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ORIGINAL ARTICLE

The effect of media coverage on earnings management: Evidence from Brazilian companies

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ABSTRACT

This study aims to verify the effect of media coverage on the earnings management of Brazilian listed companies. A sample of 284 Brazilian non-financial companies listed on the B3 was used, with quarterly data for the period 2011-2022. Media coverage was measured by the natural logarithm of the number of news stories released about the firms, and for earnings management, a detection model with accruals was used (Collins et al., 2017), estimated using an unbalanced panel in GMM 2SLS. The results show a negative association between media coverage and earnings management, indicating that managers tend to manage earnings less in the presence of media visibility, in order to avoid negative effects on the deviation from the real value of earnings. The research reveals that the Brazilian media acts as an external agent of governance, inducing the improvement of accounting information by monitoring management actions. Given the importance of the role played by the media, especially through the rapid dissemination of information, the results show that media coverage contributes to reducing the noise generated by earnings management. This finding could have implications for managers and the capital market, as it shows that the media is an agent that interferes, albeit indirectly, with corporate actions. Therefore, the media influences various organizations, with implications for management practices that seek to improve transparency. The study seeks to fill a gap regarding the effect of Brazilian media coverage on earnings management, shedding light on the media as an external element of corporate governance that contributes to an environment of better accounting information.

Keywords: media, earnings management, Brazilian companies.

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O efeito da cobertura da mídia no gerenciamento de resultados: evidências das companhias brasileiras

RESUMO

Esta pesquisa tem por objetivo verificar o efeito da cobertura da mídia no gerenciamento de resultados das companhias abertas brasileiras. Utilizou-se uma amostra de 284 empresas brasileiras não financeiras, listadas na B3 com dados trimestrais no período de 2011-2022. A cobertura da mídia foi mensurada pelo logaritmo natural do número de notícias publicadas sobre as firmas, e, para o gerenciamento de resultados, empregou-se um modelo de detecção por meio de accruals (Collins et al., 2017), estimados mediante painel desbalanceado em GMM 2SLS. Os resultados demonstram uma associação negativa entre a cobertura da mídia e o gerenciamento de resultados, indicando que os gestores, mediante a visibilidade midiática, tendem a gerenciar menos os resultados para evitar desdobramentos negativos sobre o desvio do valor real do lucro. A pesquisa revela que a mídia brasileira atua como agente externo de governança ao induzir, via monitoramento das ações gerenciais, a melhoria da informação contábil. Ante a relevância do papel exercido pela mídia, sobretudo pela rápida disseminação da informação, os resultados demonstram que a cobertura midiática contribui na redução de ruídos oriundos do gerenciamento de resultados. Desdobramentos dessa constatação podem impactar gestores e o mercado de capitais por explicitarem que a mídia é um agente que interfere, ainda que indiretamente, nas ações corporativas. Tem-se, portanto, que a mídia influencia diferentes organizações, com efeitos em práticas gerenciais que buscam melhorar a transparência. O estudo busca preencher uma lacuna quanto ao efeito da cobertura da mídia brasileira no gerenciamento de resultados, lançando luz sobre a mídia como elemento externo de governança corporativa que contribui para um ambiente de melhor informação de natureza contábil.

Palavras-chave: *mídia, gerenciamento de resultados, companhias brasileiras.*

1. INTRODUCTION

This study aims to verify the effect of media coverage on earnings management in Brazilian listed companies. It can be observed that different studies report the effects of news released by the media on different aspects in the course of business activities, such as: image and reputation (Medeiros & Silveira, 2017), informativeness of accounting earnings (Peña-Martel et al., 2018), operational risks (Barakat et al., 2019), financial constraints (Chang et al., 2020), among others.

However, the literature still lacks a better understanding of the role of the media in corporate actions and, specifically, in relation to earnings management, in particular whether or not the amount of information disclosed by the media in relation to a corporation contributes to improving accounting information. It should be noted that in this study, both mass media and specialized media are considered, the former reporting information that is not necessarily related to the economic and financial aspects of the company, and the latter focusing on management actions and their economic impact on organizational assets (Rindova et al., 2006).

This analysis is relevant to the extent that the media's influence on society and the market has been intensified by the creation of mass media, which has expanded individuals' access to media discourses, especially news disseminated through digital resources (Coulddry & Hepp, 2017). Due to their persuasive and far-reaching characteristics, the mass media and/or specialized media can shape the perceptions of companies' stakeholders and shareholders, and also exert pressure on organizations to adopt certain behaviors (Chen et al., 2021; Guest, 2021). The media exerts pressure on companies to adopt more transparent, ethical, and socially responsible attitudes, with greater compliance and corporate governance practices in line with stakeholders' concerns (Liu & McConnell, 2013; Baloria & Hesse, 2018; Roychowdhury & Srinivasan, 2019; Xu & Qi, 2020).

