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Article

The Impact of Corporate Social Responsibility on the Use of Earnings Management in the Context of Internal Financial and Macroeconomic Factors: The Case of Lithuania

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Abstract: Earnings management is a widespread phenomenon in practice, with researchers therefore focusing on trying to understand what motives and factors lead to companies engaging in earnings management. In addition to internal financial and macroeconomic factors, the influence of institutional factors including corporate social responsibility (CSR) has been widely studied in recent years. In Lithuania, there have been no studies on the manipulation of accounting information in socially responsible companies. Therefore, this study aims to identify the impact of CSR on the application of earnings management in the context of internal financial and macroeconomic factors. The results of this study are significant as they not only enable assessing the impact of social responsibility on the application of earnings management in Lithuanian companies, but also the influence of macroeconomic factors such as the gross domestic product (GDP), inflation, foreign direct investment (FDI), average wages, and unemployment, as well as internal financial factors such as leverage, returns on assets (RoA), and the profitability of EBIT. The results show that CSR reduces the use of earnings management, regardless of whether it is accrual-based or real earnings management. Additionally, this analysis demonstrates that, among the internal financial factors, leverage carries the most substantial influence. The higher a company's leverage, the more inclined that company is to use earnings management. Exploring the impact of macroeconomic indicators, it was found that the GDP, inflation, and unemployment rate have a statistically significant impact on the use of earnings management, albeit only if the firm uses accrual-based earnings management and adopts a profit-enhancing strategy.

Keywords: accrual-based earnings management; real earnings management; corporate social responsibility; Lithuanian companies



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1. Introduction

In recent decades, the academic literature has focused on issues concerning the use of earnings management. Earnings management is a widespread phenomenon in practice that distorts the results of financial statements and misleads users of the resulting information. The choice of these accounting methods and techniques is a nuanced and sophisticated practice, free of rigid rules, and is used for personal gain or to mislead stakeholders. Moreover, such procedures are only carried out after careful study of the applicable legislation and accounting standards. Finally, the problem arises from the fact that it is not possible to determine when a company is taking one action or another to present a true and fair view in its financial statements and when it is attempting to manipulate financial information (Cibutavičiūtė and Bachtijeva 2024).

There are a variety of internal and external reasons that encourage companies to adopt earnings management. Positive accounting theory explains many of these reasons, as it aims to answer the questions of “why” and “how” companies choose certain accounting methods. Watts and Zimmerman (1978, 1986) proposed explaining a company's choice of

accounting methods using three opportunistic hypotheses: (1) the bonus plan hypothesis; (2) the debt/equity hypothesis; and (3) the political costs hypothesis.

While the fundamental causes of the manipulation of accounting information were already identified in the second half of the last century in the theory of positive accounting, researchers have continued to investigate the motives for applying earnings management (Othman and Zeghal 2006; Aljifri 2007; Iatridis and Kadorinis 2009; Makhail and Sherer 2017; Kustono 2020; Poradova 2021; Cibutavičiūtė and Bachtijeva 2024; and others), as well as the factors that may lead to there being incentives to manipulate accounting information or not (Dilger and Graschitz 2015; Alexander 2017; Wijayana and Gray 2019; C.C.S. Chen et al. 2020; Saleh et al. 2020; Bui and Le 2021; and others). These factors can be grouped into three groups: (1) internal financial factors; (2) macroeconomic factors; and (3) institutional factors. The impact of internal financial and macroeconomic factors on the application of earnings management has been the subject of a considerable number of studies, with researchers having analysed the impacts of various financial and macroeconomic indicators on the use of earnings management in different countries. However, in recent years, particular attention has been paid to institutional factors such as companies' number of board members, institutional shareholders, firm size, firm age, audit size, industry, chairman–director duality relationship, and number of commercial sections, among others. These various institutional factors are examined in the context of internal financial and/or macroeconomic factors to more clearly identify the influence of one or another institutional factor among the overall set of factors.

It should be noted that corporate social responsibility (CSR) has recently been emphasised alongside other institutional factors considered by researchers as determining the incentives that exist to manipulate accounting information or not. Given that socially responsible activities are associated with a value system and financial stability, stakeholders always look more favourably at socially responsible companies. On the one hand, the desire to show higher profits in financial statements, be in line with market forecasts, remain competitive in the market, and sustain the growth of share prices on the stock exchange—thus indicating the company's stability and profitability—may lead companies to apply earnings management. On the other hand, if earnings management is seen as an unethical and immoral practice, it is incompatible with voluntary social responsibility. Consequently, due to their value systems, socially responsible companies should not engage in these practices in their accounting. A number of authors have studied the application of earnings management in socially responsible companies (Scholtens and Kang 2013; Grougiou et al. 2014; Kolsi and Attayah 2018; Mahrani and Soewarno 2018; Ben Amar and Chakroun 2018; Liu and Lee 2019; Buertey et al. 2020; Palacios-Manzano et al. 2021; Dimitropoulos 2022; Tran et al. 2022; El-Feel et al. 2024; and others). However, only a small number of studies have focused on the impact of CSR on earnings management by integrating it with internal financial and macroeconomic factors.

Although CSR is a topic that has been extensively covered in the literature, there is still a lack of comprehensive understanding of the impacts of internal financial, macroeconomic, and institutional factors on the application of corporate governance. In addition, the literature and research often focus on developing or large developed countries, and research on small, developed, open economies is scarce. In Lithuania, this lack of research is mostly explained by the limited availability of information. The relevance of this study lies in the broader context of examining the factors of earnings management not only from a CSR perspective, but also from a macroeconomic and internal financial perspective.

The study seeks to further understand how macroeconomic factors such as the gross domestic product (GDP), inflation, FDI, average wages, and unemployment, together with internal financial indicators such as the leverage, RoA, and profitability of earnings before interests and taxes, can influence earnings management practices in Lithuanian companies. As Lithuania is classified as a small, developed, open economy, the results of this study may be relevant to other similar countries. The results will provide a comprehensive analysis and valuable insights not only on the impact of CSR on accounting manipulation, but also

on how the macroeconomic environment and internal financial factors interact to influence corporate financial behaviour. In addition, this study can provide small economies with valuable insights to better understand how such issues can affect investor confidence and the overall development of the business environment.

2. Literature Review and Hypotheses

2.1. *The Impact of Internal Financial, Macroeconomic and Institutional Factors on Earnings Management*

The growing interest of stakeholders in a company's financial position and results has created an incentive to use earnings management in financial reporting. In many cases, managers are responsible for the manipulation of accounting information, as their orders are followed by accounting professionals (Remenarić et al. 2018). However, the application of earnings management may be driven not only by the internal motives of the manager as an individual or the company as a whole (Cibutavičiūtė and Bachtijeva 2024), but also by internal financial, macroeconomic and institutional factors.

