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Earnings Management and Guidance: A Study on Brazilian Companies

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Abstract

Objective: This study investigates whether earnings management practices explain how Brazilian companies achieve disclosed guidance.

Method: The sample consisted of companies listed on Brasil, Bolsa, Balcão (B3 S.A.) from 2010 to 2020. These companies' forecasts (guidance) for accounting and performance indicators were collected and compared with actual figures, generating the variable error in achieving guidance. Earnings management levels were analyzed using accrual-based and operational activities.

Results: Regression analysis indicates that companies use accrual-based earnings management to meet disclosed guidance when projections exceed actual results. Conversely, when guidance falls below actual results, companies employ operational activity-based management.

Contributions: This study' adds to the discussion on guidance and earnings management by introducing a variable to capture the error in achieving disclosed guidance, highlighting its innovative contribution.

Keywords: Earnings Management; Guidance; Public Companies.

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1. Introduction

The quality of accounting information provided in financial statements possesses fundamental characteristics that enhance its value, with the primary purpose of offering stakeholders accurate data to safeguard their interests. However, measuring the quality of accounting information cannot rely on a single variable, as multiple attributes must be considered. The most frequently addressed attributes include relevance, persistence, conservatism, and earnings management (Barth, Landsman & Lang, 2008; Lopes & Walker, 2008; Almeida, Sarlo Neto, Bastianello & Moneque, 2012).

Earnings management is only possible because the current legislation allows managers to adopt criteria and practices known in the literature as accounting choices. Thus, the outcome, the main product of accounting information, may result from discretionary accounting adjustments.

In this context, managers can make accounting choices to maximize the wealth of all parties or opt for recognition/measurement criteria that do not necessarily reflect their companies' actual economic situation to achieve goals driven by personal motivations (Rodrigues, Melo & Paulo, 2019).

From this perspective, a manager may respond to what s/he assumes to be the behavior of investors and creditors toward reported profits, aiming to meet market expectations, even if the results merely reflect accounting structure. Thus, the feedback phenomenon influences the managers' choice of accounting practices (Hendriksen & Van Breda, 1999).

Thus, managers can steer accounting practices based on specific incentives alongside the discretion and subjectivity inherent in accounting choices. Guidance stands out as a stimulus particularly linked to the capital market. As highlighted by Souza, Sanches, Sbardellati, and Neumann (2018), guidance is a forward-looking information tool companies use not only to meet the capital market's demands for transparency but also to enhance trust and credibility among various stakeholders by disclosing relevant information about their current or future situation.

Managers may be encouraged to manipulate accounting numbers to achieve specific reference "targets," above or below the actual results obtained in the period, to meet the expectations of economic agents regarding guidance. In this context, Jaggi and Sannella (1995) and Kasznik (1999) investigated U.S. companies and found that managers are driven to manage results to align with their forecasts. According to Krishnan, Pevzner, and Sengupta (2012), disclosing projections (guidance) from the auditors' perspective increases the likelihood of earnings management.

Silva *et al*., (2016) and Souza *et al.,* (2018) analyzed the relationship between guidance and earnings management and found that Brazilian studies focus on the determinants of its disclosure and characteristics (Brandão, Assunção, Ponte & Rebouças, 2013; Brandão, De Luca & Vasconcelos, 2014; Folster, 2016).

Even though projections are associated with factors such as lower stock volatility, high confidence levels and proximity to market professionals, increased company coverage, stock prices closer to fair value, reduced cost of capital, and projection alignment (Hirst, Koonce & Venkataraman, 2008), there is a limited number of Brazilian studies analyzing the relationship between earnings management and the disclosure of guidance (Silva *et al.,* 2016; Souza et al., 2018). Furthermore, studies on earnings management are essential for monitoring the quality of accounting information.

Evidence of guidance disclosed by companies regarding accounting and performance indicators was compared with actual numbers, generating the variable "error in achieving guidance indicators." Next, we verified whether earnings management practices explain the companies' achieving guidance indicators. The literature also reports other variables that may explain the error in achieving guidance.

The methodological aspects listed above distinguish this study from those by Silva *et al.* (2016) and Souza *et al*. (2018), which investigate only the relationship between guidance disclosure and earnings management. This study further identifies how earnings management explains the disclosure and achievement of disclosed guidance.