In this sense, there is evidence that the media can be viewed as a gatekeeper that influences companies to improve their disclosure practices, operational decisions, and corporate governance (Comiran et al., 2018; Roychowdhury & Srinivasan, 2019). In addition, by acting as a gatekeeper, it seeks greater alignment between managers' and shareholders' expectations (Liu & McConnell, 2013).

Because of the agency problem, managers have incentives to maximize earnings for their own benefit (Jensen & Meckling, 1976), and one way to do this is through earnings management, which consists of intentional interventions by managers to alter accounting earnings and thereby reduce the quality of accounting information for private gain (Schipper, 1989; Dechow et al., 1995, 2012; Rocha et al., 2022). Although this practice is understood to be intentional and even within legal parameters, it can be carried out both opportunistically for managers' self-interest and for other reasons (Dechow & Skinner, 2000), including misleading users' perceptions of the company's performance (Healy & Wahlen, 1999).

For this reason, various studies have focused on understanding and explaining the causes and contexts that induce and constrain earnings management, together trying to show the consequences of this corporate action (Healy & Wahlen, 1999; Martinez, 2013). Based on these aspects, there is room for media actions to be one of the possible explanations for the (dis)encouragement of earnings management practices, since the media exerts pressure on managers by putting them under the spotlight so that their accounting choices do not distort the real results of the company (Miller & Skinner, 2016; Comiran et al., 2018). As noted by Peña-Martel et al. (2018), the media influences managers to improve the quality of accounting information because of the negative risks of bad news to the company's image, intervening in accounting policies to achieve this.

The media can be seen as an agent that restricts earnings management by reporting it, thereby limiting or minimizing possible opportunistic actions by managers that may distort company results through accounting choices (Chahine et al., 2015; Peña-Martel et al., 2018; Bonsall IV et al., 2020; Chen et al., 2021; Yu, 2023). This may be because, by maintaining an informative environment through news about the firms, it helps investors to predict the future results of the companies and potentially discourages earnings management practices and reduces information asymmetry (Chahine et al., 2015; Guest, 2021), especially due to greater monitoring of management actions and knowledge of the sector (Liu & McConnell, 2013). At the same time, due to its actions, it works as a governance mechanism by disseminating information that affects the legitimacy of the organization, which is important for encouraging and maintaining good management practices (Brychko & Semenog, 2018).

In addition, companies with greater media attention are required to improve their governance and the quality and quantity of information disclosed, aspects that reduce information asymmetry and prevent opportunistic actions, such as earnings management (Peña-Martel et al., 2018; Xu & Qi, 2020). The existing literature on the relationship between media coverage and management differs in its findings. On the one hand, there are studies that have found a positive relationship, making the argument that the greater visibility made possible by the media would be used strategically by managers to demonstrate better corporate results, arising from accounting choices that appear to improve earnings (Wu et al., 2016; Meng, 2020; Cedergren et al., 2023). On the other hand, there is evidence that media coverage would reduce the practice of earnings management due to the risks of detection and the dissemination of negative news to the market, which would have unfavorable consequences for the company (Qi et al., 2014; Chahine et al., 2015; Comiran et al., 2018; Blankespoor et al., 2019; Chen et al., 2021).

In view of the above, verifying the effect of media coverage on earnings management is relevant, since the literature lacks a better understanding of this relationship in the accounting field, especially in companies that are located in the same institutional, political, social and economic sphere as Brazil (Santana et al., 2020), which has not yet been the subject of research. The research makes advances by understanding the proposed relationship through the prism of the role of the media as an external agent of governance, allowing reflections on this role of the media, which has barely been considered. It shows that the extent of media coverage is an element to be considered in research that analyzes the choices of managers who are under constant scrutiny and judgment by the media.

Among the results obtained in this research was statistically significant evidence that companies with more media coverage have less earnings management. The findings of this research make practical contributions to the identified free press environment by suggesting that its actions promotes greater transparency of financial information by reducing the practice of earnings management, thereby fostering a higher quality of accounting information for external users.

It also contributes to the literature by indicating that the monitoring carried out by the media in Brazil reinforces its role as an external agent of corporate governance (gatekeeper), promoting greater alignment between the interests of the agent (manager) and the principals (investors) who do not participate in management, as well as the decision-making process of the external user and the process of allocating resources through the better quality of accounting information.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

In the corporate world, the role of the media is so representative that, according to Graf-Vlachy et al. (2019, p. 37), media coverage of business activities is "omnipresent" and exerts pressure on the daily lives of managers. This type of pressure, which is inherent to the role of the press, is currently gaining greater representation and impact due to the reach of digital platforms, which increasing requires managers to justify the use of the resources allocated to them (Deephouse, 2000; Guest, 2021).

In this context, the literature on media coverage and corporate actions can be divided into three main perspectives: economic, institutional, and socio-psychological (Graf-Vlachy et al., 2019). From the economic perspective, which is the focus of this study, it is understood that the media plays an important role in financial markets by disseminating information and opinions about companies (Baloria & Heese, 2018). Through the dissemination of news, the media creates and modifies the image of firms, thus influencing the public's perception of companies (Rindova et al., 2006; Graf-Vlachy et al., 2019).

