE_t/A_{t-1}$
P	1	-0.005	-0.062	-0.019
Sig.		0.969	0.630	0.881
$TA_t/A_{t-1}$	-0.005	1	0.502	0.661
Sig.	0.969		0.000	0.000
$\Delta REV_t/A_{t-1}$	-0.062	0.502	1	0.223
Sig.	0.630	0.000		0.002
$PPE_t/A_{t-1}$	-0.19	0.661	0.223	1
Sig.	0.881	0.000	0.002	

Source: authors' processing in SPSS 22.0.

At the level of correlations that are established between the variables included in Equation (4) assessing relevance, it can be seen that there are no significant links between the share price (P), assets, income, respectively depreciation. This implies that in substantiating their decisions, with an impact on the stock exchange rate, investors are not primarily interested in the return on assets used in the operating activity, but especially in the financial results obtained by the entity.

**Table 7. Summary of the model for the equation**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.073	0.005	-0.046	42.03933

Source: authors' processing in SPSS 22.0.

The informative capacity of the variables used in model (4) can be assessed using the determination report in Table 7. It is noted that only 0.5% of the change in the exchange rate can be explained on the basis of assets, income, depreciation and impairments. The difference may be explained by the influence of other factors or information not included in the financial statements.

For the third hypothesis, cash flow from operational activities (CFO) will be introduced in the analysis as receipts and payments, the value of total assets, according to the equation:

$$DA_t/A_{t-1} = \beta_0 + \beta_1 \cdot CFO_t/A_{t-1} + \varepsilon \quad (5)$$

The discrepancy between the DA and the CFO cannot be explained as a result of the normal accounting operations recognised by the financial reporting referentials, and the mismatch between the two indicates the presence of manipulation of the information in the financial statements. The correlations between the two variables are shown in Table 9.

**Table 9. Correlations between the variables included in the equation**

Variable	$DA_t/A_{t-1}$	$CFO_t/A_{t-1}$
$DA_t/A_{t-1}$	1	0.047
Sig.		0.521
$CFO_t/A_{t-1}$	0.047	1
Sig.	0.521	

*Source: authors' processing in SPSS 22.0.*

Based on the results presented in Table 9, it can be seen that there are no significant correlations between the value of assets and the value of cash flows from operating activity. This can be explained by the manipulation by managers of transactions generating cash receipts or payments. Such transactions will not effectively lead to their settlement but are only intended to manipulate the entity's financial performance for the purpose of reporting distorted results.

**Table 10. Summary of the model for the equation**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.047	0.002	-0.003	21.0784

*Source: authors' processing in SPSS 22.0.*

The presence of result management operations can also be explained by the value of the determination ratio ( $R^2$ ). As can be seen from Table 10, the value of the determination report is 0.047, which indicates that the financial information has been handled and does not accurately present the financial performance.

## 5. Conclusions

As we could see based on the information captured in the specialized literature, the concept of result management is not a recent one, it is found in human society in various stages of its development. Companies are facing increasing uncertainties in the management environment, also caused by the outbreak of COVID-19. The results suggest that earnings management practices that employ accruals have varied in a statistically different manner during the COVID-19 economic crisis compared to other crises.

In the present study it is proposed the statistical analysis of the accruals earnings management, by reviewing the specialized literature on the problem to be researched

and establishing research objectives, achieved on the basis of a statistical methodological approach, of deductive-inductive type.

In the first stage of the study, the concepts of result management, discretionary and non-discretionary commitments, respectively the presentation of the Jones model, are based. At this stage, the concept of result management was described, its characteristics were presented, as well as a number of models used over time for its analysis.

In the second stage of the study, starting from the current state of knowledge in the specialized literature and from the methodological approaches of analysis and evaluation of the result management, the study proposes as a method of analysis the model proposed by Jones in 1991. The results of the study, obtained after testing the hypotheses formulated in the study, led to the achievement of the objectives.

The limits of this study in the field of earnings management are determined by the complexity of this issue and by the impossibility of capturing all the factors that determine managers to resort to manipulation of their financial situations. There are also a number of limitations to this study that create potential for future research. First of all, only the financial crisis produced by the Covid-19 pandemic was considered in the study. It would be useful to continue this research also by comparing the effects of different economic events that affected the global market.

Secondly, in the following studies related to outcome management operations, other models proposed over time in the literature for the analysis of earnings management will be used as a priority.