Thus, the following guiding question was chosen to clarify the subject under study: Do **earnings management practices explain the achievement of guidance disclosed by Brazilian companies?**

This study is expected to contribute to academia and the market by providing empirical evidence on the practice of earnings management by Brazilian companies aiming to achieve the disclosed guidance.

The results may also serve as a report for companies and regulatory bodies, such as the Brazilian Securities and Exchange Commission (CVM), by encouraging the publication of guidelines that limit the companies managing market expectations, curbing earnings management practices, and enhancing the quality of accounting information.

The Brazilian environment tends to be conducive to opportunistic practices, as contrary to developed markets, emerging markets like Brazil are characterized by political and economic instability and an institutional framework that offers low legal protection for minority investors (Martins & Barros, 2021). Thus, unlike the international studies previously mentioned, this study is expected to contribute to the literature by investigating earnings management practices within the Brazilian context.

This study's findings are expected to encourage academic reflection on how companies' forecasts influence expectations. The objective is to propose methods for companies to disclose forecasts compatible with their capabilities and reduce the incentives for engaging in earnings management practices.

Furthermore, this study innovates by linking earnings management to a dummy variable that indicates whether a company is suspected of managing its results to meet forecasts. This variable was adapted from Medeiros, Paulo, Melo, and Mota (2019), who investigated analysts' forecasts and compared the guidance disclosed by the companies with actual numbers. Methodologically, the procedure involved assessing whether the interaction between the suspicion dummy and earnings management practices explains Brazilian companies' achieving forecasts, enabling the identification of opportunistic practices.

2. Theoretical Framework

2.1 Earnings Management

Users of financial statements must be assured that the information a company reports, on which they base their decisions, is accurate and reflects the company's economic reality. Thus, statements should provide relevant information about an entity's economic and financial performance and position, supporting decision-making. Alfraih, Alanezi, and Alanzi (2015) identified relevance as one of the critical attributes of the quality of accounting information.

The quality of accounting information can be defined as the extent to which reported earnings faithfully represent a company's economic situation and the degree to which the results presented reflect basic accounting concepts (Mazzioni & Klann, 2018).

The quality of accounting information is a concept that can be measured through different variables, with five being the most common: relevance, persistence, conservatism, impression management, and earnings management (Barth, Landsman & Lang, 2008; Lopes & Walker, 2008; Almeida *et al.*, 2012).

According to Healy and Wahlen (1999), earnings management results from managers making specific accounting choices to influence stakeholders' interpretation of a company's performance or to achieve specific contractual targets based on accounting variables.

According to Gunny (2005), managers can use three categories of earnings management: fraudulent accounting, accrual management (by choosing accounting methods), and operational activities management (by making economic decisions). Note that, contrary to Gunny (2005), some authors argue that earnings management occurs within the limits of the law and that otherwise, it constitutes fraud (Dechow & Skinner, 2000; Martinez, 2001), which is defined by the National Association of Certified Fraud Examiners (1993) as the intentional act of deceiving stakeholders and causing them financial loss.

Operational activities management occurs when managerial decisions deviate from an entity's regular operations and are intended to achieve specific performance targets (Gunny, 2005; Roychowdhury, 2006; Paulo, 2007).

Operational decision management is also a way to manipulate accounting information to persuade users to believe that the company's financial goals were achieved during its operations.

Regarding the categories of earnings management, Martinez and Cardoso (2009) note that few studies focus on management from the perspective of operational activities. In Brazil, Cupertino et al. (2016) and Rodrigues, Paulo, and Melo (2017) stand out, but a substantial body of empirical research focuses on accruals management.

It is important to emphasize that discretion when using accruals is inherent to the accounting process, and accounting choices permeate business relationships (Araújo, 2019). Ideally, measurement and disclosure choices should be as faithful as possible to represent a company's actual context. However, whenever there are conflicts of interest between agent and principal, discretion allows managers to make personal judgments for purposes that do not necessarily provide an accurate and fair overview of a firm's economic, financial, or equity situation. Thus, a propensity for earnings management practices increases due to contractual, regulatory, and capital market-related incentives facilitated by a corporate context of informational asymmetry between managers and stakeholders (Baptista, 2008).

Capital market-related incentives involve the potential practice of earnings management through profit manipulation to impact a firm's value (Holanda, 2012). Such manipulation may reduce the stock price or maintain it at a high level (Baptista, 2008). Such incentives are associated with the pursuit of meeting targets and the expectations of analysts and investors—in other words, the company attempts to avoid disappointing the market (Baptista, 2008).