For Deephouse (2000), due to the opacity of decision-making processes and internal mechanisms in organizations, the role played by the media in questioning what is being done with investors' economic resources sometimes becomes the main or only source of information that is not publicly disclosed, thus helping to reduce information asymmetry.

In this environment of greater informativeness and dissemination of information, media coverage can have different implications for companies (Peña-Martel, Pérez-Alemán & Santana-Martín, 2018). According to Rindova et al. (2006), media attention can increase strategic opportunities and access to resources for companies when the information disseminated about corporate actions is positive. For the authors, this result is possible because the media builds an attractive image of companies for the public, which makes them more receptive to investment.

Therefore, due to the greater informativeness and dissemination of corporate information by the media, the tone used in the news must be taken into account, as it is a variable that influences the investment decision of shareholders and, consequently, may or may not be an inductive channel in the allocation of resources in organizations (Baloria & Hesse, 2018; Chang et al., 2020). Thus, depending on the tone, whether positive or negative, the pricing of stocks by investors is influenced by the media (Aman & Moriyasu, 2022). In addition, there are reports that media coverage even affects the profitability of companies by exposing corporate behavior (Guest, 2021).

Considering these aspects, the media can influence managers in different directions to align their actions with those demanded by the various stakeholders, such as those labeled as socially acceptable. This is done by arguing that the adoption of such practices would mitigate socially unacceptable behaviors and, as a result, better decisions would be made to benefit and/or better align with the interests of these stakeholders (Baloria & Hesse, 2018; Xu & Qi, 2020).

In this way, the behavior of managers and their business practices are adjusted based on media pressure (Guest, 2021). Otherwise, non-compliant actions can lead to corrective and punitive attitudes through negative news disseminated by the media, exposing companies to greater risk of investor flight, reduced access to resources, or an increase in the cost of that access (Lui & McConnell, 2013; Graf-Vlachy et al., 2019). Thus, the media acts as an agent that monitors the behavior of managers and brings about negative consequences by identifying possible nonconformities with the wishes of investors and the public as a whole (Chen et al., 2021).

By acting this way, for Ormazábal (2018), the media plays a role in corporate governance because media coverage reports and influences corporate events and discourages opportunistic actions. This is in line with the understanding of the media as a gatekeeper, performing monitoring that sheds light on the behavior of managers (Roychowdhury & Srinivasan, 2019). Comiran et al. (2018) even use the expression "watchdog" when commenting on the role of the media and managerial decisions, referring to what Ormazábal (2018) calls gatekeepers.

Gatekeepers are important in the monitoring structure of governance because they reduce information asymmetry, protect stakeholders' interests, and increase market efficiency (Coffe, 2001). In exercising this function, Dick, Volchkova, and Zingales (2008) find that the media, by disseminating news, reduces the information effort of market agents, increases the reputational costs of the company, and increases the likelihood and magnitude of sanctions by regulators.

Media monitoring in the capital market, as a governance agent, helps to expose corporate practices by disclosing possible opportunistic actions by management, which attracts and induces stakeholders to pressure managers to adjust their behavior according to their interests (Chen et al., 2021). Similarly, media scrutiny pressures companies seek to increase information disclosure and improve the quality of financial reports (Cahan, Chen & Wang, 2020). Behavioral adjustments result from the fear of the consequences that negative impressions generated by the media may have on investors through reduced investment, trading volume, stock returns, and increased cost of capital, among others (Guldiken et al., 2017; Hanna et al., 2020).

With regard to earnings management, there is evidence that media coverage mitigates this type of action through the production and dissemination of news and the monitoring of corporate actions (Qi et al., 2014; Chahine et al., 2015; Wu, Gao & Li, 2016; Meng, 2020; Chen et al., 2021; Yu, 2023), an aspect that has not yet been investigated in the Brazilian capital market. In general, research on the role of the media outlines a common sense of the effect of the media and the practice of earnings management.

Qi et al. (2014) found that Chinese companies with more media exposure manage their earnings less than those with less media coverage. According to the authors, this is because the media acts as a corporate governance actor and effectively monitors management by mitigating opportunistic actions by managers. In the same vein, Comiran et al. (2018) found a negative relationship between management and media coverage in US companies, explaining that the media plays a role in monitoring managers' choices in addition to the work of auditors.

As a result, the dissemination of news about companies creates a more informative environment regarding corporate actions (Chahine et al., 2015; Guest, 2021), and this environment of greater equity affects the financial market, including in terms of trading volume and stock prices (Engelberg & Parsons, 2011). In this environment, managers tend to reduce earnings management practices, as greater vigilance leads to a greater risk of identifying inappropriate practices, which may have a negative impact on the company (Qi et al., 2014; Chen et al. 2021).