Researchers have used a range of indicators to investigate the impacts of internal financial factors on the application of earnings management. The most commonly used indicators are leverage (Kim et al. 2011; Grougiou et al. 2014; Ferentinou and Anagnostopoulou 2016; Muljono and Suk 2018; Palacios-Manzano et al. 2021; Wang et al. 2022; Zaman et al. 2024), the RoA (Cohen and Zarowin 2010; Ferentinou and Anagnostopoulou 2016; Muljono and Suk 2018; Palacios-Manzano et al. 2021; Wang et al. 2022; Potharla 2023), the profitability of earnings before interests and taxes (Grougiou et al. 2014; Dilger and Graszchitz 2015; Viana and Lourenço 2021), bank debt (Palumbo and Rosati 2022), and sales growth (Salehi et al. 2022), among other indicators.

Changes in profits and increases in debt can be caused not only by processes within a company, but also by its external environment. Fluctuations in a country's economy can not only affect a company's performance but can also lead to the manipulation of financial information. A decline in purchasing power reduces demand and consumption, leading to high levels of large inventories, falling production, and investment. Increases in input and output prices and a decline in the demand for production lead to lower revenues and profits, as well as higher costs for companies. This creates even more pressure on the company/manager to apply earnings management to avoid management turnover, breach of debt contracts, bankruptcy, etc. (Kim et al. 2011; Muljono and Suk 2018). A study by Martens et al. (2021) also confirms that the need to hide poor financial results increases when economic growth is low. On the contrary, there is little incentive to manipulate earnings in a stable economy.

A number of studies have assessed the impacts of macroeconomic indicators on the use of earnings management, in addition to those of internal financial indicators. The authors agree that a system of economic measures is needed to assess macroeconomic phenomena and their impact on earnings management. This framework comprises three main groups of indicators that are used to assess the economic situation of a country and carry out economic analysis: (1) indicators describing the volume of production in a country, most importantly the GDP, national income, FDI, etc.; (2) indicators describing the price level, i.e., the GDP price index and other price indices that indicate the inflation rate; (3) indicators describing the efficiency of the use of labour resources, i.e., the employment and unemployment rates, average DU, etc. (Davulis 2009). Different authors have chosen different macroeconomic indicators to study the prevalence of earnings management, whereby the most common variable for the first group is GDP (X. Chen et al. 2020; Martens et al. 2021; Cai et al. 2022; Viana et al. 2023). Studies seek to confirm that, as GDP grows, companies are less likely to manipulate earnings. Some studies have also sought to reveal the link between foreign investment and the level of earnings management (El-Feel et al. 2024). According to Han et al. (2022), foreign investors have an important role in the prevention of opportunistic behaviour by managers. Inflation rates are among the most commonly analysed indicators in the second group (Viana and Lourenço 2021; Viana et al. 2023). The unemployment rate

is the most popular among the third group of macroeconomic indicators whose relationship with the use of earnings management has been analysed by researchers (Grabiński 2016; Dou et al. 2016; Viana et al. 2023), while the labour cost indicator is also often analysed (Beladi et al. 2020; Cao et al. 2023). These and other macroeconomic indicators reflect economic developments and, therefore, their impacts on earnings management are included in this analysis.

However, researchers have found that internal financial and macroeconomic indicators reveal only part of the reasons why companies choose to engage in earnings management. In this context, a large number of studies have recently been carried out to determine the role of institutional factors in the use of earnings management, including companies' size (Ali et al. 2015; Palacios-Manzano et al. 2021; Wang et al. 2022), age (Salehi et al. 2022), accounting rules (Ferentinou and Anagnostopoulou 2016; Grabiński 2016), number of employees (Kim et al. 2011; Kolsi and Attayah 2018), number of managers (Kolsi and Attayah 2018), audit size (Wang et al. 2022), and industry (Dilger and Graszchitz 2015), as well as many others. Among these, the factor of social responsibility stands out.

2.2. *The Relationship Between Corporate Social Responsibility and Earnings Management*

The concept of CSR is based on the idea that a given company and its stakeholders seek to have a common value system and fulfil mutual needs. It is attractive because it leads to trust, close cooperation, and sustainable relationships. However, this does not mean that socially responsible companies will not still have an incentive to manipulate accounting information, which is incompatible with ethical values (Bachtijeva and Tamulevičienė 2021). The ethical imperative of CSR for the benefit of society and stakeholders should prevent companies from engaging in earnings management. It should provide information users with reliable and transparent financial statements that facilitate efficient resource allocation and management decisions for stakeholders (Liu and Lee 2019). However, the link between earnings management and CSR can be elucidated using several approaches. There are two opposing views in the literature on the relationship between CSR and earnings management (Palacios-Manzano et al. 2021). On the one hand, the relationship between CSR and earnings management can be viewed from the perspective of social norm theory. Grougiou et al. (2014) draw attention to the way in which endorsed behaviours influence economic attitudes, leading to the conceptualisation of CSR as a prevailing norm of corporate behaviour to which adherence is a moral or ethical obligation. Empirical research confirms that the more socially responsible a company is, the less likely it is to engage in earnings management (Hong and Andersen 2011; Scholtens and Kang 2013; García-Sánchez and García-Meca 2017). These statements are consistent with the study conducted by Palacios-Manzano et al. (2021). Liu and Lee (2019) found that socially responsible companies with higher ratings exhibit lower rates of earnings management. They argue that the more companies try to integrate CSR principles into their business practices, the more the use of earnings management is limited.

On the other hand, it has been observed that socially responsible companies are more attractive and can reap a number of benefits, such as an enhanced reputation, an enhanced brand, enhanced customer loyalty, and risk reduction. In this case, information asymmetries may arise between different companies and their stakeholders. Therefore, in order to reduce information asymmetries, managers send signals that the company is socially responsible, when their real objective is not a commitment to social responsibility but the satisfaction of personal interests. This relationship between CSR and earnings management is explained by signalling theory. According to this theory, it is in the interest of corporate managers (signalers) to send "signals" to stakeholders regarding the company's commitment to social responsibility (Grougiou et al. 2014). Sending such signals helps managers reduce the information asymmetry between themselves and their stakeholders by providing clear and reliable indicators of the company's performance, social responsibility, and long-term value. This builds trust and improves relationships with investors, customers, and employees. Buertey et al. (2020) point out that CSR activities can be a means for companies to secure

their reputation, which can be a cover for pursuing their own interests. This has also been confirmed by previous studies. Chih et al. (2008) did not find a link between CSR and earnings management, but Mahrani and Soewarno (2018) found that socially responsible firms engage in earnings management. Grougiou et al. (2014) found that, when banks manipulate earnings, they are more likely to engage in socially responsible activities. Similar findings were made by Prior et al. (2008). They found that some companies that engage in earnings management use corporate social responsibility to hide the use of earnings management.