In this regard, one of the main profit targets managers aim to achieve is the analysts' forecasts (Degeorge, Patel & Zeckhauser, 1999). According to Yu (2008), these forecasts significantly influence investors' decisions. Paulo (2007) notes that for this reason, analysts' forecasts become one of the strongest incentives for earnings management.

Several studies have found evidence that companies that meet or exceed earnings from prior periods or analysts' forecasts achieve higher returns (Barth, Kasznik & McNichols, 2001; Myers, Myers & Skinner, 2007). Therefore, reporting earnings close to analysts' forecasts becomes a goal for managers and other market participants (Medeiros et al., 2019). Thus, managers may be encouraged to manipulate accounting figures to meet analysts' forecasts (Martins, Paulo & Monte, 2016; Zhang, Perols, Robinson & Smith, 2018).

Like analysts' forecasts, the company's management prepares projections about its future performance using quantitative and qualitative information, which may include accounting values, production volumes, and other metrics referred to as guidance. A guidance report signals to the market a performance level intended to be achieved as the company shows its willingness to commit to this target before shareholders. Thus, its manager assumes responsibility for generating sufficient cash flow to meet these commitments, including those related to the capital market.

Similarly to analysts' forecasts, as the company discloses its guidance, managers may be incentivized to manipulate accounting figures to meet specific reference "targets," which may be above or below the actual results for the period. Meeting market expectations by achieving disclosed projections can maximize their well-being and/or the firm's value. Thus, managers may be motivated to manage earnings to obtain expected returns, whether for themselves or the firm.

2.2 Guidance

The term guidance is a simplified form of earnings guidance and, according to Mahoney (2008), refers to a company's forecast of specific financial results or figures. Guidance may include revenue projections, cash flow, profit margins, or expectations regarding capital expenditures and other value drivers. It is disclosed to external users and provides quarterly and/or annual forecasts of corporate value drivers, typically issued by publicly traded companies with shares listed on stock exchanges.

Companies disclose forecasts to achieve returns through reduced stock price volatility and increase market value. Souza *et al.* (2018) note that these projections impact the capital market, affecting stock prices and the cost of capital. Brennan and Merkl-Davies (2013) argue that companies intentionally manage the content of their guidance reports when communicating with the financial market to influence stakeholders.

Guidance disclosure is optional in Brazil, but the companies choosing to do so must include it in the Reference Form, an increasingly more common practice in recent years. Note that if a company decides to disclose guidance, it must ensure equal disclosure for all investors.

Brandão *et al.* (2014) investigated the characteristics of guidance disclosed by the largest publicly traded companies (by market value in 2011). They found that 44.8% of the companies disclosed forecasts, with 38.5% also analyzing previous forecasts.

Arantes, Dias, and Soares (2020) analyzed the effects of guidance disclosure on corporate behavior and evaluated the sectors and companies listed on B3 from 2010 to 2017. The results indicate that forward-looking information can influence stakeholders, with 39% of the companies disclosing guidance, a practice more common in regulated sectors. Additionally, they found a predominance of qualitative reports.

Unlike earlier researchers, Silva et al. (2016) sought to examine whether Brazilian companies that disclosed guidance in 2014 managed their earnings more intensively than those that did not. They found evidence that companies disclosing guidance engage in earnings management more intensively than their counterparts not disclosing guidance.

From the same perspective, Souza *et al.* (2018) investigated whether guidance disclosed by companies listed in the Ibovespa index influences earnings management through accounting choices involving discretionary accruals. The study's sample included 43 companies with shares listed in the Ibovespa index between 2011 and 2016. The results indicated that guidance disclosure influences earnings management when the projections include variables related to financial performance (profits or EBITDA).

Studies addressing Brazilian companies have found evidence of varying levels of earnings management between companies that disclose guidance and those that do not (Silva *et al.*, 2016; Souza *et al.*, 2018).

Analyzing the relationship between earnings management and guidance disclosure, Kraft, Lee, and Lopatta (2014) investigated whether companies are more likely to meet their projections by using discretionary accruals when insiders (CEO, CFO, and COO) plan to buy or sell their shares. The authors found that higher levels of earnings management are associated with an increased likelihood of meeting the disclosed guidance.