According to Chahine et al. (2015) and Blankespoor et al. (2019), there is evidence that investors also use the information provided by the media to make their investment decisions, and due to this behavior, managers reduce earnings management in order to take advantage of the information environment provided by the media to signal the quality that investing in the company can provide, differentiating themselves from those companies that manage their earnings.

Based on the empirical finding that media coverage is negatively associated with earnings management for a sample of American companies, Chen et al. (2021) suggest that shareholders tend to react negatively to media reports of earnings management, leading to capital flight. As a result, according to the authors, managers reduce management practices to avoid this reaction and the negative tone of the media, which has an impact on the organization.

Despite the negative association between greater media coverage and earnings management, there is evidence in the literature that there is a positive relationship. From this theoretical perspective, earnings management is strategically employed by managers in order to take advantage of the visibility provided by the media (Wu et al., 2016; Meng, 2020).

Wu et al. (2016), in finding a positive relationship between earnings management and media coverage, show that managers manage earnings to meet market performance expectations created on the basis of opinions disseminated by the media, and at the same time, they engage in this practice to avoid the negative tone of news about certain corporate decisions. Meng (2020) obtained the same result as Wu et al. (2016) in manufacturing companies listed on the Shenzhen Stock Exchange in China, arguing that media attention induces managers to manage earnings to achieve the expected results, despite acknowledging that the media acts as a monitoring agent for corporate behavior.

Cedergren et al. (2023) present evidence that managers of American publicly-traded companies tend to manage earnings more when forecasts of profit reductions are published in the specialized media. It is worth noting that the managers of Enron, for example, relied heavily on the specialized media to justify their management actions, which were later revealed and culminated in one of the biggest financial scandals in the corporate world (McLean & Elkind, 2013).

Even with the possibility of observing media coverage as an inducer of earnings management, this research understands that the media plays a role in monitoring management actions (Chahine et al., 2015; Guest, 2021; Chen et al., 2021), mitigating opportunistic actions, and bringing about greater alignment between shareholder and manager expectations by reducing information asymmetry (Liu & McConnell, 2013; Bonsall IV et al., 2020; Yu, 2023). The gatekeeper role supports the research hypothesis:

> H_1: Media coverage of corporate actions has a negative and significant relationship with earnings management activities.

3. METHODOLOGICAL PROCEDURES

3.1 Population and Sample

The study population consists of Brazilian public companies listed on the B3 between 2011 and 2022, excluding companies in the financial sector due to their characteristics. This sector was excluded for two reasons: first, because of the characteristics of accounting records, which are different from other sectors, especially in terms of asset and liability accounts (Santana et al., 2020); second, financial companies have specific regulations and laws that makes it difficult to compare the statements with other sectors (Le et al., 2018). These differences between the financial sector and other sectors make it impossible to conduct comparative analyses of the effect of media coverage on earnings management between the organizations in the study.

The time frame chosen, starting in 2010, is due to the convergence of Brazilian accounting standards with international standards. In addition, as explained below, the measures of earnings management use outdated data, which allows the analysis only from 2011, using information from 2010 (post-convergence) to measure this variable. In total, the study sample consists of 284 companies with data available for the research, distributed over 10 economic sectors, totaling: 51 industrial goods; 5 communications; 86 cyclical consumption; 26 non-cyclical consumption; 25 basic materials; 13 oil, gas and biofuels; 20 health; 14 information technology; 43 public utilities; and 1 other. Data were collected from the Economatica® and Refinitiv® databases.

3.2 Estimating Earnings Management through Discretionary Accruals

To measure earnings management, the measurement model using discretionary accruals by Collins et al. (2017) was used. The model proposed by the authors makes advances by controlling for the effects of prospective and retrospective growth, as well as company performance, when estimating discretionary accruals by quarter. According to Collins et al. (2017), both growth and company performance are related to accruals; however, the relationship with growth is not linear, and in a quarterly analysis, the variation is influenced by the effects of seasonality; therefore, weighting these aspects makes the model more specific. To this end, the authors include in the model dummies for the variables return on assets (performance), sales growth (growth) and market-to-book (growth), as well as controlling for the reversal of accruals from the previous year, as specified in equation 1.

$$ACCT_{i,t} = \lambda_0 + \lambda_1 T_{1,i,t} + \lambda_2 T_{2,i,t} + \lambda_3 T_{3,i,t} + \lambda_4 T_{4,i,t} + \lambda_5(\Delta NREV_{i,t} - \Delta AR_{i,t}) + \lambda_6 ACCT_{i,t-4} + \sum_k \lambda_{7,k}\, ROA\_Dum_{k,i,t} + \sum_k \lambda_{8,k}\, SalesGrow\_Dum_{k,i,t-4} + \sum_k \lambda_{9,k}\, MB\_Dum_{k,i,t-1} + \varepsilon_{i,t} \tag{1}$$

