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Do socially responsible companies use earnings management more rarely and (or) less aggressively? Evidence from Lithuania

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Abstract. This paper examines the problem of (in)compatibility between the performance of socially responsible enterprises and the use of earnings management, as well as the extent to which earnings management is likely prevalent in Lithuanian socially responsible enterprises. Although it seems that socially responsible companies make value-based commitments, the use of earnings management is incompatible with them, and various research studies have produced contradictory results. In Lithuania, there has been no research conducted on accounting manipulation in socially responsible enterprises, so it has not been possible to evaluate whether and how Lithuanian socially responsible enterprises manipulate financial information. Therefore, this study aims to compare the spread of earnings management's use among Lithuanian socially responsible companies and other companies in order to reveal the prevalence of opportunistic or conceptual approaches to social responsibility in these companies. The study compared two groups of companies for the period 2017-2021: one group of companies that disclose information on socially responsible performance in their reports and a control group of companies that do not disclose information on socially responsible performance. The Jones

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(1991) model, modified by Dechow et al, chosen to investigate whether companies use accrual-based earnings management, is the most commonly adopted one for such studies. In order to determine if companies use real earnings management, Roychowdhury's (2016) model, which consists of three elements: sales manipulation, overproduction, and reduction of discretionary expenditures, was applied. The results showed that Lithuanian socially responsible companies use both accrual-based and real earnings management less frequently and/or less aggressively than other companies do. Therefore, it can be concluded that they follow a conceptual approach and pursue social responsibility for the sake of the idea and the concept, not to gain an advantage and to be able to influence the decisions of stakeholders in the market.

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

JEL Classification: M14, M41, G30

1. INTRODUCTION

Corporate social responsibility is a voluntary, value-based business model aimed at social well-being and sustainable development, i.e. socially responsible companies are guided by high moral standards and ethics. A socially responsible company not only seeks to increase its profit and profitability but also undertakes to act morally and ethically and to respect the interests of others in its relations with its employees, customers, and society (Balcerzak et al., 2023). Onthe contrary, earnings management is unethical behaviour used to manipulate not only accounting information and results but also the users of the information to achieve its own objectives. Aware of the fact that socially responsible companies are viewed more favourably, enterprises may pursue social responsibility in order to gain an advantage and influence stakeholders' decisions in the market (the opportunistic approach) rather than for the sake of the idea and concept (the conceptual approach). If a socially responsible company adopts a conceptual approach, it should not apply earnings management but rather disclose fair financial information to stakeholders, regardless of the outcome, i.e. it should not engage in unethical accounting practices that mislead its stakeholders. Nevertheless, some authors note that it is the moral and ethical decline of business, weak social relations, and lack of social responsibility that lead to the manipulation of financial information (Coffe, 2003; Chih et al., 2008; Szamjser et al., 2022). Therefore, the use of earnings management in socially responsible enterprises has attracted notable attention in the work of foreign scholars (Scholtens & Kang, 2013; Grougiou et al., 2014; Garcia-Sanchez & Garcia-Meca, 2017; Kolsi & Attayah, 2018; Mahrani & Soewarno, 2018; Ben Amar & Chakroun, 2018; Liu & Lee, 2019; Buertey et al., 2020; Dimitropoulos, 2020; Adeniran & Obembe, 2020; Palacios-Manzano et al., 2021, Zikhali et al., 2023, Silva et al., 2023, Víghová, 2023, and others). However, the results of empirical studies are often contradictory, depending on the time, the countries, and the industries studied. In some cases, the results are different for companies in the countries of the same region. There have been no studies of accounting manipulation in socially responsible companies in Lithuania, so it is not possible to estimate whether and how Lithuanian socially responsible companies manipulate financial information in order to provide the desired information about the company or to emphasise the socially responsible status of the company. The results of other countries may not be representative for Lithuania due to differences in the legal system, accounting regulations, the country's economic situation, its level of development, and other reasons. Therefore, in order to reveal which conceptual or opportunistic approach prevails in Lithuanian socially responsible companies, it is appropriate to carry out a study that could disclose the spread of manipulation in both Lithuanian socially responsible and other companies. A comparison of the results would help to assess whether corporate social responsibility as a value system reduces the probability of manipulation of accounting information.

The aim of the study is to compare the spread of the use of earnings management among Lithuanian socially responsible companies and other companies in order to reveal the prevalence of opportunistic or conceptual approach to social responsibility in these companies.

2. LITERATURE REVIEW

Corporate social responsibility can be seen as a means for companies to engage with the external environment in a mutually beneficial way. Socially responsible performance is associated with a value-based system and financial stability, which is why stakeholders always view socially responsible companies more favourably. Knowing that socially responsible companies are viewed more favourably, enterprises may pursue social responsibility not for its idea and concept but to gain an advantage in the market and to influence the decisions of stakeholders (Rosińska-Bukowska, 2022). The relationship between corporate social responsibility and earnings management can be characterised by different types of theories and hypotheses in the literature.

The myopia avoidance hypothesis describes the relationship between corporate social responsibility and earnings management as impossible or unlikely. Increased financial and non-financial information disclosure by socially responsible companies may reduce their incentives to use earnings management. While socially responsible companies aim to be more profitable, they are also focused on developing relationships with their stakeholders. The use of earnings management runs the risk of damaging relationships with stakeholders by being too aggressive in pursuit of opportunistic goals, and that would be myopic (Gelb & Strawser, 2001; Shen & Chih, 2005; Mura, & Hajduová, 2021; Víghová et al., 2023).