2.3. Hypothesis Development

The literature shows different links between CSR and earnings management. Opportunistic goals of managers to hide their true performance often lead to the use of earnings management in accounting, while the desire to improve their reputation often leads to the use of CSR as a cover. In this way, a positive relationship is observed between CSR and earnings management. However, the concept of CSR and its ethical perspective should reduce the use of earnings management practices. The inconsistency in the relationship between CSR and earnings management across studies can be explained by the different attitudes of company managers towards CSR. If a company engages in socially responsible activities to protect the public interest, it will not engage in earnings management. A possible reason for the differences in the relationship between CSR and earnings management across studies is attributed by Liu and Lee (2019) to CSR development practices in different countries. This study takes a conceptual approach to CSR based on ethical and moral values. As a result, it is assumed that Lithuanian companies that engage in CSR are less likely to adopt earnings management practices.

Depending on whether a company is audited and which accounting standards it follows—international or national—it will choose to apply different types of earnings management, either accrual-based or real earnings management (Grougiou et al. 2014; Liu and Lee 2019; Palacios-Manzano et al. 2021). Companies engage in accrual-based earnings management when they seek to conceal their true economic performance by changing their accounting methods and estimates in line with accepted accounting principles (Cai et al. 2022). Dimitropoulos (2022) has found that companies with high CSR are associated with less earnings smoothing and report less discretionary accruals. Opportunistic objectives may lead managers to make deliberate decisions to increase or decrease their company's reported profit. According to the political cost hypothesis, larger firms will have a greater incentive to use the profit-reducing accounting technique of deferring profits to future periods (Watts and Zimmerman 1986). This hypothesis is supported by Siekelova et al. (2021)'s study of companies in the Visegrad Quartet. They found that, in 2019, 45% and, in 2018, 52% of the companies that they studied used accrual-based earnings management to show higher profits, while the rest of the companies used accrual-based earnings management to show lower profits than they had. Nevertheless, it is assumed that CSR in the context of macroeconomic indicators will reduce the use of accrual-based earnings management, regardless of whether the company's objective is to show higher or lower profits. On this basis, the following research hypotheses are formulated:

Hypothesis 1 (H1). *Corporate social responsibility reduces the use of accrual-based earnings management when a company chooses a profit reduction strategy.*

Hypothesis 2 (H2). *Corporate social responsibility reduces the use of accrual-based earnings management when a company chooses a profit enhancement strategy.*

The most common approach in the literature is to examine the link between CSR and accrual-based earnings management. Viana et al. (2023) also point out that previous studies have focused only on accrual-based earnings management. This may be related to the specificity of real earnings management, as it is difficult to disentangle it from

management and operational decisions. Real earnings management involves actions aimed at manipulating a company's financial performance by changing its real operations, such as reducing production or applying discounts, in order to achieve desired financial targets. [Kliestik et al. \(2022\)](#) note that real earnings management is commonly used in business practice, but that it is difficult to quantify, making it difficult to identify the characteristics of real earnings management. In order to fill this gap, and in line with our conceptual approach to CSR, it can be assumed that CSR will reduce the use of real earnings management in Lithuanian companies, and, therefore, this research hypothesis is posed:

Hypothesis 3 (H3). *Corporate social responsibility reduces the use of real earnings management.*

The hypotheses were tested by assessing the impact of CSR, as one of the institutional factors, on the use of earnings management in relation to internal financial and macroeconomic factors.

3. Research Methodology

The ethical imperative of CSR should encourage company managers to ensure a true and fair view of their company's financial statements, although financial difficulties, economic instability, and changes in the economy can push socially responsible companies to apply earnings management. In Lithuania, given that no studies of this kind could be found, it is difficult to say whether Lithuanian socially responsible companies follow a conceptual approach and are guided by ethics, or whether they may engage in manipulation in the face of financial difficulties and an unstable economy. Therefore, in order to determine the impact of CSR in the context of internal financial and macroeconomic indicators on the application of earnings management in Lithuanian companies, it is necessary to first determine whether earnings management is applied in Lithuanian companies and then assess its relationship with CSR.

Determination of study period and sample: the 2017–2021 period was studied to determine whether Lithuanian companies engage in earnings management and to what extent this is influenced by internal financial factors, macroeconomic factors, and the level of CSR. The Coronavirus pandemic, beginning in 2019, affected Lithuanian businesses after the Lithuanian government declared a state-level emergency and quarantine on the territory of the Republic of Lithuania for 2020, imposing restrictions on economic activities and banning some economic activities altogether. Given the onset of the pandemic, the sample also includes earlier periods when the country's economic situation was stable, as well as 2020 and beyond.

As determining the level of application of earnings management also requires data from previous years, the sources for this study are the financial statements of Lithuanian companies for the 2016–2021 period, comprising the balance sheet, profit and loss statement, cash flow statement, statement of changes in equity, and explanatory notes of each company. According to the Law on Corporate Reporting of the Republic of Lithuania, medium-sized and large companies are required to prepare such a set of financial statements. There were 1889 such companies in Lithuania.

The sample size was determined using the formula proposed by [Rupšienė \(2007\)](#):

$$n = \frac{N \cdot z^2 \cdot p \cdot q}{\varepsilon^2 (N - 1) + z^2 \cdot p \cdot q} \quad (1)$$

where:

n —the sample size;

N —the population size;

z —the desired confidence level;

p —the probability of the characteristic occurring in the population;

q —the probability of the characteristic not occurring in the population;

ε —the desired precision.

Using this Formula (1), the initial sample size was calculated as 319 companies, based on a 95% confidence level, 5% precision, and a 50% probability of the characteristic occurring ($p = 0.5$). Following this, a criterion-based selection was applied to the 319 companies in the sample. The companies were filtered based on the following criteria: size, industry, operational continuity, accounting standards, legal form, data sufficiency, and social responsibility. These criteria were selected because the focus of this study is to assess Lithuanian companies, specifically those using national accounting standards. Based on these criteria, 49 companies were excluded for not meeting the accounting standards. Additionally, 41 companies which provide consolidated financial statements were excluded due to the potential impact on our calculations.

It was also important to exclude financial institutions, credit institutions, and agricultural companies, as their accounting methods differ from those of other sectors, potentially affecting the results. As a result, 37 companies were excluded for this reason. Furthermore, 4 companies were excluded for undergoing bankruptcy, liquidation, or reorganization procedures. Two newly established companies were also excluded due to the lack of data from prior years.

After applying these criteria (excluding social responsibility), 186 companies remained in the sample. From this group, companies that disclosed information on social responsibility were selected. An equal number of companies for each characteristic, ensuring 50% social responsibility representation, were included in the sample. The final sample consisted of 58 companies (290 company years).

In the next step, the research methods for determining the application of earnings management and assessing the impact of CSR were selected.