where *ACCT* is the accruals calculated by summing the changes in accounts receivable, inventories, accounts payable, taxes payable, and other accounts affecting accruals, including gains and losses from special items and reductions, write-offs, and losses from the revaluation of assets; *T* is a dummy variable for each quarter of the fiscal year; *ΔNREV* is the change in net revenues for one period compared to the previous one, scaled by total assets, lagged by one period; *ΔAR* is the change in accounts receivable scaled by total assets; *ROA_Dum* is a dummy variable that takes the value of 1 if the company's quarterly ROA belongs to the *k*-th quintile and 0 otherwise; *SalesGrow_Dum* is a dummy variable that takes the value of 1 if the ratio of the change in sales from quarter t to $t-4$ per $t-4$ of the company belongs to the *k*-th quintile and 0 otherwise; *MB_Dum* is a dummy variable that takes the value of 1 if the company's quarterly market-to-book ratio belongs to the *k*-th quintile and 0 otherwise; and ε is the error term.

Given the sample and the time frame of the observations in this study, the Collins et al. (2017) model is estimated to be the most appropriate for detecting earnings management through discretionary accruals. This is due to the estimation of quarterly effects and the possibility of controlling for the heterogeneity among Brazilian firms in terms of growth and financial performance. It should be noted that, in accordance with the proposed research objective, the result of the earnings management model by Collins et al. (2017) was used as a modulus.

3.3 Measuring Media Coverage

The media coverage measure (*MEDIA*) corresponds to the natural logarithm of the sum/count of news about a given company in the period $[\ln(\Sigma News_{i,t})]$ released in the media, according to Qi et al. (2014), Meng (2020), and Chen et al. (2021), who also used the count as a proxy for media coverage. Companies that received no news coverage in the quarter were assigned a value of zero.

The use of this type of proxy is particularly useful in that it reveals how exposed these companies are to media coverage, as well as to their investing public or potential capital lenders (Chen et al., 2021; Guest, 2021). This is because the greater the number of news stories related to the company, the greater the exposure, pressure, and scrutiny of corporate actions (Deephouse, 2000; Graf-Vlachy et al., 2019).

In this study, the media is considered to be Brazilian newspapers and magazines that have written articles with digital distribution, regardless of whether the media outlet is characterized as mass media or specialized media. In this way, it is understood that the variable used can cover the different organizations that make up the media (Coulddry & Hepp, 2017).

News about the companies was retrieved using the Google News search engine in order to provide access to the largest number of media reports in Brazil. For each quarter of the analysis, an individual search was made in the search field for the names of the companies in the sample, specifying that the results should be for web pages in Portuguese, in an attempt to restrict the results to the Brazilian press. Thus, the count of news items obtained in the results was used for the media coverage variable.

The focus of this study is on media coverage. Therefore, it should be noted that the proxy used has some limitations that need to be explained. First, because the variable is based solely on counting the number of news stories, is does not take into account the number of times each company is mentioned in each story. Therefore, the value used in the variable only represents the amount of news published by the media. It does not take into account the tone of the news (positive or negative), the context of the news in relation to the companies, the categories to which the news may be linked, or the length of the texts. Similarly, no distinction is made between the editorial policies of Brazilian magazines and newspapers, which may influence the type of news, such as informative or opinion pieces.

3.4 Econometric Procedures

Based on the literature review, the effect of media coverage on earnings management in Brazilian companies was analyzed using the econometric model shown in equation 2.

$$\left|EM\right|_{i,t} = \beta_0 + \beta_1 MEDIA_{i,t} + \beta_2 Instrumental_{i,t-2} + \sum_{k=3}^{9} \delta_k \, Control_{k,t} + \mu_{i,t} \tag{2}$$

where *EM* represents the proxy used in the modulus for earnings management, measured as described in the previous subsection; $\beta_1 MEDIA_{i,t}$ represents the independent variable for media coverage of corporate actions; $\beta_2 Instrumental_{i,t-2}$ represents the instrumentation of the media variable by the lag in one and two periods due to the endogeneity issue; δ_k is a column vector of the control variables (described in Table 1); $\mu_{i,t}$ is the random error of the regression, where $\mu_{i,t} \sim N(0, \sigma^2)$.

Table 1
Control variables

Variable	Acronym	Measurement	Expected sign	Data source	Variable logic
Size	SIZE	ln(net revenues)	+	Economatica	Kim et al. (2003); Martinez & Leal (2019)
Indebtedness	DEBT	(short and long term debt)/(total assets)	+	Economatica	Healy & Wahlen (1999); Dang et al. (2018); Nalarreason et al. (2019)
Market capitalization	MCAP	ln((share price) ×(number of shares))	–	Economatica	Challen & Siregar (2012); Nazir & Afza (2018)
Analysts	ANALYST	number of analysts who followed the company in the period	–	Refinitiv	Martinez (2011); Li et al. (2021)
Return on assets	ROA	(operating income)/ (total assets)	+	Economatica	Healy & Wahlen (1999); Chen et al. (2021); Santana et al. (2020)
Fixed Assets	FIXED	(net fixed assets)/(total assets)	+	Economatica	Dechow et al. (1995, 2012)

Source: *Prepared by the authors.*

The control variables are included in the model to increase the robustness of the results obtained, since the dependent variable can be affected by them. The estimations were carried out using cross-sectional data in a short (N > P) and unbalanced panel, since the number of observations is not the same for all companies (Fávero & Belfiore, 2017). First, the ordinary least squares (OLS) estimator was used, whose assumption refers to the exogeneity of the regressors in order to correctly infer the causal relationship between the variables studied (Cameron & Trivedi, 2009).