A relationship similar to the one described can also be observed when applying *social norm theory*. Social norms encourage investors to avoid relationships with dishonest companies, even if such relationships are financially beneficial to them (Kim & Venkatachalam, 2011). In this regard, despite the loss of some current financial benefits following social norms leads to an increase in competitiveness in the long run as it is proved based on social capital theory application (Mishchuk et al., 2023). According to this view, corporate social responsibility and earnings management are incompatible, i.e. the awareness that stakeholders will not want to deal with dishonest/unethical companies should discourage the use of earnings management. According to Grougiou et al. (2014), the more socially responsible a company is, the less inclined it will be to apply earnings management, as economic behaviour depends on community beliefs. Corporate social responsibility is a moral, ethical standard of behaviour that goes over and above opportunistic behaviour. This conviction is supported by numerous benefits from socially responsible business activity (Oliinyk et al., 2023).

Predictable earnings hypothesis explains the relationship between corporate social responsibility and earnings management through the size of a company's profits. Socially responsible companies may choose not to inform investors about some of their failures. Investors expect a certain level of profit from a company. Meanwhile, a company's reports may show fluctuations in profit, so company's managers can use earnings management to smooth out profit fluctuations in order to meet investors' expectations. Equal profitability is more desirable to investors because it gives the impression that a company's performance is more predictable and the level of profit is easier to forecast (Goel & Thakor, 2003; Chih et al., 2008).

A company's functioning often requires it to take into account and meet the expectations of different stakeholders. If the company does not respond to stakeholders' expectations differently (from a managerial perspective), it may be very difficult, if not impossible, to meet all stakeholders' expectations. The competing interests of stakeholders create tensions that are reflected in a company's financial statements (Parmar et al. 2010), deteriorating the company's performance results and financial position. Without being able to meet the needs of all stakeholders, company's managers have to decide which stakeholders are important and what information can be disclosed (Gray et al., 1996; Majewska & Bełtowska, 2023). According to this need, special HRM practises have beed developed (Bhattarai et al., 2023). In this situation, it is easier for the manager to apply earnings management and to disclose to stakeholders "embellished" information in line with their expectations. This relationship between corporate social responsibility and earnings management is described by the *multiple objectives hypothesis* (Leuz et al., 2003; Sims, 2003; Vagner et al., 2021).

According to the *institutional hypothesis*, a company must be able to interact with the institutional environment (organisations, law enforcement, etc.) to gain benefits. The collaboration is based on social relationships and follows established market rules. Coffe (2003) therefore explains the upsurge in fraudulent accounting scandals in the 21st century not only in the context of a possible decline in business ethics but also in the context of a lack of social ties. Managers are motivated to manipulate accounting information for a variety of reasons, such as the desire to show higher profits, higher returns on shares, etc. On the other hand, companies are being audited, but due to the reduced risk and responsibility of the auditor, auditors may be inclined to ignore aggressive accounting policies. According to this view, manipulation is therefore based on purely opportunistic motives. According to Chih et al. (2008), the use of earnings management is the result of institutional practices that lead to a lack of corporate social responsibility.

The link between corporate social responsibility and earnings management can also be explained by combining *legitimacy theory* and *signalling theory* (Conelly et al., 2011). According to legitimacy theory, a company continuously seeks to ensure that it operates within the boundaries set by society and in accordance with certain rules. By acting in accordance with established rules, a company takes on certain obligations towards society (Gallardo-Vázquez & Lizcano-Álvarez, 2020; Rudžionienė, 2012). Legitimacy theory raises the concept of legal recognition, i.e. the actions of a company must be in line with the prevailing normative framework. Hence, a company is consistent with the legitimacy approach to the extent that its actions are consistent with the prevailing norm system. The desire to conform to the prevailing normative framework can become a company's management strategy, with managers responding to emerging threats and challenges to legitimacy (Grougiou et al., 2014). One way to achieve legitimacy is to inform third parties about the company's performance. Insufficient information does not always provide market participants with sufficient knowledge (signals) about a company's performance, which inhibits their ability to make informed decisions. For this reason, it is in the interest of company managers (signallers) to send the "right signals", for example, regarding the company's engagement in social responsibility (Grougiou et al., 2014). Hahn & Kuhnen (2013) observe that some company managers deliberately use the cover of socially responsible practices to hide the use earnings management and the related manipulation of profits. The same findings are obtained by Sylwestrzak (2022) with the use of non-financial indicators for analysis. Barnea & Rubin (2010) argue that owners of enterprises often tend to invest more in corporate social responsibility for personal gain. Such investment in socially responsible activities is more about the desire to gain an advantage over other players in the market, rather than the desire to engage in social projects. Other authors observe that managers who tend to use earnings management in accounting deliberately engage in socially responsible activities in order to divert attention away from company processes, to maintain their own position or to manipulate other organisations and stakeholders (Prior et al., 2008; Grougiou et al., 2014; Buertey et al., 2020).

Table 1 shows the possible types of corporate social responsibility and earnings management and the theories and hypotheses explaining this relationship.