Identification of earnings management: given that there are two types of earnings management—accrual-based and real earnings management—when studying the use of earnings management, it is necessary to identify both types. In order to determine whether Lithuanian companies use accrual-based earnings management, the [Jones \(1991\)](#) model modified by [Dechow et al. \(1995\)](#) was used (Formula (2)).

$$\frac{TA_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1 \left(\frac{1}{A_{i,t-1}} \right) + \alpha_2 \left(\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{A_{i,t-1}} \right) + \alpha_3 \left(\frac{PPE_{i,t}}{A_{i,t-1}} \right) + \varepsilon_{i,t}, \quad (2)$$

where:

$TA_{i,t}$ —total accruals of company i in year t ;

$\Delta REV_{i,t}$ —revenue of company i in year t minus the revenue in year $t - 1$;

$\Delta REC_{i,t}$ —receivables of company i in year t less the receivables of year $t - 1$;

$PPE_{i,t}$ —tangible fixed assets of company i in year t ;

$A_{i,t-1}$ —total assets of company i in year $t - 1$;

$\alpha_1, \alpha_2, \alpha_3$ —company-specific parameters (unknowns are estimated using the least squares method);

$\varepsilon_{i,t}$ —abnormal accruals of company i in year t ;

t —index of the years included in the period considered.

This model is used to calculate the accrual-based earnings management estimates, EM_TA . Later, when constructing the regression equation, to avoid interpretational errors due to negative values, the obtained values will be divided into two groups: EM_TA_{enh} (profit-enhancing strategy) and EM_TA_{red} (profit-reducing strategy). This will help to more clearly assess the trends of profit enhancement and reduction that may occur, even if the values are negative. Other authors have also distinguished between positive and negative meanings ([Buerter et al. 2020](#)).

[Roychowdhury \(2006\)](#)'s models were used to identify instances of real earnings management. They help to identify abnormal cash flows to detect sales manipulation (Formula (3)), overproduction (Formula (4)), and reductions in discretionary expenditures (Formula (5)).

$$\frac{CFO_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1 \left(\frac{1}{A_{i,t-1}} \right) + \alpha_2 \left(\frac{S_{i,t}}{A_{i,t-1}} \right) + \alpha_3 \left(\frac{\Delta S_{i,t}}{A_{i,t-1}} \right) + \varepsilon_{i,t} \quad (3)$$

$$\frac{PROD_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1 \left(\frac{1}{A_{i,t-1}} \right) + \alpha_2 \left(\frac{S_{i,t}}{A_{i,t-1}} \right) + \alpha_3 \left(\frac{\Delta S_{i,t}}{A_{i,t-1}} \right) + \alpha_4 \left(\frac{\Delta S_{i,t-1}}{A_{i,t-1}} \right) + \varepsilon_{i,t} \quad (4)$$

$$\frac{DISX_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1 \left(\frac{1}{A_{i,t-1}} \right) + \alpha_2 \left(\frac{S_{i,t}}{A_{i,t-1}} \right) + \alpha_3 \left(\frac{\Delta S_{i,t-1}}{A_{i,t-1}} \right) + \varepsilon_{i,t} \quad (5)$$

where:

$CFO_{i,t}$ —cash flow from operating activities of company i in year t ;

$PROD_{i,t}$ —production costs of company i , year t ;

$DISX_{i,t}$ —discretionary expenditures of company i , t in year i , t ;

$S_{i,t}$ —sales revenue of company i , year t ;

$\Delta S_{i,t}$ —sales revenue of company i , year t , less sales revenue of year $t - 1$;

$\Delta S_{i,t-1}$ —change in sales revenue of company i , year t , minus the change in sales revenue of year $t - 1$.

Using Roychowdhury (2006)'s models, the abnormal cash flows, overproduction, and discretionary expenditures are calculated by subtracting the normal results from the actual results. According to Cohen and Zarowin (2010), the variables $Ab_CFO(i,t)$, $Ab_PROD(i,t)$, and $Ab_DISX(i,t)$ calculated in this way are indicators of real earnings management. Therefore, the authors suggest combining all three variables to assess the overall impact of real earnings management. The overall measure of real earnings management ($EM_REAL_{i,t}$) is calculated as follows:

$$EM_REAL_{i,t} = -1 \times Ab_CFO_{i,t} + Ab_PROD_{i,t} - 1 \times Ab_DISX_{i,t} \quad (6)$$

Model specification and selection of independent variables: having determined the level of application of earnings management in Lithuanian companies based on the models presented above, the next step is to assess the extent to which it is influenced by CSR as well as internal financial and macroeconomic factors, whereby a regression model was developed for this purpose. It is important to emphasise that the objective of this study is not to identify all of the factors that might influence the use of earnings management in Lithuanian companies. Rather, the model only includes internal financial and macroeconomic indicators commonly used in other researchers' studies, as well as the level of social responsibility. A multiple linear regression model was constructed to confirm or refute the hypotheses.

$$EM_{i,t}^* = \alpha_0 + \alpha_1 CSR_{i,t} + \alpha_2 INF_t + \alpha_3 GDP_t + \alpha_4 FDI_t + \alpha_5 AW_t + \alpha_6 UR_t + \alpha_7 ROA_{i,t} + \alpha_8 EBIT_{i,t} + \alpha_9 LEV_{i,t} + \varepsilon_{i,t} \quad (7)$$

where:

$EM_{i,t}^*$ —earnings management value of company i in year t ;

$CSR_{i,t}$ —social responsibility score of company i in year t ;

INF_t —inflation rate in year t ;

GDP_t —gross domestic product in year t ;

FDI_t —foreign direct investment in year t ;

AW_t —average wage in year t ;

UR_t —unemployment rate in year t ;

$ROA_{i,t}$ —return on assets of company i in year t ;

$EBITP_{i,t}$ —profitability of earnings before interest and taxes (EBIT/revenue) of company i in year t ;

$LEV_{i,t}$ —leverage (total debt/total equity) of company i in year t .

In Equation (6), the dependent variable $EM_{i,t}^*$ indicates whether or not a given company applies earnings management. As there are several types of earnings management, three models are estimated: model 1, where the dependent variable is accrual-based earnings management when the firm adopts a profit reduction strategy; model 2, where the dependent variable is accrual-based earnings management when the firm adopts a profit enhancement strategy; and model 3, where the dependent variable is an overall estimate of real earnings management.

There are several CSR initiatives and assessments in Lithuania, but there is no well-developed and universally accessible database that systematically reflects companies' disclosure of corporate social responsibility. Therefore, in this study, the CSR score is based on whether or not a company discloses its socially responsible activities. In the model, socially responsible companies $CSR_{i,t}$ are assigned a score of 1, while other companies are assigned a score of 0.

The variables inflation (INF_t), FDI (FDI_t), unemployment rate (UR_t), average wage (AW_t), and GDP (GDP_t) are determined based on Lithuania's main macroeconomic indicators (see Table 1).

Table 1. Main macroeconomic indicators for Lithuania 2017–2021.

Macroeconomic Indicators		2017	2018	2019	2020	2021
Gross domestic product per inhabitant in current prices, EUR	GDP_t	3894.8	4304.2	4603.5	4654.9	5296.7
Foreign direct investment at the end of the period, EUR million	FDI_t	16,360.56	16,959.32	20,691.38	23,938.13	25,954.74
Annual inflation, %	INF_t	3.9	1.9	2.7	0.2	10.6
Average wage, EUR	AW_t	884.8	961.7	1346.7	1512.3	1666.9
Unemployment rate, %	UR_t	7.1	6.0	6.4	9.0	7.0

Source: compiled by the authors based on information from the State Data Agency.