Despite this, as Barros et al. (2020) point out, research in finance that uses short panels and relies on financial statement and market data has the problem of difficulty in distinguishing the point of coincidence between the explanatory variable and the response variable, with simultaneity, as well as possible omissions of relevant variables in the models. For this reason, two dynamic panel estimators were used: instrumental variables two-stage least squares (IV 2SLS) and the generalized method of moments (GMM); as a way of mitigating the endogeneity problem and obtaining more consistent estimates (Ketokivi & McIntosh, 2017; Barros et al., 2020).

4. ANALYSIS AND DISCUSSION OF THE RESULTS

This section presents and discusses the results. Companies with negative revenues, which served as the basis for the size calculation, were excluded. In addition, due to the presence of outliers in the sample that significantly influenced the results, winsorization at 1-99% was applied to all variables. Table 2 presents the descriptive statistics of the research variables.

Table 2
Descriptive statistics of the variables

Variables	N. observations	Mean	St. deviation	Minimum	Maximum
COLLINS	8,740	1.490	11.740	6.57×10^{-6}	347.477
Media	8,740	1.306	1.127	0	4.181
Size	8,740	19.685	3.138	7.172	26.063
Indebtedness	8,740	0.345	0.834	0	28.821
Market cap.	8,740	18.905	6.120	0.019	26.829
Analysts	8,740	3.664	4.832	0	18
ROA	8,642	3.664	23.954	0.006	1,012.889
Fixed assets	8,740	0.261	0.465	0	22.059

Note: *COLLINS = earnings management as measured by the Collins et al. (2017) model; Media = media coverage; Size = firm size; Indebtedness = degree of firm indebtedness; Market cap = market capitalization; Analysts = number of analysts following the firm during the period; ROA = return on assets; Fixed assets = degree of asset immobilization.*
Source: *Prepared by the authors.*

As can be seen in Table 2, the earnings management measure has a mean of 1.490, with a standard deviation of 11.740, indicating that the sample observations of the dependent variable are closer to the mean, and it is also the second variable with the lowest dispersion around the mean.

The Media variable had a mean of 1.306 with a standard deviation of 1.127. Although there are companies that were not the subject of any news in some quarters (minimum = 0), it can be seen that all the companies in the sample received some level of media coverage between the analysis periods. This suggests that companies listed on the Brazilian Stock Exchange receive media attention, whose opinions are disseminated in society, as commented by Rindova et al. (2006) and Graf-Vlachy et al. (2019). Note that this variable is measured by the natural logarithm of the news count per period. In addition, Table 3 shows the distribution of the number of news items by year and by economic sector.

Table 3
Distribution of news-years by sector

	Sector										
Year	**S1**	**S2**	**S3**	**S4**	**S5**	**S6**	**S7**	**S8**	**S9**	**S10**	**Total**
2011	0	0	0	374	0	0	0	0	0	0	374
2012	2,780	2,095	2,640	8,712	1,987	2,977	47	119	4,682	0	26,039
2013	2,760	2,005	3,321	11,258	1,884	3,316	378	205	7,850	0	32,977
2014	2,827	1,634	10,195	17,018	1,927	380	98	560	11,283	0	45,922
2015	7,043	1,491	14,514	22,622	4,021	395	102	879	20,380	0	71,447
2016	6,952	2,223	18,971	28,746	5,699	663	1,906	1,265	28,797	0	95,222
2017	12,159	2,625	28,519	28,247	8,668	865	2,502	1,783	43,211	0	128,579
2018	21,507	4,880	52,216	46,764	11,255	1,955	2,600	1,657	59,660	0	202,494
2019	36,764	8,854	85,368	59,272	21,472	6,584	10,814	3,359	115,462	0	347,949
2020	55,699	9,550	166,376	113,937	38,502	13,652	26,227	6,259	203,134	5	633,341
2021	27,642	1,142	39,059	39,982	36,847	19,625	13,486	6,419	62,110	0	246,312
2022	40,465	4,678	71,664	65,023	48,890	17,295	19,914	12,342	108,143	0	388,414
Total	216,598	41,177	492,843	441,955	181,152	67,707	78,074	34,847	664,712	0	2,219,070

Note: *S1 = Industrial Goods Sector; S2 = Communications Sector; S3 = Cyclical Consumption Sector; S4 = Non-Cyclical Consumption Sector; S5 = Basic Materials Sector; S6 = Oil, Gas and Biofuels Sector; S7 = Health Sector; S8 = Information Technology Sector; S9 = Public Utilities Sector; S10 = Other.*
Source: *Prepared by the authors.*

From the analysis of the results presented in Table 3, the volume of news items released by the 284 companies in the sample stands out, which total 2,219,070. In addition, the constant evolution between the years of the volume of news disseminated by the Brazilian media is evident, with the year with the largest amount being 2020, with 633,341 news items released. This finding is in line with what Coulddry and Hepp (2017) state: the greater number of news items released by the media is mainly due to technological advances that facilitate access, production and the speed with which news items are disseminated.