Table 1

Types of relationship between corporate social responsibility and earnings management

Theories and hypotheses explaining the relationship	**Type of relationship between corporate social responsibility and earnings management**	
	Impossible	Possible
Myopia avoidance hypothesis	+	
Social norm theory	+	
Predictable earnings hypothesis		+
Multiple objectives hypothesis		+
Institutional hypothesis		+
Legitimacy and signalling theories		+

Source: compiled by the authors based on Gray et al. (1996); Gelb & Strawser (2001); Goel & Thakor (2003); Leuz et al. (2003); Sims (2003); Shen & Chih (2005); Chih et al. (2008); Prior et al. (2008); Parmar et al. (2010); Barnea & Rubin (2010); Conelly et al. (2011); Kim & Venkatachalam (2011); Rudžioniene (2012); Hahn & Kuhnen (2013); Grougiou et al. (2014); Buertey et al. (2020); Shipanga et. al. (2022)

As can be seen in Table 1, the type of relationship between corporate social responsibility and earnings management can be considered as both impossible and possible on the basis of different theories.

Research on the identification of the link between corporate social responsibility and earning management is quite widespread in the foreign scientific literature. Interest in the use of earnings management in socially responsible enterprises has grown significantly over the last decade. According to the Web of Science Core Collection database, the number of theoretical and empirical publications was only 9 in 2013, but increased to 145-150 publications per year between 2020 and 2022. Chih et al. (2008) assessed the performance of 1,653 socially responsible companies between 1993 and 2002 in 46 different countries around the world to determine whether there is a link between corporate social responsibility and earnings management. The study tested the institutional hypothesis and found no relationship between corporate social responsibility and earnings management, rejecting the predictable profits hypothesis and confirming the multiple objectives hypothesis. The myopia avoidance hypothesis was also confirmed and a negative correlation was found between corporate social responsibility and earnings management. A review of more studies shows that the more involved a company is in socially responsible activities, the less it uses earnings management (Hong & Andersen, 2011; Scholtens & Kang, 2013; García-Sánchez & García-Meca, 2017; Liu & Lee, 2019; Palacios-Manzano et al., 2021). It should be noted that Ben Amar & Chakroun (2018), who investigated the relationship between the individual dimensions of corporate social responsibility (respect for human rights, good environmental management, meeting consumer expectations, good labour relations and conditions, fairness of business practices, and community involvement) with earning management, found that respect for human rights, good environmental management, and meeting customer expectations have a negative relationship with earning management, while good labour relations and conditions, fairness of business practices, and community involvement do not have any effect on the application of earning management.

Research also shows that corporate social responsibility has a positive impact on company earnings (García-Sánchez & García-Meca, 2017; Mahrani & Soewarno, 2018). However, Mahrani & Soewarno (2018) observe that socially responsible companies use earnings management, which has a negative impact on financial results. The authors also point out that earnings management can strengthen the impact of corporate social responsibility on financial results. This suggests that companies can deliberately engage in socially responsible activities in order to improve their financial results. To assess the potential for self-interested engagement in socially responsible activities, Grougiou et al. (2014) investigated the activities of

116 commercial banks in the US over the period 2003-2007. The study found that bank managers who manipulate earnings are more likely to engage in socially responsible activities. Corporate social responsibility is seen as a preventive strategy to divert attention from undesirable accounting practices. Buertey et al. (2020) also confirm previous research that companies that apply earnings management are more likely to engage in socially responsible activities for opportunistic motives. Prior et al. (2008), in a study conducted in 17 countries, also showed that managers tend to use corporate social responsibility to hide the use of earnings management. According to the authors, social responsibility is used to reduce the likelihood of scrutiny that could reveal the use of earnings management.

It should be noted that managers of socially responsible companies are motivated not only to use earnings management to increase or decrease profits but also to manipulate the information they disclose in order to gain personal benefits. Although a non-significant relationship was found between environmental disclosure and the use of earnings management, managers of large companies are more likely to disclose environmental information when they are under greater external pressure (Sun et al., 2010; Long et al., 2022). Kolsi & Attayah (2018), who studied the performance of socially responsible companies, found that companies use earnings management to smooth out fluctuations in profits. In such enterprises, a positive relationship was found between discretionary accruals and the size of profit. Scholtens & Kang (2013) point out that large companies use earnings management less frequently than small ones. In addition, the authors note that socially responsible companies tend to be more aggressive in increasing profits in the face of inflation.

No empirical studies on Lithuanian companies could be found in the literature. Dimitropoulos (2020) examined financial data of companies from 24 European Union countries over the period 2003-2018 to determine the relationship between corporate social responsibility and earnings management. It should be noted that, in order to avoid bias in the empirical results, the author excluded certain types of companies from the sample, for instance, companies with incomplete financial data, companies that do not provide a cash flow statement, companies whose financial year does not coincide with the calendar year, companies for which data are not sufficiently available etc. The Baltic States, including Lithuania, were not included in the sample due to criterion sampling and insufficient data availability.

To summarise, when evaluating the studies on the relationship between corporate social responsibility and earnings management carried out in foreign companies, it is possible to observe that the results of the studies are not always uniform and are sometimes contradictory. Some studies show that corporate social responsibility reduces the use of earnings management. Other studies show that corporate social responsibility is used to hide manipulation or as a tool for a company's manager to pursue opportunistic goals. In order to reveal the situation in Lithuania in this aspect, an empirical study was carried out, comparing the application of earnings management in socially responsible and other companies.