Another limit of this study is given by the analyzed population, summarized only to listed entities in Romania. Further research can extend the analysis of earnings management to different countries and financial markets.

In the study it was proposed a qualitative and quantitative analysis of the dynamics of the main ideas and problems that can be the basis of some scientific studies of perspective. Through the results of this study, the future directions aim to address the same topics of interest at national and international level. However, for the visibility of the international research, the approach to the earnings management issue aims to make a series of comparisons at the level of the main capital markets at European level.

The results of the study led to the achievement of the proposed objectives, namely the determination of the degree to which at the level of the listed Romanian entities were used earnings management. The main quantitative variables used are assets, income, depreciation and impairments, price per share, cash flow from operating activity. Qualitative variables took into account the object of activity, the type of

audit opinion issued for the entity concerned. For the analysis of earnings management, the original Jones model was used.

## References

- Abu Alfadhael, S., & Jarraya, B. (2021) "Earnings management and its applications in Saudi Arabia context: Conceptual framework and literature review", *Accounting*, vol. 7: 993-1008
- Anagnostopoulou, S., & Tsekrekos, A. (2017) "The effect of financial leverage on real and accrual-based earnings management", *Accounting and Business Research*, vol. 47, no. 2: 191-236
- Al-Absy, M., Ismail, K. N. I. K., & Chandren, S. (2021) "The association between real activities and accruals earnings management in Malaysian listed companies", *Contaduría y Administración*, vol. 66, no. 3: 1-31
- Ali, H., Amin, H. M. G., Mostafa, D., & Mohamed, E. K. A. (2022) "Earnings management and investor protection during the COVID-19 pandemic: evidence from G-12 countries", *Managerial Auditing Journal*, vol. 37, no. 7: 775-797
- Aljawaheri, B. A. W., Ojah, H. K., Machi, A. H., & Almagtome, A. H. (2021) "Covid-19 Lockdown, Earnings Manipulation and Stock Market Sensitivity: An Empirical Study in Iraq", *Journal of Asian Finance, Economics and Business*, vol. 8, no. 5: 709
- Al-Mughrabi, Y. M. (2020) "The Impact of Financial Crisis on Earnings Management in Nonfinancial Listed Firms: Evidence from Jordan", *International Journal of Business and Management*, vol. 15, no. 5: 168-180
- Andreas, A. (2017) "Analysis of Operating Cash Flow to Detect Real Activity Manipulation and Its Effect on Market Performance", *International Journal of Economics and Financial Issues*, vol. 7, no. 1: 524-529
- Anton, S. G., & Carp, M. (2020) "The Effect of Discretionary Accruals on Firm Growth. Empirical Evidence for Smes From Emerging Europe", *Journal of Business Economics and Management*, vol. 21, no. 4: 1128-1148
- Badertscher, B. A. (2011) "Overvaluation and the choice of alternative earnings management mechanisms", *The Accounting Review*, vol. 86, no. 5: 1491-1518
- Bartov, E., Gul, F. A., & Tsui J. (2000) "Discretionary accrual models and audit qualification", *Journal of Accounting and Economics*, no. 30: 421-452
- Beneish, M. (1999) "The detection of earnings manipulation", *Financial Analysts Journal*, 24-36
- Bhattacharjee, S., Maletta, M. J., & Moreno, K. K. (2016), "The Role of account subjectivity and risk of material misstatement on auditors internal audit reliance judgments", *Accounting Horizons*, vol. 30, no. 2: 225-226
- Bešlić, I., Bešlić, D., Jakšić, D., & Andrić, M. (2015) "Testing the Models for Detection of Earnings Management", *Industrija*, vol. 43, no. 3: 55-79