The leverage ($LEV_{i,t}$), RoA ($ROA_{i,t}$), and EBIT profitability ($EBITP_{i,t}$) ratios were calculated based on the financial statements for the 2017–2021 period of the companies selected for this study.

The correlation between variables is determined by calculating the Pearson correlation coefficient r . In order to assess whether the data are suitable for regression analysis, the distribution of the data is tested according to a Gaussian distribution by calculating the probability density of the distribution and comparing it with the empirical distribution.

In order to test the regression equation that has been explained by the independent variables and the coefficient of determination, the dispersion of the values of the dependent variable along the regression line was calculated. Other mathematical statistical methods were also chosen during the course of this study, taking into account the intermediate results obtained and the calculations required.

4. Results

The first stage of this study was to determine whether the Lithuanian companies selected for this study were engaged in accrual-based and/or real earnings management. The regression equations were constructed and the correlations, coefficients of determination, and analysis of variance for all equations were estimated using the [Dechow et al. \(1995\)](#) and [Roychowdhury \(2006\)](#) models according to Formulas (2)–(5) (see Table 2).

Table 2. Estimation of regression equations for calculating the use of earnings management.

	EM_TA	Ab_CFO	Ab_PROD	Ab_DISX
R	0.920	0.782	0.878	0.954
R ²	0.847	0.611	0.772	0.910
F	3.421	60.627	240.840	223.370

Source: authors' calculations based on companies' financial information.

The statistical summary shows the correlation and determination coefficients of the models used, indicating their significance and high explanatory power. The estimated Fisher's F-values for all models are greater than F_{crit} (2.637) at $p < 0.05$. In this case, the statistical hypothesis H_0 is rejected and the alternative hypothesis is accepted, namely

that the coefficient values are statistically significantly different from 0 and that there is a statistically significant relationship between the dependent variable and the predictors.

As a follow-up to this study, the values of the companies' accrual-based and real earnings management estimates as well as the overall real earnings management estimate were calculated [5]. The leverage, RoA, and EBITP ratios were calculated based on the companies' financial statements and a statistical evaluation of the data was performed (see Table 3).

Table 3. Descriptive statistics for earnings management values and financial ratios.

Variable	Mean	St. Deviation	Minimum	Maximum	Q1	Median	Q3
EM_TA	0.004	0.032	−0.070	0.158	−0.004	−0.000	0.004
Ab_CFO	−0.009	0.013	−0.080	−0.000	−0.010	−0.003	−0.001
Ab_PROD	0.009	0.014	0.000	0.079	0.001	0.003	0.010
Ab_DISX	−0.004	0.006	−0.032	0.000	−0.005	−0.001	0.000
EM_REAL	0.021	0.024	0.000	0.132	0.005	0.012	0.031
CSR	0.500	0.501	0.000	1.000	1.000	0.500	1.000
LEV	0.453	0.139	0.066	0.781	0.366	0.467	0.607
ROA	0.061	0.155	−0.073	0.561	−0.001	0.013	0.037
EBITP	0.010	0.022	−0.034	0.053	0.002	0.017	0.022

Source: authors' calculations based on companies' financial information.

It should be noted that the accrual-based earnings management data are divided into two groups, with one group having positive values and the other negative values. A higher value indicates a higher level of manipulation, regardless of whether the value is positive or negative. Therefore, negative amounts in the correlation matrix and the regression equation are likely to produce incorrect results. Other authors have also distinguished between positive and negative meanings (Buerthey et al. 2020). All negative values of accrual-based earnings management are transposed when assessing the impacts of other independent variables on the application of earnings management, which does not change the results when assessing whether or not an enterprise is applying earnings management. In any case, a negative value only indicates that the company was reducing its profit by applying accrual-based earnings management. However, in the regression equation, a negative value for earnings management would mean the opposite, i.e., a very small value, which would distort the direction of its relationship with the independent variables. Therefore, accrual-based earnings management is divided into two groups, namely manipulation through the profit-enhancing strategy EM_TA_{enh} and manipulation through the profit-reducing strategy EM_TA_{red} .

Before modelling the regression equation—where the dependent variable is earnings management and the independent variables are CSR, internal financial indicators, and macroeconomic indicators—we assessed whether the data are normally distributed, i.e., following a Gaussian distribution. Table 3 shows that some predictor variables are not normally distributed, as indicated by the numerical characteristics of the data, the lower and upper quartiles, and the deviations of the values from the mean. Various data transformations were performed to reduce the probability of a type I error (McDonald 2014). The data distribution was positively affected by the square root transformation. This transformation helps bring the data closer to a normal distribution, which is important for ensuring proper estimation of the regression model parameters and minimizing the potential effects of heteroskedasticity. After the transformation of the predictor variable, the data distribution plot and the Chi-square criterion showed that the empirical data were normally distributed, and that there were no random variables more than 1.5 inter-quartile distances from the first Q1 and third Q3 quartiles. Therefore, the assumption of normality is satisfied and the data are fully fit for the regression model. Following this, a correlation coefficient was calculated and a correlation matrix was produced (Table 4).

Table 4. Pearson correlation matrix of variables.

	<i>EM_TA_{red}</i>	<i>EM_TA_{enh}</i>	<i>Ab_CFO</i>	<i>Ab_PROD</i>	<i>Ab_DISX</i>	<i>EM_REAL</i>	<i>CSR</i>	<i>LEV</i>	<i>ROA</i>	<i>EBITP</i>	<i>GDP</i>	<i>FDI</i>	<i>INF</i>	<i>AW</i>	<i>UR</i>
<i>EM_TA_{red}</i>	1														
<i>EM_TA_{enh}</i>	−0.728 *	1													
<i>Ab_CFO</i>	0.451 *	0.489 *	1												
<i>Ab_PROD</i>	0.109	0.118	−0.388 *	1											
<i>Ab_DISX</i>	0.222	0.046	0.148	−0.197	1										
<i>EM_REAL</i>	0.333 *	0.277	−0.829 *	0.793 *	−0.360 *	1									
<i>CSR</i>	−0.408 *	−0.476 *	−0.392 *	−0.172	−0.357 *	−0.360 *	1								
<i>LEV</i>	0.232	0.369	0.017	0.135	0.192	0.132	−0.058	1							
<i>ROA</i>	−0.095	0.007	0.023	0.582	−0.076	−0.017	−0.148	−0.101	1						
<i>EBITP</i>	0.347 *	0.154	0.121	−0.048	0.254	−0.066	−0.191	−0.266	−0.063	1					
<i>GDP</i>	−0.247 *	0.286	0.124	0.044	−0.067	−0.039	−0.056	0.218	−0.144	−0.236	1				
<i>FDI</i>	−0.147	0.068	0.128	0.137	−0.060	0.004	−0.011	0.219	−0.084	−0.193	0.939 *	1			
<i>INF</i>	0.077	−0.031	0.243	0.077	0.028	0.184	−0.232	0.138	−0.268	−0.012	0.636 *	0.526 *	1		
<i>AW</i>	0.193	0.092	0.125	0.131	−0.084	0.008	0.039	0.218	−0.052	−0.218	0.925 *	0.982 *	0.416	1	
<i>UR</i>	0.225	0.046	−0.030	0.298 *	0.041	0.161	0.086	0.069	0.125	0.021	0.170	0.486	−0.148	0.452 *	1

Source: authors' calculations based on companies' financial information. * $p < 0.05$.