3. METHODOLOGY

3.1. Research problem and hypotheses

In Lithuania, no research has been carried out to determine the relationship between social responsibility and earnings management (none could be found), so it is difficult to say which approach - the opportunistic or the conceptual - prevails in Lithuania. The results of previous surveys of companies in other countries cannot be representative for Lithuanian enterprises for several reasons. First and foremost because of the uniqueness of each country and its stage of development. These differences can be seen in a study of Visegrad Four companies by Siekelova et al. (2021), which found that the average amount of discrete accruals in 2019 was negative in Poland and Hungary and positive in Slovakia and the Czech

Republic. The results of the study show that there are differences even among countries in the same region, and the results of the Hungarian study may not reflect the situation in the Czech companies. Also noteworthy is the study by Durana et al. (2021), which shows differences between companies in Visegrad Four and the Baltics, showing that the use of earnings management in the Baltics started several years later. Another reason why the studies may not be representative for Lithuania is that the majority of Lithuanian companies keep their accounting in accordance with national accounting standards. The results of the empirical studies, which sampled companies trading their shares on the stock exchange, could be only partially applied to Lithuanian companies, which keep their accounting in accordance with international accounting standards. Studies have shown that the use of earnings management depends on the accounting standards (national or international) (Ferentinou & Anagnostopoulou, 2016; Ipino & Parbonetti, 2017), the legal and political framework of the country (Jones, 1991; Ipino & Pabonetti, 2017).

Therefore, in order to assess whether Lithuanian socially responsible companies apply earnings management, a study was carried out including only Lithuanian companies in the sample. The study consists of two identical sample groups. One group includes companies that position themselves as socially responsible and the other group includes companies that do not show signs of social responsibility. A comparison of the results showed the differences between the behaviour of socially responsible companies and that of other companies and identified the prevailing approach.

The study raised two hypotheses based on two criteria: (1) it assumes that socially responsible companies should adopt a conceptual approach in line with their values, i.e. avoiding the use of earnings management; and (2) since there are two types of earnings management - accrual-based earnings management and real earnings management - it was examined whether socially responsible companies do not use any of these two types of accounting.

H1. Lithuanian socially responsible companies use accrual-based earnings management less frequently and/or less aggressively.

H2. Lithuanian socially responsible companies use real earnings management less frequently and/or less aggressively.

The study period is 2017-2021.

3.2. Selection of companies

To determine whether companies use earnings management, it is only necessary to look at companies whose set of financial statements comprises the balance sheet, income statement, cash flow statement, statement of changes in equity and notes. Under Lithuanian law, medium-sized and large companies are required to prepare such a set of financial statements. According to information from the State Data Agency, the number of such enterprises in Lithuania in 2021 was 1889. Applying the sampling formula to this general set, the representative sample of the survey is 319 enterprises (1519 survey years).

However, not all enterprises in the sample were eligible for the survey. The only way to determine whether a company is socially responsible is to assess the disclosures made by the company concerned. There is no single database in Lithuania where the list of socially responsible companies can be found, so it is not possible to say how many socially responsible companies exist in Lithuania. Therefore, the companies were selected from the sample according to the criteria presented in Table 2.

Table 2

Criteria for the selection of companies

Criteria	Characteristics of the criterion
Field of activity	The company is not a financial institution, credit institution, agricultural company
Continuity of activity	The company is a going concern at the time of the survey (not in liquidation, no bankruptcy or winding-up proceedings have been initiated against it)
Accounting requirements	The accounts are kept in accordance with Lithuanian Financial Reporting Standards
Other criteria	The company is a profit-making entity with a split share capital and does not present consolidated financial statements
Sufficiency of data	The financial and non-financial information provided by the company is sufficient for the calculations
Social responsibility*	The company provides information on social responsibility in its financial statements

* - the criterion will not apply to the control group.

Source: Authors' compilation

Financial and credit institutions were excluded from the study sample due to the specificity of their accounting methods, as the calculation of their discrete accruals differs from other industries (Jones, 1991; Dechow et al., 1995; Kolsi & Attayah, 2018; Ben Amar & Chakroun, 2018). It is important that the companies in the sample keep their accounts in accordance with the Lithuanian Financial Reporting Standards. In addition, it is not appropriate to include non-profit enterprises and small partnerships in the sample, as they maintain their accounts in accordance with different legal requirements, and such differences may bias the results. It is also assessed whether the enterprise has been in business throughout the period under investigation. Companies that are being wound up, reorganised or are in bankruptcy proceedings at the time of the survey are excluded from the sample. In addition, it is important that the information provided by the enterprise is sufficient to carry out the necessary calculations, and therefore enterprises with insufficient data are excluded from the sample.

Once the sample has been drawn up, all enterprises were checked against the criteria set out in Table 2 (see Table 3).

Table 3

Results of the selection of companies according to the criteria

Criteria	Number of companies removed	Balance of companies	Year of companies
		319	**1595**
Companies keeping accounts in accordance with international accounting standards	49	270	1350
Companies reporting consolidated financial statements	41	229	1145
Financial institutions, credit institutions, agricultural companies	37	192	960
Companies in reorganisation	4	188	940
Insufficient of data	2	186	930

Source: Authors' compilation

Table 3 shows that the sample excluded companies that did not meet the criteria. 930 company-years or 186 company remain in the sample. The follow-up sample assessed which companies disclose or report on social responsibility. It was found that 29 companies on the list provide such information in their financial statements. This means that the first group of companies consists of 145 company-years. In this context, a control group of the same size (145 company-years) was randomly selected from the same sample at an interval of 5 companies. As the calculation of the current year's earnings management rate includes information from the previous period, even though the period covered is 2017-2021, the calculation also includes information from the 2016 reference period.