- Brad, L., Dobre, F., Țurlea, C., & Brașoveanu, I. V. (2014) "The impact of IFRS adoption in Romania upon the earnings management of the Bucharest Stock Exchange entities", *Procedia Economics and Finance – Emerging Markets Queries in Finance and Business*, vol. 15, 871-876
- Burcă, V., Popa, A. F., Sahlian, D. N., Trașcă, D. L., & Bobitan, N. (2022) "Modelling the Impact of Earnings Management on the Probability of Financial Statements Fraud", *Inzinerine Ekonomika-Engineering Economics*, vol. 33, no. 5: 521-539
- Burgstahler, D., Dichev, I. (1997) "Earnings management to avoid earnings decreases and losses", *Journal of Accounting and Economics*, no. 24: 99-126
- Byzalov, D., & Basu, S. (2019) "Modeling the determinants of meet-or-just-beat behavior in distribution discontinuity tests", *Journal of Accounting and Economics*, vol. 68, no. 2-3: 101266
- Callao, S., Jarne, J., & Wróblewski, D. (2017) "Detecting Earnings Management Investigation on Different Models Measuring Earnings Management for Emerging Eastern European Countries", *International Journal of Research*, vol. 5, no. 11: 222-259
- Carp, M., & Georgescu, I. E. (2019) "The Influence of Audit Opinion on the Degree of Real Earnings Management. The Case of Romanian Listed Companies", *Audit financiar*, XVII, no. 4(156): 666-679
- Carp, M., & Istrate, C. (2021) "Audit Quality under Influences of Audit Firm and Auditee Characteristics: Evidence from the Romanian Regulated Market", *Sustainability*, 13, 1-16
- Christensen, P., Frimor, H., & Şabac, F. (2011) "The Stewardship Role of Analyst Forecasts, And Discretionary Versus Non-Discretionary Accruals", *European Accounting Review*, vol. 22, no. 2: 257-296
- Christensen, T., Lewis-Western, M., Huffman, A., & Scott, R. (2021) "Accruals earnings management proxies: Prudent business decisions or earnings manipulation?", *Journal of Business Finance & Accounting*, 49: 536-587
- Comporek, M. (2020) "The Relationship Between Accrual-Based Earnings Management And Real Earnings Management: Reference To The Polish Capital Market", *Folia Oeconomica Stetinensia*, vol. 20, no. 2: 66-81
- Costa C. M. & Soares, J. M. M .V. (2022) "Standard Jones and Modified Jones: An Earnings Management Tutorial", *Journal of Contemporary Administration*, vol. 26, no. 2: 1-13
- Darmawan, P. E., Sutrisno, T., & Mardiaty, E. (2019) "Accrual Earnings Management and Real Earnings Management: Increase or Destroy Firm Value?", *International Journal of Multicultural and Multireligious Understanding*, vol. 6, no. 2: 9
- Das, R. C., Mishra, C. S., & Rajib, P. (2017) "Real versus accrual-based earnings management: Do Indian firms prefer one over the other?", *Paradigm*, vol. 21, no. 2: 156-174

- Davidson, W. N., Jiraporn, P., Kim, Y. S., & Nemec, C. (2004) "Earnings management following duality-creating successions: Ethnostatistics, impression management, and agency theory", *Academy of Management Journal*, vol. 47, no. 2: 267-275
- Dechow, P. (1994) "Accounting earnings and cash flows as measures of firm performance: The role of accounting accruals", *Journal of Accounting and Economics*, vol. 18, no. 1: 3-42
- Dechow, P., & Sloan, R. (1991) "Executive incentives and the horizon problem: An empirical investigation", *Journal of Accounting and Economics*, vol. 14, no. 1: 51-89
- Dechow, P., Sloan R., & Sweeney, A., (1995) "Detecting earnings management", *The Accounting Review*, vol. 70, 193-225
- DeFond, M. L., & Subramanyam, K. R. (1998) "Auditor changes and discretionary accruals", *Journal of Accounting and Economics*, vol. 25, no. 1: 35-67
- Dechow, P. M., & Skinner, D. J. (2000) "Earnings management: Reconciling the views of accounting academics, practitioners and regulators", *Accounting Horizons*, vol. 14, no. 2: 235-250
- Devi, K., & Anisykurlillah, I. (2021) "Analysis of the effect of fraud pentagon factors on fraudulent financial statement with audit committee as moderating variable", *Accounting Analysis Journal*, vol. 10, no. 1: 39-46
- Doukakis, L. (2014) "The effect of mandatory IFRS adoption on real and accrual-based earnings management activities", *Journal of Accounting and Public Policy*, vol. 33, no. 6: 551-572
- Elkalla, T. (2020) "Do firms substitute earnings management methods? The case of the MENA region", *Journal of Research in Emerging Markets*, vol. 3, no. 1: 32-43
- Filip, A., & Raffournier, B. (2014) "Financial Crisis and Earnings Management: The European Evidence", *The International Journal of Accounting*, vol. 49, no. 4: 455-478
- Flores, E., Weffort, E. F. J., Da Silva, A. F., & Carvalho, L. N. G. (2016) "Earnings management and macroeconomic crises: evidences from Brazil and USA capital markets", *Journal of Accounting in Emerging Economies*, vol. 6, no. 2: 179-202
- Foroni, C., Marcellino, M., & Stevanovic, D. (2021) "Forecasting the Covid-19 recession and recovery: lessons from the financial crisis", *International Journal of Forecasting*, vol. 38, no. 2: 596-612
- Francis, J., Lafond, R., Olsson, P., & Schipper, K. (2005) "The market pricing of accruals quality", *Journal of Accounting and Economics*, vol. 39, no. 2: 295-327
- Ghazali, A. W., Shafie N. A., & Sanusi, Z. M. (2015) "Earnings Management: An Analysis of Opportunistic Behaviour, Monitoring Mechanism and Financial Distress", *Procedia Economics and Finance*, vol. 28: 190-201
- Grosu, M., Mihalciuc, C. C., & Robu, I.-B. (2023) "(Non)Going Concern vs. Gain or Loss and Influence on Audit Opinion", *Audit Financiar*, vol. XXI, no. 1(169): 109-123