Table 4 shows the multicollinearity between the types of earnings management. Accrual-based earnings management correlates with cash flow manipulation, and earnings management values under different strategies correlate with each other. The existence of multicollinearity between these variables is normal, as these elements were included in the calculation of the real earnings management value and the total earnings management value. Therefore, a possible multicollinearity problem is not taken into account as these variables are not included together in the regression equation. Separate consideration should be given to the link between CSR and earnings management. Table 4 shows an inverse relationship between earnings management and CSR. The correlation coefficient r between accrual-based earnings management—where profit is enhanced—and CSR is -0.476 , and the r is -0.408 where profit is reduced; this relationship is statistically significant ($p < 0.05$). The correlation between the manipulation of cash flow, production cost, discretionary expenditures, and CSR is weakly inverse (-0.392 , -0.172 , -0.357 , -0.360) but statistically significant. Other researchers have achieved similar results, with Grougiou et al. (2014) obtaining -0.285 , Scholtens and Kang (2013) obtaining -0.194 and -1.176 , Liu and Lee (2019) obtaining -0.116 , and Buerthey et al. (2020) obtaining -0.134 .

Considering the strength of the correlations between other variables, there is a very weak relationship between macroeconomic indicators such as GDP, FDI, inflation, average wages, and the unemployment rate and earnings management. The relationship between these macroeconomic indicators and accrual-based earnings management is very weak. Similarly, there is little correlation between the macroeconomic indicators and real earnings management. There is an inverse relationship between GDP and accrual-based earnings management which—although statistically significant ($p < 0.05$)—is weak at $r = -0.247$.

It should be noted that there is a strong link between the macroeconomic indicators themselves, as well as a very strong link between inflation, GDP, and FDI. There is also a strong relationship between the FDI, average wages, and unemployment rate. However, the variables themselves are only weakly correlated with earnings management. As macroeconomic variables were planned to be included in the regression equation, multicollinearity might have had a negative impact on the results obtained. In order to detect the problem of multicollinearity, the VIF coefficient was calculated. It was found that the FDI and average wages were the main causes of multicollinearity issues, so these variables were removed from the regression model and a new regression equation was constructed.

Based on Equation (7), three models were created with three dependent variables: accrual-based earnings management with a profit reduction strategy (model 1), accrual-based earnings management with a profit enhancement strategy (model 2), and real earnings management (model 3). The results of the Jones model, modified by Dechow et al. (1995), calculations yielded cumulative totals ranging from -0.070 to 0.158 . If the accrual value is greater than 0, it means that the firm has used accrual-based earnings management to increase its profits, and vice versa (Siekelova et al. 2021). In this context, the values are divided into two groups: accruals describing earnings management when profits are increasing (EM_TA_{enh}) and those when profits are decreasing (EM_TA_{red}). The first step was to perform the calculations in model 1, where the dependent variable is EM_TA_{red} . After initial calculations using the regression equation in (7), the results showed that the equation's coefficient of determination is 0.39. The higher the value of the coefficient, the better the fit to the data, and, thus, if the value of the coefficient is less than 0.20, the model is not a good fit to the data and the prediction (Čekanavičius and Murauskas 2014). In this case, the independent variables in the equation explain about 39% of the use of accrual-based earnings management. Despite this, not all independent variables in the equation meet the significance criterion. A backward variable selection method was applied to determine which variables are significant (Pierna et al. 2009). Therefore, the unemployment rate (UR) variable was removed from the regression equation, as the p -value of this variable exceeded 0.05 at 0.721. A new regression equation was created and the p -value was estimated. Following an analogous logical sequence, the other independent variable—inflation (INF)—was removed from the equation due to having a value of $p = 0.356$, followed by

GDP with $p = 0.282$, EBITP with $p = 0.154$, and RoA with $p = 0.078$. The results of the equation constructed from the remaining variables are shown in Table 5.

Table 5. Results of regression analysis and statistical tests.

	1 Model <i>EM_TA_{red}</i>	2 Model <i>EM_TA_{enh}</i>	3 Model <i>EM_REAL</i>
Regression equation statistics			
Multiple R	0.612	0.601	0.635
R square	0.375	0.361	0.403
Adjusted R square	0.370	0.330	0.397
Standard error	0.076	0.084	0.096
F value	85.933 **	11.788 **	64.224 **
F _{0.01}	0.997	0.997	0.997
Coefficient statistics			
Intercept	0.062 **	−1.296 *	0.089 **
LEV	0.112 **	0.064 **	0.129 **
CSR	−0.076 **	−0.092 **	−0.069 **
EBITP		0.002 *	−0.030 **
ROA		0.001 **	
GDP		0.000 *	
INF		−0.025 *	
UR		0.126 *	
Durbin–Watson test statistics			
DW d	1.769	1.896	1.935
dL	1.502	1.603	1.713
dU	1.582	1.746	1.753
Residual error r	0.126	0.095	0.029
t value	1.332	1.259	0.490
T _{crit}	1.981	1.974	1.968
White test statistics			
F value	0.678	1.096	0.544
F _{0.05}	2.298	1.507	2.246

Source: authors' calculations based on companies' financial information. ** $p < 0.01$, * $p < 0.05$.

In model 2, where the dependent variable is *EM_TA_{enh}*—accrual-based earnings management with a profit enhancement strategy—the coefficient of determination is 0.361. As in the first case, the explanatory power of the model is not very high, although all independent variables are significant (see Table 5).

The same calculation was carried out for model 3, in which the dependent variable is real earnings management *EM_REAL*. Model 3 has a coefficient of determination of 0.41, but some of the independent variables have estimated p -values greater than 0.05, namely GDP (0.907), RoA (0.207), inflation (0.096), and unemployment rate (0.035). As in model 1, the backward variable selection method was used. The coefficients were removed one by one, starting with GDP. Subsequently, RoA was removed ($p = 0.193$), followed by inflation ($p = 0.182$) and, finally, the unemployment rate ($p = 0.231$). The statistics for the remaining variables and the resulting equation are shown in Table 5.