3.3. Designing the empirical study

There are two types of earnings management: accrual-based and real earnings management, and it is therefore necessary to identify both types when examining the use of this phenomenon.

Identification of accrual-based earnings management. In order to confirm or refute hypothesis H1, the model proposed by Jones (1991) was applied, which was specified by Dechow et al. (1995) after taking into account the limitation of the model. In order to determine whether an enterprise applies accrual-based earnings management, the model modified by Dechow et al. (1995) has been used by most researchers (Ipino & Parbonetti, 2017; Muljono & Suk, 2018; Liu & Lee, 2019; Mela & Putra, 2020; Siekelova et al, 2021; Palacios-Manzano et al., 2021; Katutytė, 2021; Wang et al., 2022; Potharla, 2022; etc.) in their studies, by calculating an accrual-based earnings management estimate based on the formula:

$$\frac{TA_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{i,t-1}}\right) + \alpha_2\left(\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{A_{i,t-1}}\right) + \alpha_3\left(\frac{PPE_{i,t}}{A_{i,t-1}}\right) + \varepsilon_{i,t} \tag{3}$$

Here:

$TA_{i,t}$ - 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*;

α_1, α_2, α_3 - company-specific parameters (unknowns are estimated using the least squares method);

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

i - index of the company;

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

Identification of real earnings management. In order to identify real earnings management, it is appropriate to look at the real activities manipulation in the company. Roychowdhury (2006) observes that real activities manipulation is best captured by a company's operating cash flows. The author proposes a model for measuring earnings management that consists of several steps. Presumably, if actual operating cash flows differ from the normal level of operating cash flows, it is suspected that the *company is manipulating sales*. The purpose of sales manipulation is to accelerate the timing of sales and to generate revenue from unsustainable sales by offering price discounts, longer credit periods, etc. It is therefore suggested that the first step in assessing whether the *sales manipulation* is to calculate normal cash flows as a linear function of sales and the change in sales.

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

Here:

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

Abnormal cash flows $Ab\_CFO_{i,t}$ are calculated as actual cash flows minus normal cash flows.

Further, Roychowdhury (2006) suggests assessing whether the firm is not *overproducing*. As output increases, production costs are spread over an increasing number of units of output. This leads to a reduction in the cost of goods sold and an increase in profits. Overproduction is measured by the difference between the normal level of production costs and the actual production costs. The cost of production is the sum of the cost of goods sold and the change in inventories during the year. The normal level of production costs is calculated according to the following formula:

$$\frac{PROD_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{i,t-1}}\right) + \alpha_2\left(\frac{S_{i,t}}{A_{i,t-1}}\right) + \alpha_3\left(\frac{\Delta S_{i,t}}{A_{i,t-1}}\right) + \alpha_4\left(\frac{\Delta S_{i,t-1}}{A_{i,t-1}}\right) + \varepsilon_{i,t} \quad (5)$$

Here:
$\Delta S_{i,t-1}$ - the change in sales revenue of company *i*, year *t*, minus the change in sales revenue of year *t-1*;
$PROD_{i,t}$ - production costs of company *i*, year *t*.

The abnormal level of production costs ($Ab\_PROD_{i,t}$) is calculated as actual minus normal production costs.

Finally, Roychowdhury (2006) proposes to assess whether the company is not *reducing discretionary expenditures* which, if reduced, would increase reported profits. According to the author, an abnormal level of discretionary expenses is an indicator of manipulative accounting practices. The abnormal level of discretionary expenses is calculated as the difference between actual discretionary expenses and normal discretionary expenses. The normal level of discretionary expenditure is calculated according to the formula:

$$\frac{DISX_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1\left(\frac{1}{A_{i,t-1}}\right) + \alpha_2\left(\frac{S_{i,t}}{A_{i,t-1}}\right) + \alpha_3\left(\frac{\Delta S_{i,t-1}}{A_{i,t-1}}\right) + \varepsilon_{i,t} \quad [6]$$

Here:
$DISX_{i,t}$ is the discrete cost of company *i*, *t* in year *i*, *t*.

The abnormal level of discrete costs ($Ab\_DISX_{i,t}$) is calculated by subtracting the actual from the normal costs.

According to Cohen & Zarowin (2010), $Ab\_CFO_{i,t}$, $Ab\_PROD_{i,t}$, $Ab\_DISX_{i,t}$, are variables that are indicators of the real earnings management. Depending on the level of sales, companies that manipulate accounting information are likely to have one or all of the following variables: abnormally low cash flow from operations, abnormally low discrete costs and/or abnormally high production costs. In order to assess the overall impact of earnings management practices, the authors suggest combining all three variables. In the equation, abnormal cash flow and discrete costs are multiplied by negative one (-1), then there is a higher probability of assessing that the firm is manipulating sales by applying price discounts and reducing discrete costs. The overall measure of real earnings management ($EM\_REAL_{i,t}$) is calculated as follows:

$$EM\_REAL_{i,t} = -1 \times Ab\_CFO_{i,t} + Ab\_PROD_{i,t} - 1 \times Ab\_DISX_{i,t} \quad (7)$$

The calculation of the indicators assesses whether there are accounting indications that companies use earnings management and what type of earnings management it is. A comparison has also been conducted between the results obtained after examining the socially responsible enterprises and the control group. This comparison will allow to identify the differences between the results obtained in the two groups.