- Gunny, K. (2010) "The relation between EM using real activities manipulation and future performance: evidence from meeting earnings benchmarks", *Contemporary Accounting Research*, vol. 27, no. 3: 855-888
- Han, J. C.Y., & Wang, S. W. (1998) "Political costs and earnings management of oil companies during the 1990 Persian Gulf crisis", *The Accounting Review*, vol. 73, no. 1: 103-117
- Healy, P. (1985) "The effect of bonus schemes on accounting decisions", *Journal of Accounting and Economics*, vol. 7: 85-107
- Healy, P., & Palepu, K. (1990) "Effectiveness of accounting-based dividend covenants", *Journal of Accounting and Economics*, vol. 12, no. 1-3: 97-124
- Healy, P. M., & Wahlen, J. M. (1999) "A Review of the Earnings Management Literature and its Implications for Standard Setting", *Accounting Horizons*, vol. 13, no. 4: 365-383
- Huian, M.C., Mironiuc, M., & Chiriac, M. (2018) "Study on the association between earnings management and value relevance based on the reporting method used for operating cash flows", *Audit Financiar*, vol. XVI, no. 1(149): 101-110
- Indriani, A., D., & Pujiono, P. (2021) "Analysis of earnings management practices using the modified jones model on the industry company index Kompas 100", *The Indonesian Accounting Review*, vol. 11, no. 1: 235-243
- Isahak, M. S., Johari, A. S., Rahmatullah, D. A. M., Zainal, N. A., Tajuddin, N. A., & Kamaruddin, N. B. (2023) "Impact of Covid-19 on Earnings Management in Financial Reporting - Concept Paper", *International Journal of Academic Research in Business and Social Sciences*, vol. 13, no. 3: 1719-1729
- Istrate, C., Georgescu, I. E., Carp, M., Robu, I. B., & Pavaloaia, L. (2015) "Accruals Earnings Management in Emerging Markets under the Transition to IFRS: The Case of Romanian Listed Companies", *Transformations in Business & Economics*, vol. 14, no. 2A (35A): 393-411
- Istrate, C. (2019) "Detecting earnings management using Benford's Law: the case of Romanian listed companies", *Journal of Accounting and Management Information Systems*, vol. 18, no. 2: 198-223
- Jaba, E. (2002) *Statistică*, Ediția a 3-a, Editura Economică, București
- Jackson, A. (2017) "Discretionary Accruals: Earnings Management ... or Not?", *Journal of Accounting, Finance, and Business Studies*, vol. 54, no. 2: 1-18
- Jones, J. (1991) "Earnings management during import relief investigations", *Journal of Accounting Research*, vol. 29, no. 2: 193-228
- Kazemi, S. M. (2022) "Impact of COVID-19 Pandemic on Earnings Management: The European Union Empirical Evidence", available at DOI:10.13140/RG.2.2.11976.29443
- Kothari, S. P., Leone, A. J., & Wasley, C. (2005) "Performance matched discretionary accrual measures", *Journal of Accounting and Economics*, vol. 39, no. 1: 163-197
- Kousenidis, D., Ladas, A., & Negakis, C. (2013) "The effects of the European debt crisis on earnings quality", *International Review of Financial Analysis*, vol. 30: 351-362