Table 5 shows the statistics of the regression equations for the three models. In models 1 and 3, the coefficient of determination slightly decreased (0.39 and 0.41) after we applied the backward variable selection method. To test the significance of the coefficient of determination, we tested the statistical hypothesis that all of the parameters of the variables $\alpha_i = 0$, i.e., the regression is not significant. Next, the F-values for all models and the theoretical F-values at $\alpha = 0.01$ were calculated. It can be seen from Table 5 that the actual value of F is greater than $F_{0.01}$ in all three models. Therefore, the null hypothesis was rejected at the 99% confidence level. It was concluded that the independent variables

included in the models all have a significant effect on the dependent variable, namely the use of earnings management. In order to assess the predictive power of the models, it was necessary to determine whether autocorrelation and heteroskedasticity are not evident in the residual errors of the models, and the Durbin–Watson test $DW\ d \in [0; 4]$ (Bercu et al. 2014) and the White test were used for this purpose. Table 5 shows that, for all models, the Durbin–Watson test gives an estimate of $DW\ d$ that is above the upper critical value and close to 2. The correlation between the residual errors is very weak and statistically insignificant, which suggests that there is no autocorrelation between the residual errors. The heteroskedasticity of the residual errors of the constructed models was subsequently evaluated through the implementation of the White test. New regression equations were constructed in which the dependent variable was the error estimate and the independent variables were the values of the variables, as well as those of their squares and products. The F-values of the equations are less than the critical values, indicating that the variances in all equations are constant and the residual errors are homoscedastic.

The estimated models' coefficients of determination, autocorrelations of residual errors, and heteroskedasticity values indicate that the models are appropriate for evaluating the impact of variables on the use of earnings management and can be employed for forecasting purposes.

In instances where a company elects to pursue a profit reduction strategy, a moderate inverse statistically significant relationship is observed between earnings management and CSR, with a correlation coefficient of $r = -0.408$. The coefficient of determination of the regression model R^2 is equal to 0.375. The coefficient of CSR in the equation is -0.076 , at $p < 0.01$. This indicates that engaging in CSR reduces the use of earnings management, or that it will be used less aggressively. On this basis, we argue that the research Hypothesis H1 can be confirmed, namely that CSR reduces the use of accrual-based earnings management when a company chooses a profit reduction strategy.

The correlation and regression analyses carried out to test Hypothesis H2 show that accrual-based earnings management—when the company chooses a profit-enhancing strategy—has a moderate but inverse relationship with CSR ($r = -0.476$). Despite the fact that the correlation analysis shows a moderate relationship, the impact of CSR on the use of accrual-based earnings management is statistically significant. In multiple regression model 2, the coefficient for CSR is -0.092 at $p < 0.01$, demonstrating a statistically significant correlation between accrual-based earnings management and CSR. In light of the aforementioned findings, it can be concluded that research Hypothesis H2 is confirmed, positing that CSR reduces the use of accrual-based earnings management when a company chooses a profit-enhancing strategy. When testing Hypothesis H3—CSR reduces the use of real earnings management—the correlation between CSR and real earnings management is inversely correlated at -0.360 and statistically significant. In the regression equation (model 3), the coefficient of CSR is also negative at -0.069 at $p < 0.01$, which indicates that CSR reduces the use of real earnings management, or that it will be used less aggressively. It can thus be concluded that Hypothesis H3 can be confirmed.

In addition, internal financial and macroeconomic factors were taken into account when evaluating the influence of CSR on the use of earnings management techniques. Consequently, these factors were incorporated into the regression models. A direct weak relationship was found between accrual-based earnings management and leverage ($r = 0.232$ for reducing profits and 0.369 for increasing profits). Nevertheless, although the relationship between the variables is weak, the results of the regression analysis show that leverage has a statistically significant impact on the use of accrual-based earnings management. Therefore, it can be concluded that the use of accrual-based earnings management (both profit-enhancing and profit-reducing strategies) in a company depends on the company's financial leverage. The relationship between real earnings management and leverage is direct and very weak ($r = 0.132$). Regression analysis shows that leverage has a statistically significant impact on the use of real earnings management. In summary, the higher the level of a company's leverage, the more likely it is that the company will engage in real

earnings management or engage in it more aggressively. The leverage hypothesis of positive accounting theory is supported by the results of this empirical study, with the results showing a direct link between earnings management and leverage, and that an increase in leverage increases the incentive to manipulate accounting information. This link can be seen between all types of earnings management and leverage, whether the company is reducing or increasing its profits.

When assessing the impact of RoA and EBITP on the use of earnings management, the results of the correlation analysis showed that the strength of the profitability relationship depends on the type of earnings management. Accrual-based earnings management has a very weak relationship with RoA ($r = 0.095$ when reducing profits and 0.007 when enhancing profits) and a weak relationship with EBITP ($r = 0.347$ and 0.354 , respectively). The regression analysis shows that the use of earnings management does not have a significant impact on RoA when reducing profits. However, when the company chooses a profit-enhancing strategy, the impact of EBITP (0.002 , $p = 0.022$) and RoA (0.001 , $p = 0.003$) on the level of earnings management is significant. On this basis, it can be concluded that accrual-based earnings management and profits have a statistically significant direct weak relationship, whereby profit becomes significant depending on the earnings management strategy that a company adopts. The results are slightly different when exploring the relationships between real earnings management and RoA and EBITP, with a very weak inverse relationship in both cases (RoA, $r = -0.017$; EBITP, $r = -0.066$). The regression analysis shows that the relationship between real earnings management and RoA is not statistically significant. However, EBITP has a statistically significant impact on the use of real earnings management. Given that the results show that higher EBITP leads to a reduced use of real earnings management, it can be concluded that the companies in the sample tend to follow a profit-enhancing strategy, as the level of manipulation decreases with higher profits.

In assessing the impacts of macroeconomic indicators on the use of earnings management, the impact of foreign direct investment (FDI) and average wages on the use of earnings management was not investigated due to the multicollinearity problem. Macroeconomic variables only had a significant effect in the regression equations in one of the three models (model 2). Looking at the impact of macroeconomic indicators on the use of earnings management, it can be argued that the GDP, inflation, and unemployment rate might predispose a company to adopt accrual-based earnings management and opt for a profit-enhancing strategy. The impact of these indicators on accrual-based earnings management is negligible when a company chooses a profit reduction strategy. Macroeconomic indicators were also not found to have a significant impact on the use of real earnings management.