Lin, Radhakrishnan, and Su (2006) investigated whether managers use earnings management and guidance to meet market analysts' expectations. They found that conservative guidance disclosure combined with positive discretionary accruals increases the likelihood of meeting or exceeding analysts' earnings forecasts. Athanasakou, Strong, and Walker (2008) analyzed companies in the United Kingdom and obtained comparable findings.

In the same vein, Zhang *et al.* (2018) examined the use of earnings management (through accruals and actual activities) and guidance. They found that companies meeting analysts' forecasts over a short period tend to manipulate their results through accruals. In contrast, companies that meet forecasts over a more extended period use both types of management, with earnings management through accruals being even more intense.

Athanasakou *et al.* (2008), Silva *et al.* (2016), Zhang *et al.* (2018), and Souza *et al.* (2018) support the findings of Lin *et al.* (2006). They argue that managers engage in earnings management to meet forecasts of future performance, fulfill analysts' expectations, and achieve positive results or targets that lead to higher compensation for managers.

Jaggi and Sannella (1995) and Kasznik (1999) investigated U.S. companies and found that managers are encouraged to manage earnings to meet their own forecasts. According to Krishnan et al. (2012), who analyzed the auditors' perspective, the disclosure of projections (guidance) is associated with a higher propensity for earnings management.

The studies by Jaggi and Sannella (1995), Lin et al. (2006), Athanasakou et al. (2008), Krishnan et al. (2012), and Zhang et al. (2018) in the international context, and by Silva et al. (2016) and Souza et al. (2018) in Brazil show that managers are encouraged to achieve specific targets to meet market expectations. Additionally, the disclosure of guidance possibly drives earnings management practices, as managers might use accounting choices to present established targets or reduce earnings variability, thereby conveying a lower perception of risk. Based on this premise, this study proposes the following hypothesis:

Research Hypothesis: **Brazilian companies adopt earnings management practices to achieve the disclosed guidance.**

Thus, managers are motivated to make accounting choices that aim to manage earnings and avoid or smooth projection errors after guidance disclosure. Guidance is one of the market-related incentives for intensifying earnings management practices.

3. Method

This is a quantitative study, as statistical techniques are used to analyze data (Richardson & Peres, 2008); descriptive, because it describes the characteristics of a specific population or phenomenon or to establish relationships between variables (Gil, 2010); and documentary, considering that it relies on content disclosed in the annual reports and specific forms of the sampled companies.

The sample included companies listed on B3 from 2010 to 2020. A total of 399 companies were analyzed, yielding 4,389 observations. One hundred and five companies disclosed earnings guidance in at least one fiscal year, while 274 did not.

Initially, we verified whether the companies had disclosed guidance. Next, companies that disclosed guidance were assigned to a group and those that did not were assigned to another group. Finally, the disclosure of guidance was verified in the first group.

Consequently, guidance disclosed by the companies regarding accounting and performance indicators was collected, including EBITDA (i.e., EBITDA data, adjusted EBITDA, EBITDA margin, and adjusted EBITDA margin), net income, operating cash flow, and net revenue. These variables were selected based on Folster (2016) and Souza *et al.* (2018), where these indicators were used as metrics for calculating guidance. Table 1 provides an overview of the guidance disclosed for these variables by the companies in the sample.

Table 1
Guidance disclosure according to the study variables

Disclosure	No. of companies	No. of observations
EBITDA	30	114
Net Revenue	34	121
Net Income	8	21
Operating Cash Flow	3	8

Source: developed by the authors

Thirty out of 125 companies that disclosed guidance between 2010 and 2020 provided guidance on EBITDA, while 34 disclosed projections for net revenue, 8 for net income, and 3 for operating cash flow. The remaining companies did not provide any guidance or disclose other indicators.

Note that of the 691 observations from companies that disclosed guidance during the period, 114 refer to EBITDA, 121 refer to net revenue, 21 refer to net income, and eight refer to operating cash flow. The remaining did not disclose guidance nor cover other indicators.

Next, the error in achieving the guidance disclosed by the companies in the sample was estimated by adapting the methodology used by Martins *et al.* (2016), Mota *et al.* (2017), and Medeiros *et al.* (2019), who assessed the achievement of analyst projections. The error in achieving the disclosed guidance consists of comparing the projected value of the variable with its actual value and determining how much the guidance deviated from the actual outcome. The operationalization of this variable is presented in Table 2.