Moreover, the increase in the dissemination of news about the companies studied can be understood as a result of the need for more corporate information by stakeholders, since media behavior can be shaped by external pressures, such as from shareholders and other stakeholders (Peña-Martel et al., 2018). The fact that 2020 saw the highest number of news items in the Brazilian media is interpreted within the context of the evolution of the number of media organizations and the dissemination of news through the internet, which allows for faster publication and an increase in the information disseminated. This is confirmed when we see in Table 3 that the most recent years are those with the highest number of news items.

To test the relationship between media coverage and earnings management, the Fisher test developed by Maddala and Wu (1999) was first applied to the variables to test for a unit root for panel data. The results showed that all the variables used do not have a unit root (Prob > chi2 = 0.000), indicating that the series is stationary (Morettin & Tolin, 2006). According to the VIF test, there was no multicollinearity (VIF = 2.27 < 5), but the Breusch-Pagan/Cook-Weisberg and White tests indicated heteroskedasticity of the residuals in both equations (Prob > chi2 = 0.000). To this end, OLS estimation was applied using robust standard errors with clustering by firm in the estimations to control and reduce heteroskedasticity.

Furthermore, given the continuity over time of the earnings management variable, in which the past values explain the present ones, and the possibility of simultaneity with the media variable, it was decided to instrumentalize the model using the one and two period lags of the media coverage variable, first with the instrumental variables two-stage least squares (IV 2SLS) estimator and additionally with the GMM 2SLS estimator, the results of which are presented in Table 4.

Table 4
Regression results for OLS, IV 2SLS and GMM 2SLS estimations

Earnings management COLLINS									
Estimators	**OLS**			**IV 2SLS**			**GMM 2SLS**		
Dependent variable	**Coef.**		**Prob > F**	**Coef.**		**Prob > F**	**Coef.**		**Prob > F**
Media	0.126		0.118	−0.873	***	0.000	−0.930	***	0,000
	(1.56)			*(−7.31)*			*(−6.60)*		
Size	0.190	***	0.007	0.071		0.350	0.052		0,579
	(2.69)			*(0.93)*			*(0.55)*		
Indebtedness	0.536		0.505	0.395	*	0.067	0.308		0,688
	(0.67)			*(1.83)*			*(0.40)*		
Market cap.	−0.762	***	0.000	−0.671	***	0.000	−0.616	***	0,000
	(−21.49)			*(−17.46)*			*(−9.76)*		
Analysts	0.129	***	0.000	0.086	***	0.000	0.072	***	0,000
	(7.92)			*(3.56)*			*(4.87)*		
ROA	−0.023	***	0.000	−0.024	***	0.000	−0.022	***	0,000
	(−3.59)			*(−5.80)*			*(−3.64)*		
Fixed assets	0.968		0.573	0.924	**	0.030	1.475		0,361
	(0.56)			*(2.18)*			*(0.91)*		
Constant	11.152	***	0.000	11.039	***	0.000	10.142	***	0,000
N. observations	8.642			8.640			8.640		
Prob > F	0.000			0.000			0.000		
R^2	0.135			0.135			0.133		
Sagan statistic									
$Chi^2(1)$				15.770					
P-value				0.000					
Hansen's J test									
$Chi^2(1)$							12.447		
P-value							0.000		

Note: *Media = media coverage; Size = firm size; Indebtedness = degree of firm indebtedness; Market cap = market capitalization; Analysts = number of analysts following the firm during the period; ROA = return on assets; Fixed assets = degree of asset immobilization. *, **, *** represent statistical significance at 10%, 5% and 1%, respectively.*
Source: *Prepared by the authors.*

The results show that the relationship between earnings management and the media is significant at the 1% level, according to the IV 2SLS and GMM 2SLS estimations, with a negative relationship, which confirms the research hypothesis, i.e., greater media coverage through news reporting contributes to lower earnings management by Brazilian listed companies. It is worth noting that the instrumentalization used in the models is robust, according to the results of the Sagan statistic and Hansen's J test. Due to the endogeneity problem, the following analyses are based on the results of the GMM 2SLS estimation presented in Table 4.

The results show a decreasing logarithmic function, implying that earnings management decreases when there is more media coverage, as measured by the number of news stories reported. As expected, the results show that the media has a negative effect on management practices in Brazilian companies when there is greater media visibility, which is consistent with the findings of the studies by Qi et al. (2014), Chahine et al. (2015), Comiran et al. (2018), and Chen et al. (2021).