5. Discussion

This study shows that medium and large companies in Lithuania tend to engage in earnings management. The fact that the studied company accounting shows signs of the manipulation of discrete accruals and operational decisions is confirmed by calculations based on the Jones model modified by [Dechow et al. \(1995\)](#) and [Roychowdhury \(2006\)](#). The results of our study show that CSR reduces the use of earnings management. This is consistent with the results of previous studies ([Liu and Lee 2019](#); [Palacios-Manzano et al. 2021](#); [Dimitropoulos 2022](#)), which show a negative relationship between CSR and earnings management. However, other results obtained in this study are contrary to those of previous studies (e.g., [Grougiou et al. 2014](#); [Buertey et al. 2020](#)). Based on the results of their study, [Grougiou et al. \(2014\)](#) suggest that opportunistic engagement in CSR is a way to create a better image in the highly competitive banking industry. Therefore, it can be assumed that CSR as an image tool is more applicable in competitive industries. The opposite results obtained herein can be explained by the fact that our study did not focus on a single sector, but sampled companies from different sectors in Lithuania. Lithuania is classified as a small open economy, which may influence the behaviour of firms. This

is because small economies are often more dependent on external factors, such as foreign investment and international competition, which can lead to manipulation. However, an ethical approach to CSR, with its emphasis on transparency and responsibility, can encourage companies to behave in a socially responsible way rather than manipulating profits to improve their reputation. This is particularly important in small economies where reputation and consumer trust are particularly important. Therefore, one can only agree with [Palacios-Manzano et al. \(2021\)](#) that the motivation of firms to engage in CSR is an unresolved issue in the literature.

In addition to CSR, the results of our study show the impact of internal financial and macroeconomic factors on the use of earnings management. Evaluating the use of earnings management on the basis of accumulation to reduce profits showed that it is positively related to LEV. This suggests that companies with higher LEV may be more inclined to reduce their earnings. It is also noted that CSR encourages companies to avoid manipulating profit maximisation in response to external economic incentives. The EBITP indicator shows that performance-optimising companies are less likely to engage in real earnings management, which can be explained by persistent institutional and macroeconomic pressures. The GDP indicator has no significant impact on the use of real earnings management. These results differ from the study by [Siekelova et al. \(2021\)](#), which found that better economic conditions, such as a rising GDP, tend to reduce profit manipulation. They found that better economic conditions, such as a rising GDP, tend to reduce profit manipulation. The RoA indicator has a significant, albeit weak, positive effect on the use of accrual-based earnings management when a firm adopts a profit-enhancing strategy. This suggests that more profitable companies are more likely to adopt an earnings enhancing strategy. However, [Viana et al. \(2023\)](#) found the opposite, observing a negative effect of RoA on the use of earnings management for both accrual and real earnings management, suggesting that more profitable firms are less likely to manipulate their earnings as a stronger financial position provides less incentive for manipulation. The conflicting results may be explained by the fact that we considered the influence of different variables when assessing the use of earnings management, which may have led to the different results.

These results underline that it is important for small economies such as Lithuania to understand earnings management strategies and their links with CSR, as well as the influence of institutional and macroeconomic factors on CSR. An increased focus on ethical practices and social responsibility can help improve corporate reputations and long-term sustainability.

6. Study Limitations and Further Research

Only companies that provide a full set of financial statements were eligible for this study on the use of earnings management. To identify accrual-based earnings management, information from a condensed set of financial statements is sufficient. However, the results show that companies also use real earnings management and often both types of earnings management. Therefore, in order to determine whether a company uses real earnings management, it is necessary to have that company's cash flow statement, otherwise the results will be incomplete. This study has been unable to assess whether the use of earnings management depends on the size of the company, given that small companies were not sampled due to the specific nature of the models used, as well as because they present a condensed set of financial statements.

In small economies, including Lithuania, databases of financial and non-financial information on companies are not as comprehensive or easily accessible as they are in larger markets. This situation led to the limited sample size of this study, as manual data collection was necessary to ensure the accuracy and reliability of the data. The difficulty in accessing information also led to a simplified approach to the survey, with the sample being drawn solely on the basis of companies' disclosure of CSR activities. As a result, the sample of companies only partially reflects the quality or implementation of CSR. As

companies may only make formal disclosures in order to comply with requirements or to improve their reputation, this does not necessarily reflect a genuine commitment to social responsibility. While a smaller sample size may limit the generalisability and accuracy of the results, it also allows for a more in-depth analysis and provides valuable insights into the extent of the use of earnings management among socially responsible companies. Thus, although the sample size of this study is limited, it reveals important trends and practices related to social responsibility that are valuable for the purposes of the study.

The calculation of the indicators revealed inaccuracies in the classification of costs in the companies' financial statements, which might have affected the calculations and the final results. Another limitation of this study is that it did not assess accounting errors, inaccuracies, or fraud, which could have influenced the values of some of the indicators and thus could have affected the final results. However, it is considered that this possibility is minimal as large companies are audited under current legislation, during which it is assumed that such errors would be detected.

The major limitation of this study is that it is not possible to assess subjective factors such as attitudes towards business ethics, fairness, fear and uncertainty about the future, etc., which can have a decisive influence on the use of earnings management. The regression results show that the explanatory power of the models is around 40%, and that macroeconomic indicators only affect the use of earnings management when a strategy to increase profits is chosen. This strengthens the argument that the use of earnings management is strongly influenced by subjective factors. Further research in this area is necessary to identify other factors which influence the use of earnings management.

7. Conclusions

This study analyses the impact of CSR on the use of earnings management practices, taking into account internal financial and macroeconomic indicators. The relevance of this study stems from the fact that, while the links between CSR and financial behaviour have been widely studied, the focus has been on large developed or developing countries. In Lithuania, the lack of research in this area is mainly explained by the limited availability of information. Therefore, this study fills a gap in research on small open economies by investigating the impact of CSR on the use of earnings management.

The results of this study show that CSR reduces the use of accrual-based and real earnings management in companies, regardless of whether they tend to increase or decrease their profits. This shows that companies with socially responsible policies are more likely to behave ethically and avoid manipulating financial indicators to improve their reputation. This study also shows that a company's financial performance has an impact on its use of earnings management. Higher financial leverage (LEV) is associated with a higher likelihood of using earnings management. Leverage was found to have a statistically significant direct effect on earnings management. This suggests that firms with higher leverage are more likely to use earnings management strategies to meet investor expectations and reduce the risk of financial distress. The effect of the RoA is only observed in the context of accrual-based earnings management, where the company chooses a profit enhancing strategy. In addition, EBIT profitability also has a statistically significant impact on the use of accrual-based and real earnings management. In cases where EBIT profitability is low, firms tend to engage in real earnings management practices in order to achieve better financial performance.

The analysis of the impact of macroeconomic indicators on the use of earnings management revealed that the GDP, inflation, and unemployment rates have a statistically significant impact on the use of earnings management only when companies use accrual-based earnings management to increase their profits. However, it is important to note that, while these macroeconomic factors influence accrual-based earnings management, it cannot be ruled out that they may also influence other forms of financial information manipulation. This is confirmed by the limited explanatory power of all models.

This study reveals that CSR and the internal financial and macroeconomic indicators of a company play an important role in the practice of earnings management in Lithuania. Although macroeconomic factors (GDP, inflation, and unemployment rate) have an impact on profit management practices, their influence is limited. In this context, the results of this study may be relevant to other similar small open economies, as they contribute to a better understanding of how social responsibility, the macro-economic environment, and internal financial factors interact and influence corporate financial behaviour.

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