- Lee, H.-L., & Lee, H. (2013), "Do big 4 audit firms improve the value relevance of earnings and equity?", *Managerial Auditing Journal*, vol. 28, no. 7: 628-646
- Leuz, C., Nanda, D., & Wysocki, P. D. (2003) "Earnings Management and Investor Protection: An International Comparison", *Journal of Financial Economics*, vol. 69: 507-527
- Li, L., & Kuo, C.-S. (2017) "CEO equity compensation and earnings management: the role of growth opportunities", *Finance Research Letters*, vol. 20: 289-295
- Li, Z., Hsu, Y., & Gao, X. (2020) "How does real earnings management respond to the 2007-2008 financial crisis?", *Pacific Accounting Review*, vol. 32, no. 4: 495-517
- Liu, G., & Sun, J. (2022) "The impact of COVID-19 pandemic on earnings management and the value relevance of earnings: US evidence", *Managerial Auditing Journal*, vol. 37, no. 7: 850-868
- Matiş, D., Vladu, A. B., Negrea, L., & Sucala, L. (2010) "Jones, Dechow and Kasznik Models Significance in the Romanian Economic Environment", *Annales Universitatis Apulensis Series Oeconomica*, vol. 12, no 1: 253-266
- Mishkin, F. S. (1992) "Anatomy of financial crisis", *Journal of Evolutionary Economics*, vol. 2: 115-130
- McNichols, M. F. (2000) "Research design issues in earnings management studies", *Journal of Accounting and Public Policy*, vol. 19, no. 4-5: 313-345
- Nechita, E. (2015) "Earnings management and quality of financial reporting: a pre-post IFRS, year XVI adoption comparative analysis for companies listed on the Bucharest Stock Exchange", *Audit Financiar*, vol. 13, no. 122: 74-84
- Nguyen, T. T. N., Ibrahim, S., & Giannopoulos, G. (2022) "Detecting earnings management: a comparison of accrual and real earnings manipulation models", *Journal of Applied Accounting Research*, vol. 24, no. 2: 344-379
- Olatunji, O. C., & Juwon, A. M. (2020), "Accrual Earnings Management, Real Earnings Management and Firm's Value of Quoted Manufacturing Companies in Nigeria", *EuroEconomica*, vol. 3, no. 39: 119-140
- Oruke, M., Iraya, C. M., Omoro, N. O. O., & Otieno, L. O. (2021) "Earnings Management: A critical Literature Review", *African Development Finance Journal*, vol. 5, no. 2: 15-24
- Ozili, P. (2017) "Bank earnings management and income smoothing using commission and fee income: a European context", *International Journal of Managerial Finance*, vol. 13, no. 4: 419-439
- Ozili, P., & Arun, T. (2020) "Spillover of COVID-19: Impact on the global economy", *SRN Electronic Journal*, available at <https://www.igi-global.com/chapter/spillover-of-covid-19/309560>
- Pak, A., Adegboye, O. A., Adekunle, A. I., Rahman, K. M., McBryde, E. S., & Eisen, D. P. (2020) "Economic consequences of the COVID-19 outbreak: the need for epidemic preparedness", *Frontiers in Public Health*, vol. 8: 241
- Paulo, E., Martins, E., & Corrar, L. J. (2007) "Detection of earnings management by deferred tax income analysis", *Revista de Administração de Empresas*, vol. 47, no. 1: 46-59