In light of this, there are a number of interpretations that can be given to the result of the greater number of news stories in the media. The first is that the media ends up acting as an external corporate governance agent (gatekeeper), as proposed by Qi et al. (2014), and as a result of this greater coverage, there is an inhibition of management practices that benefit managers, such as earnings management. Given this role as an external governance agent, the divergence in the results of Wu et al. (2016), Meng (2020), and Cedergren et al. (2023) can be understood.

According to Chen et al. (2021), the negative relationship is due to the fact that managers are afraid of the consequences that could result from the detection of management, which is not viewed favorably by shareholders because it distorts the true result for the period. Thus, the practice would be to reduce earnings management in order to disclose the most reliable economic result possible, which in turn can have an additional effect for the company due to greater transparency by disclosing more internal information to external parties (Cosenza et al., 2018) and consequently reducing information asymmetry (Dick et al., 2008; Bonsall IV et al., 2020).

As noted by Chahine et al. (2015) and Guest (2021), one of the effects of the greater dissemination of corporate news, combined with the evidence obtained in this research, is the development of a more informative business environment, including better conditions for external users in decisions to buy, retain, or sell their assets.

In addition to the above, greater media coverage provides strategic opportunities (Rindova et al., 2006) that could be lost if the market does not trust the real profits earned (quality of accounting information). Thus, the media channel may be used by managers as a means of attracting investors, which would lead to a reduction in earnings management practices in order to demonstrate the attractiveness of investing in the organization and improve the business environment due to the greater reliability of reported economic results (Chahine et al., 2015; Yu, 2023).

This strategic use is not limited to trying to obtain resources, as managers can also use the media to promote the legitimacy of their actions, which is a relevant item for organizational continuity (Cosenza et al., 2018) and is mainly obtained by distancing themselves from negative news that may be released (Qi et al., 2014; Chen et al., 2021). By managing less, through greater media visibility, companies can ensure that there is no or less negative news that affects future cash flows, market returns, and the firm's image among investors.

Moreover, contrary to expectations, the ROA variable was found to have a negative and significant effect on earnings management. ROA may be related to expected future returns. According to the results of Cupertino et al. (2016), when ROA is used to measure future returns, there is a negative association with earnings management, as ROA may indicate that managers who manipulate earnings have sacrificed future positive results to obtain these values in the present.

Market capitalization is positively and significantly associated with earnings management at the 1% level. This finding supports the view that companies that are more closely followed by the market, as indicated by company value, increase earnings management in order to avoid bad news about the company. However, the market analyst coverage variable showed a positive and significant relationship, suggesting that companies that are followed by members of the specialized media (analysts) tend to manage their earnings more. Nevertheless, it should be noted that the bulk of the news is in the mass media, which, due to its visibility, can lead to a reduction in management.

5. CONCLUSIONS

Researchers have reported that the media influences different parts of society because it has capillarity among social circles and is present in the daily lives of different individuals. In this line of argument, some studies have been developed with special attention to media coverage of corporate actions because of its ability to produce effects on management practices, such as earnings management.

This study sought to verify the effect of media coverage on earnings management in Brazilian listed companies. The results show that there is a negative and significant relationship between media coverage and earnings management. This finding implies that the greater the media coverage, the less earnings management is practiced. This result confirms the hypothesis of this research.

According to the main finding of the study, there is evidence that managers tend to manage earnings less due to greater media coverage, which could be positive for the company by avoiding the bad news that could circulate in the media if the practice of earnings manipulation is discovered. In addition, the media ends up playing the role of corporate governance agent, monitoring and publicizing the actions of managers. By focusing on the company's actions and publicizing management decisions, the media reduces the information asymmetry between the firm's internal and external parties, acting as a gatekeeper.

Due to the environment of greater information and informativeness created by media channels, managers seek to adopt better disclosure practices in order to increase corporate transparency by reducing earnings management practices and also as a way to avoid risks to the company in the capital markets. In addition, managers can take advantage of the increased media exposure to report more corporate information to the external public, thereby increasing the amount of information disclosed.

The findings contribute to the literature on earnings management by explaining that the media is also a factor that explains the behavior of this practice. This contribution adds to other research by indicating that the monitoring carried out by the Brazilian media reinforces its role as an external agent of corporate governance, promoting greater alignment between the interests of the agent and the principals by improving the quality of accounting information and reducing earnings management. In a practical sense, the results of this research contribute to the reflections of Brazilian company managers by making it clear that their corporate decisions on earnings may be guided, even if unconsciously, by media coverage.

It should be noted that this study was limited to the analysis of media coverage and did not investigate whether the tone or the length of the texts used in media reports moderate the relationship with earnings management. Nevertheless, researchers are encouraged to examine how tone can mediate the relationship studied and to address the possibilities for the Brazilian context of quantifying qualitative elements present in the media. Similarly, future studies on the influence of the media on other management practices are encouraged, especially in the Brazilian context.

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