4. EMPIRICAL RESULTS AND DISCUSSION

Based on the formulas for calculating abnormalities in the study methodology, regression equations were constructed and correlation, coefficients of determination and analysis of variance results were estimated (see Table 4). The statistical summary in the table shows that the correlation and determination coefficients indicate a strong statistical relationship between the variables, and the analysis of variance for all the models indicates the significance of the equations. Therefore, it can be concluded that the models have a high explanatory power and that the estimations based on them will be verified.

Table 4

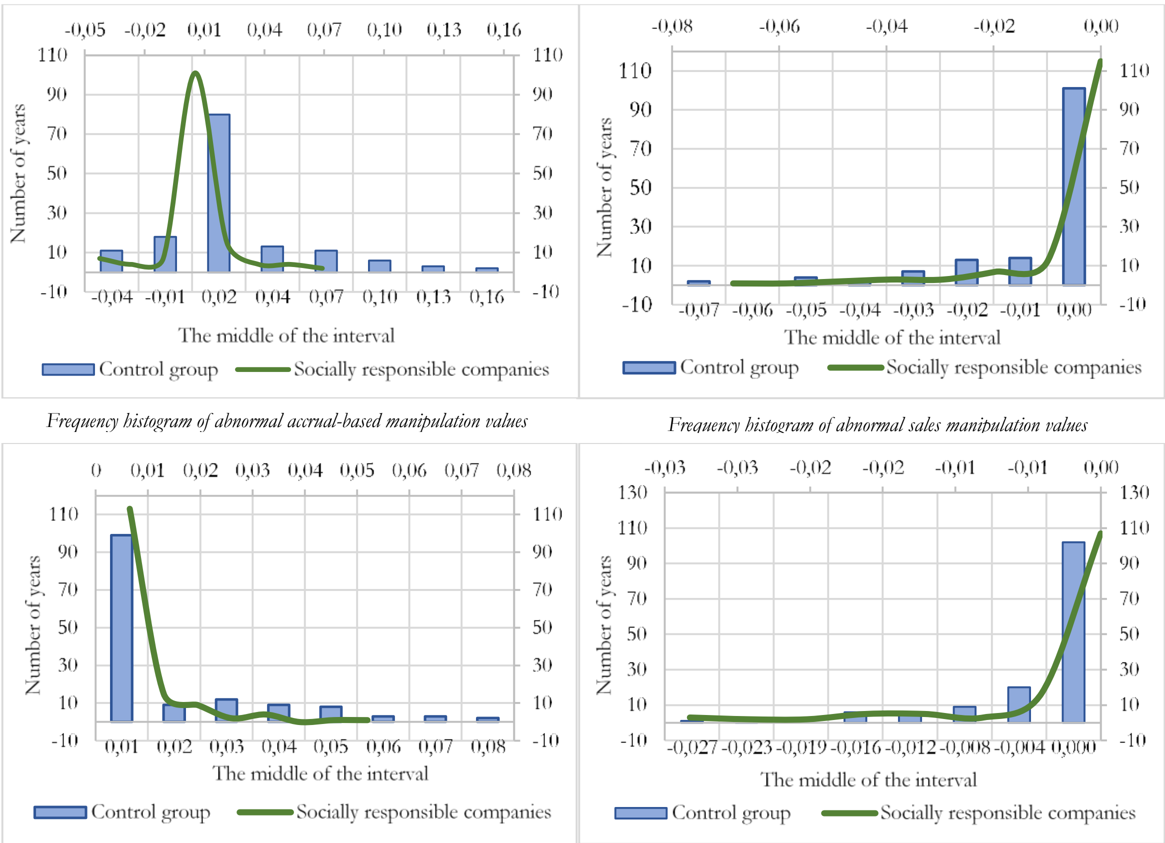
Estimation of regression equations for estimating abnormal values of firms

	$\frac{TA_{i,t}}{A_{i,t-1}}$	$\frac{CFO_{i,t}}{A_{i,t-1}}$	$\frac{PROD_{i,t}}{A_{i,t-1}}$	$\frac{DISX_{i,t}}{A_{i,t-1}}$
Constant	0.025***	1.326**	–0.023**	0.038**
$1/A_{it-1}$	2.385***	–2.614**	0.914**	0.923**
$\Delta REV_{it} - \Delta REC_{it}/A_{it-1}$	0.127**			
PPE_{it}/A_{it-1}	–0.136***			
S_{it}/A_{it-1}		0.088**	0.778**	0.115***
$\Delta S_{it}/A_{it-1}$		–0,560***	0.025**	0.091***
$\Delta S_{it-1}/A_{it-1}$			0.178**	
R	0.92	0.72	0.87	0.95
R^2	0.82	0.52	0.75	0.91
F	3.421***	60.627**	240.840**	223.370**
F_{kr}	2.636	2.636	2.404	2.636
*** p<0.01; ** p<0.05; *p<0.10				

Source: Authors' results

After the regression equations were estimated and statistically evaluated, further calculations were carried out to determine the manipulated values for company *i*, year *t*. Then, the 290 years of the study are split into two groups, i.e. the data of the socially responsible enterprises are separated from those of the control group. In order to evaluate the data for each group, the data are organised in a sequence of quantitative values, creating a variance series that allows the distribution of the data to be assessed.