- Peasnell, K., Pope, P., & Young, S. (2000) "Detecting earnings management using cross-sectional abnormal accruals models, *Accounting and Business Research*", vol. 30, no. 4: 313-326
- PWC (2021) "Global Crisis Survey 2021", available at [www.pwc.com/gx/en/crisis/pwc-global-crisis-survey2021.pdf](http://www.pwc.com/gx/en/crisis/pwc-global-crisis-survey2021.pdf)
- Robu, I. B. (2021) *Calitatea informației financiare. Fundamentări contabile, modelări econometrice și analize statistice*, Editura Performantica, Iași
- Roychowdhury, S. (2006) "Earnings Management through Real Activities Manipulation", *Journal of Accounting and Economics*, vol. 42, no. 3: 335-370
- Rus, A. I. D., & Achim, V. (2020) "Does the Capital Financing may Impact the Company's Performance? A Study Case on Western Europe Companies", *International Economics, Finance & Business Conference*, Anglo-American University, Prague, Czechia, 20
- Ryu, H., & Chae, S.-J. (2022) "The Impact of COVID-19 on Earnings Management in the Distribution and Service Industries", *Journal of Distribution Science*, 20-4: 95-100
- Salno, H. M., & Baridwan, Z. (2000) "Analisa Perataan Penghasilan (Income Smoothing): Faktor-Faktor yang Mempengaruhi dan Kaitannya dengan Kinerja Saham Perusahaan Publik di Indonesia", *Jurnal Riset Akuntansi Indonesia*, vol. 3. no. 1: 17-34
- Sakaki, H., Jackson, D., & Jory, S. (2017) "Institutional ownership stability and real earnings management", *Review of Quantitative Finance and Accounting*, vol. 49, no. 1: 227-244
- Schipper, K. (1989) "Commentary on Earnings Management", *Accounting Horizons*, vol. 3, no. 4: 91-102
- Scott, R W. (2009) *Financial accounting theory (5th edition)*, Pearson education, Toronto, Canada
- Sellami, M. (2015) "Incentives and Constraints of Real Earnings Management: The Literature Review", *International Journal of Finance and Accounting*, vol. 4, no. 4: 206-213
- Sellami, M. (2016) "The interaction between real and accrual-based earnings management: Analysis based on the mandatory IFRS adoption", *International Journal of Accounting and Economics Studies*, vol. 4, no. 1: 24-31
- Shah, S. F., Rashid, A., & Malik, W. S. (2020) "Potential Substitution Between Accrual Earnings Management and Real Earnings Management Among Pakistani Listed Firms", *Global Business Review*, 0 (0): 1-18
- Stubben, S. (2010) "Discretionary Revenues as a Measure of Earnings Management", *The Accounting Review*, vol. 85, no. 2: 695-717
- Sun, J., & Lan G. (2014) "Independent Audit Committee Characteristics and Real Earnings Management", *Managerial Auditing Journal*, vol. 29, no. 2: 153-172
- Sunardi (2018) "The Effect of Earnings Management on Firm Value before and When IFRS Implementation, Modereted Life Cycle Company", *Journal of Business and Economics*, vol. 9, no. 3: 275-285

- Susanto, Y. K. (2017) "Accrual Earnings Management, Real Earnings Management, Firm Value", *International Journal of Business, Economics and Law*, vol. 14, no. 1: 284-288
- Sweeney, A. (1994) "Debt-covenant violations and managers' accounting responses", *Journal of Accounting and Economics*, vol. 17: 281-308
- Tache, M. (2021) "The incidence of earnings management on audit quality", *Proceedings of the 15th International Conference on Business Excellence*, vol. 15, no. 1: 783-792
- Talab, H. R., Flayyih, H. H., & Ali, S. I. (2017) "Role of Beneish M-score Model in Detecting of Earnings Management Practices: Empirical Study in Listed Banks of Iraqi Stock Exchange", *International Journal of Applied Business and Economic Research*, vol. 15, no. 23 (Part 2): 287
- Vladu, A. B., & Cuzdriorean, D. D. (2014) "Detecting earnings management: Insights from de last decade leading journals published research", *Procedia Economics and Finance*, vol. 15: 695-703
- Wali K. (2017) "The influence of Dutch firm's performance on discretionary Accrual Models: Evidence from the Netherlands", *Zanco Journal of Human Science*, vol. 21, no.2: 374-399
- Watts, R. L., & Zimmermam, J. L. (1978) "Towards a positive theory of determination of accounting standards", *The Accounting Review*, vol. 53, no. 1: 112-134
- Xu, Z., Taylor, G., & Dugan, M. (2007) "Review of real earnings management literature", *Journal of Accounting Literature*, vol. 26: 195-228
- Yan, H., Liu, Z., Wang, H., Zhang, X., & Zheng, X. (2022) "How does the COVID-19 affect earnings management: Empirical evidence from China", *Research in International Business and Finance*, vol. 63: 1-13
- Zamri, N., Fatzel, F. H. M., Abdullah, W. R. W., & Omar, N. (2022) "Financial Distress and Earnings Management: Evidence from Malaysia Before and During The COVID-19 Pandemic", *Journal of Academic Research in Business and Social Sciences*, vol. 12, no. 11: 85-103
- Zang, A. (2012) "Evidence of the trade-off between real activities manipulation and accrual-based earnings management", *The Accounting Review*, vol. 87, no. 2: 675-703