Next, as done by Mota *et al.* (2017) and Medeiros et al. (2019), the levels of earnings management were assessed according to accounting choices and operational decisions using the Modified Jones model (1995), Pae model (2005), Paulo model (2007), and Roychowdhury model (2006). The first three models were used to estimate discretionary accruals, and the latter to measure the management level through operational decisions.

The Modified Jones model (1995) controls the effect of changes in a company's economic circumstances on accruals and reduces increases in accounts receivable due to variations in sales. The model proposed by Pae (2005) enhances the predictive power of the Jones and Modified Jones models by including variables that represent operational cash flow and the natural reversal of prior accruals (Paulo, 2007). According to Rodrigues, Melo, and Paulo (2018), the model by Paulo (2007) addresses the theoretical issues found in previous models (Sectorial, Jones, Jones Forward-Looking, KS, Pae), aiming to correct them; the reason why it was adopted in this study. Note that the model by Paulo (2007) controls the effects of cash flows, earnings, accrual reversals, the non-linearity of accounting conservatism, and the economic sector.

The Roychowdhury model (2006) made a significant contribution to research in the United States related to operational manipulations by providing evidence of operational activity manipulation through abnormal levels of operating cash flow (CFO), discretionary expenses (DESP), and production costs in the capital markets of that country (PROD). These estimated values also form an aggregated measure used in this study, REM1, representing the estimation errors of production costs and operating expenses. This measure indicates that firms with higher REM1it use operational decisions to present results that exceed their actual value.

Given the need to study a set of companies over a specific period, regression analysis with panel data was used for hypothesis testing. This analysis assumed a dependent relationship in which the error in achieving the disclosed guidance (dependent variable) is influenced by the level of earnings management (independent variable). Due to a lack of data for some companies between 2010 and 2020, the samples addressed form an Unbalanced Panel.

The models used the error to achieve the guidance for two dependent variables: EBITDA and net revenue. The other variables—net income and operating cash flow—were excluded from the regression analysis due to a lack of statistically significant observations.

Control variables that involve financial performance and specific characteristics, such as size (TAM), return on assets (ROA), leverage (ALAV), issuance of American Depositary Receipts (ADR), audit firm (BIG4), and corporate governance level (GOV) were used. These variables are commonly used in studies on earnings management (Roychowdhury, 2006; Paulo, 2007; Cupertino *et al.*, 2016; Paulo & Mota, 2019) and guidance (Brandão *et al.*, 2013; Brandão *et al.* 2014; Macedo Neto, Vasconcelos, De Luca & Figueirêdo Júnior, 2014; Folster, 2016; Souza *et al.*, 2018).

Equation 1 represents the general model adopted in this study.

$$ERROR_{it} = \beta_{1} + \beta_{2}GR_{it} + \beta_{3}Dummy\_SUS_{it} + \beta_{4}Dummy\_SUS_{it}x\ GR_{it} + \beta_{5}Dummy\_ADR_{it} + \beta_{6}Dummy\_BIG4_{it} + \beta_{7}Dummy\_GOV_{it} + \beta_{8}TAM_{it} + \beta_{9}ROA_{it} + \beta_{10}ALV_{it} + \varepsilon it \quad \textit{(Equation 1)}$$

Table 2 lists the variables used in the model and presented in Equation 1.

Table 2
Study variables

Type	Description	Acronym	Expected sign	Operationalization	Reference
Dependent	Error in achieving the disclosed guidance	ERROR	–	(VARPrevisto – VARReal / |VARPrevisto|)	Martins *et al.* (2016); Medeiros *et al.* (2019); Mota et al. (2017)
Independent	Earnings management level	GR	–	Modified Jones (1995) Pae (2005) Paulo (2007) Roychowdhury (2006)	Dechow, Sloan and Sweeney (1995); Souza *et al.* (2018); Viana Júnior, Domingos and Ponte (2017)
Control	Return on Assets (ROA)	ROA	–	EBITDA/Net Income	Folster (2016); Macedo Neto *et al.* (2014); Souza et al. (2018)
Control	Financial leverage	ALV	–	Passive/Active	Sousa *et al.* (2018)
Control	Company's size	TAM	–	Natural logarithm of market value	Souza *et al.* (2018)
Control	ADR Issuance	ADR	–	1, if the company is listed on a foreign stock exchange 0, otherwise	Macedo Neto et al. (2014)
Control	Audit Firm	BIG4	–	1, if the company is audited by Ernest & Young, Deloitte, PwC, or KPMG 0, otherwise	Zhang *et al.* (2018)
Control	Corporate Governance Level	GOV	–	Valor 1, if the company is listed on one of the differentiated levels of corporate governance at B3 0, otherwise	Macedo Neto et al. (2014)
Independent	Dummy_Suspeita	Dummy_SUS	–	1, if achievement of guidance is between -5% and 5% 0, otherwise	Medeiros *et al.* (2019)

Source: developed by the authors.