Figure 1 shows the magnitudes and frequencies of abnormal accruals, cash flows, costs and discrete costs for the two groups of companies in the study period 2017-2021.



Frequency histogram of abnormal accrual-based manipulation values

Frequency histogram of abnormal sales manipulation values

Frequency histogram of abnormal overproduction values

Frequency histogram of abnormal discretionary expenditures values

Figure 1. Frequency histograms of company abnormal values

Source: Authors' results

As can be seen in the Figure 1, socially responsible enterprises are less likely to manipulate accounting data on an accrual-basis, with values ranging from (-0.059) to 0.069. In contrast, the control group has a significantly larger range of values: (-0.070)-0.158. The higher the value, the higher the probability that the company manipulates profits. Companies with negative abnormal accruals reduce profits, while companies with positive abnormal accruals increase profits. The analysis of the values of abnormal cash flow shows that the values for the socially responsible group vary between (-0.000) and (-0.068), while the values for the control group vary between (-0.000) and (-0.080). According to Roychowdhury (2006), the values of abnormal cash flow tend to be negative, and the fact that companies manipulate cash flow is indicated by those values that are far from 0. In contrast, the overproduction manipulation yields positive values. The higher the calculated value, the greater the amount of overproduction, which reduces the cost of goods sold. The lowest value is 0,000 for the socially responsible group and the highest is 0,052 and 0,000 and 0,079 for the control group respectively. Comparing the values of the discretionary expenditures shows that the frequencies of the values for both socially responsible companies and control group companies are similarly distributed, and all the values obtained are negative.

The overall real earnings management indicator consists of three values (sales manipulation, overproduction, reduction of discretionary expenditures). However, sales manipulation and discretionary expenditures manipulation are valued at negative values, while overproduction is valued at positive values. Therefore, when mathematically summing up all the values, negative values will reduce the magnitude of the real earnings management, which may lead to a misrepresentation of results. The literature (Cohen &

Zarowin, 2010; Badertscher, 2011; Zang, 2014) suggests to address this problem by transposing negative numbers. Table 5 shows the estimated magnitudes of the real activities manipulation, weighted by the characteristics of the data position and spread.

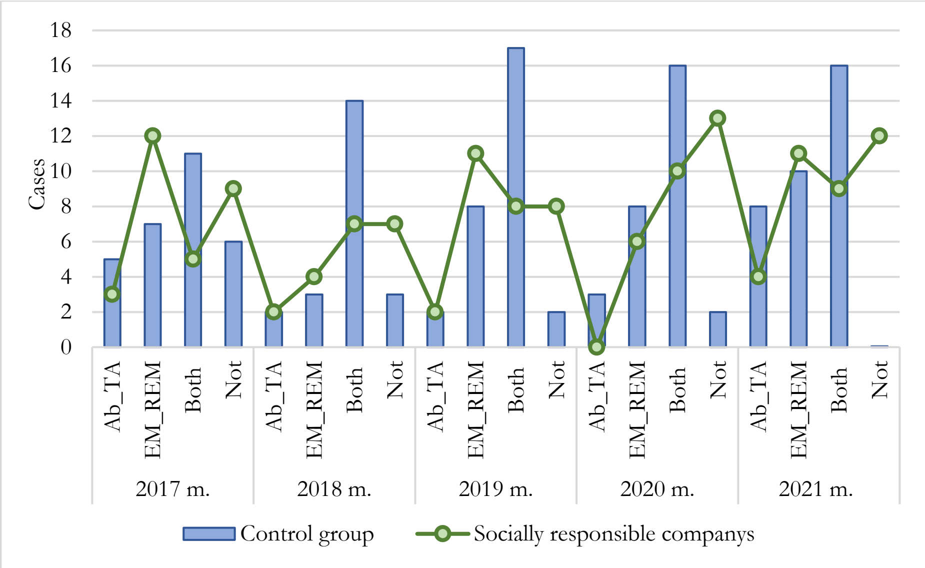
Table 5

Position and dispersion characteristics of abnormal values

	Group of socially responsible companies				
	$Ab\_TA_{i,t}$	$Ab\_CFO_{i,t}$	$Ab\_PROD_{i,t}$	$Ab\_DISX_{i,t}$	$EM\_REAL_{i,t}$
Mean	0.000	–0.006	0.005	–0.004	0.013
St. Error	0.002	0.001	0.001	0.001	0.001
Median	0.000	–0.003	0.002	–0.001	0.006
St. Deviation	0.019	0.008	0.008	0.007	0.017
Sample Variance	0.000	0.000	0.000	0.000	0.000
Minimum	–0.059	–0.068	0.000	–0.032	0.000
Maximum	0.069	–0.000	0.052	–0.000	0.106
Count	145	145	145	145	145
	Control group of companies				
Mean	0.008	–0.011	0.013	–0.004	0.026
St. Error	0.003	0.001	0.001	0.000	0.002
Median	0.000	–0.004	0.005	–0.002	0.013
St. Deviation	0.040	0.016	0.018	0.006	0.029
Sample Variance	0.002	0.000	0.000	0.000	0.001
Minimum	–0.070	–0.080	0.000	–0.032	0.000
Maximum	0.158	–0.000	0.079	0.000	0.132
Count	145	145	145	145	145

Source: Authors' results

Table 5 shows the positions and dispersion of the data showing the differences in the magnitude of the abnormal values between the socially responsible companies and the control group, while Figure 2 presents the aggregated data showing how the companies have behaved over the whole study period. Note that the highest number of potential manipulations is observed in 2021 for the socially responsible enterprises and in 2019 for the control group.



Explanation of the figure: Ab_TA - accrual-based earnings management features have been identified; EM_REM - real earnings management features have been identified; Both - both types of earnings management features have been identified; Not - no earnings management features have been identified.

Figure 2. Abnormal values indicating the possible use of accrual-based and real earnings management in the groups of companies studied over the period 2017-2021

Source: Authors' results

In order to provide statistically valid conclusions, three tests for assessing statistical significance were applied: *t-test*, ANOVA and Chi-square (see Table 6). The results show that the differences in the magnitude of earnings management between socially responsible companies and control group are statistically significant, except for the reduction of discretionary expenditures.

Table 6

Comparative characteristics of the group of socially responsible enterprises and the control group

	Ab_TA	Ab_CFO	Ab_PROD	Ab_DISX	EM_REAL
t- test					
t	2.106**	3.765***	4.724***	**0.225***	4.527***
t_{crit}	1.968	1.972	1.972	1.968	1.977
ANOVA					
Between Groups	0.004	0.003	0.,004	**0.000**	0.012
Within Groups	0.287	0.044	0.055	0.016	0.161
F value	4.434**	15.844***	22.316***	**0.322***	21.238***
F_{crit}	3.874	6.724	6.724	3.874	6.724
Chi–square					
χ^2 value	115.55***	4.049**	8.115***	**0.018***	336.54***
$\chi^2{}_{crit}$	6.635	3.841	6.635	3.841	6.635
*** p<0.01; ** p<0.05; *p<0.10					

Source: Authors' results

Thus, based on the results of the calculations and tests carried out, it can be stated that corporate social responsibility is a system of values voluntarily assumed by Lithuanian companies, which is why their behaviour differs from that of other companies. They also tend to be more ethical and honest in their accounting practices, i.e. they adopt a conceptual approach to accounting, and therefore hypotheses H1 and H2 should be considered as confirmed.

5. CONCLUSION

In this study, we aimed to investigate whether an opportunistic or conceptual approach prevails when it comes to the use of earnings management in Lithuanian socially responsible companies. The study was carried out by comparing data from two groups of companies: one group of companies that disclose information on socially responsible activities in their reports, and the other group of companies that do not disclose information on socially responsible activities, i.e. control group of companies. To investigate the use of accrual-based earnings management, the model most commonly used in such studies is the Jones (1991) model which was later modified Dechow et al. (1995). To identify whether firms apply real earnings management, the most commonly used model for such studies is Roychowdhury's (2016) model, which consists of three activities: sales manipulation, overproduction, reduction of discretionary expenditures.

The data from the study on accrual-based earnings management show that Lithuanian socially responsible companies use manipulative accounting on average 2.3 times less frequently and less aggressively than other companies (the variation of values in socially responsible companies is between (-0.059) and 0.069, while in other companies it is between (-0.070) and 0.158), irrespective of the chosen strategy to increase or decrease profits. Statistical tests showed that the difference between socially responsible companies and other companies in the use of accrual-based earnings management is statistically significant, and therefore the study supported the hypothesis that Lithuanian socially responsible companies use accrual-based earnings management less frequently and/or less aggressively than other companies.

The study on real earnings management showed possible indications of the use of real activities manipulation: 1) almost 40% of companies in the socially responsible group and almost 50% of companies in the other group have evidence of sales manipulation in their accounts. However, the socially responsible companies are less aggressive in sales manipulation (the variation in values is between 0.000 and 0.052 for the socially responsible group and between 0.000 and 0.079 for the others), and this difference between the groups is statistically significant. It can therefore be concluded that sales manipulation is less frequent in socially responsible enterprises than in other enterprises. 2) When assessing the use of overproduction, it was found that socially responsible companies not only had 1.5 times fewer cases of overproduction, but were also less aggressive in their use of overproduction than other companies. Since the comparison between the groups showed a statistically significant difference, it can be concluded that socially responsible companies are less likely to manipulate their costs. 3) In the case of reduction of discretionary expenditures, it is observed that around 15% of companies in both groups show signs of this type of manipulation, with changes over the whole period being observed, but they are not significant. The statistical tests carried out show that both groups of companies behave in the same way when it comes to discretionary expenditures manipulation. 4) Looking at the overall significance of earnings management, the variation in values for the socially responsible group of companies is between 0.000 and 0.106, which is lower than for other companies, where the values vary between 0.000 and 0.132. This indicates that the accounting practices of socially responsible enterprises are less likely to be aggressive in their use of real earnings management techniques. A statistically significant difference was found when comparing the use of manipulative accounting between socially responsible enterprises and other enterprises, confirming the hypothesis that Lithuanian socially responsible companies apply real earnings management less frequently and/or less aggressively.

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