Data were processed using Excel, Stata, and SPSS.

4. Results

Table 3 presents some descriptive statistics for the operational variables to provide a general understanding of the sample's nature.

Table 3
Descriptive statistics

Variable	No. of observations	Mean	Standard Deviation	Coeficiente de variação	Mínimo	Mediana	Máximo
ERROR	183	0.0565	0.1367	2.4193	-0.1554	0.0201	0.3906
Tam	151	13,5227	1,8213	0,1346	9,0742	13,8860	15,7454
ROA	136	3,3219	3,1882	0,6559	0,4287	2,1798	12,2639
Alav	177	0,6329	0,1780	0,4969	0,2909	0,6267	1,0235
Dechow *et al.* (1995)	161	0,0006	0,0539	87,8004	-0,1011	0,0078	0,0941
Pae (2005)	174	0,0014	0,0379	270,5057	-0,0847	0,0061	0,0642
Paulo (2007)	174	0,0002	0,0083	43,6965	-0,0152	-0,0008	0,0178
PROD	174	-0,0037	0,0473	-127,9765	-0,0899	0,0013	0,0848
DESP	176	0,0001	0,0138	124,7807	-0,0276	0,0004	0,0230
REM1	174	-0,0007	0,0510	-74,9316	-0,1030	0,0017	0,0824

Source: developed by the authors

Regarding the ERROR variable, Table 3 shows that, on average, companies deviate by 5.65% when guidance is compared with the actual results. Thus, on average, companies achieve 94.35% of the guidance reported in the Reference Form. However, some companies show figures that are far from expected, as reflected in the maximum and minimum values highlighted in the table.

Regarding the dummy variables, almost half of the companies achieve the disclosed guidance (DummySusp), and less than 16% are ADR issuers (DummyADR). Meanwhile, most companies are audited by Big Four firms (DummyBIG4) and are listed in differentiated segments (DummySegList).

The variables Size (TAM) and ROA exhibit high standard deviations relative to the mean, indicating a heterogeneous sample, with variables varying significantly across companies. On the other hand, the Leverage (ALAV) variable does not show the same level of variation. Souza *et al.* (2018) obtained similar results.

Note that the proxies for earnings management are the variables with the lowest standard deviations and means within the range discussed by other authors, such as Medeiros *et al.* (2019) and Paulo and Mota (2019). They identify the standardization of accounting practices and capital market regulation as limiting factors for financial result manipulations. As a result, these variables show lower data variability around the mean.

Consequently, the normality test showed a non-normal distribution. Thus, Spearman's non-parametric correlation is recommended for the analysis (Levin & Fox, 2004). Table 4 presents the Spearman correlation matrix for the study variables.

Table 4

Spearman's Correlation Matri

Variable	ERROR	Dummy Susp	Dummy Adr	Dummy Big4	Dummy SegList	TAM	ROA	ALAV
ERROR	1	**-0,3807**	-0,0741	**-0,1443**	**-0,2140**	**-0,3822**	0,0327	**0,1917**
DummySusp	**-0,3807**	1	0,0207	0,1148	**0,1821**	**0,2841**	-0,1237	**-0,2532**
DummyAdr	-0,0741	0,0207	1	0,0496	**0,1520**	**0,3473**	0,0717	**0,1706**
DummyBig4	**-0,1443**	0,1148	0,0496	1	-0,0055	**0,3048**	**-0,1688**	**-0,3123**
DummySegList	**-0,2140**	**0,1821**	**0,1520**	-0,0055	1	**0,4708**	0,0017	**-0,2875**
TAM	**-0,3822**	**0,2841**	**0,3473**	**0,3048**	**0,4708**	1	-0,0593	**-0,3764**
ROA	0,0327	-0,1237	0,0717	**-0,1688**	0,0017	-0,0593	1	**0,3840**
ALAV	**0,1917**	**-0,2532**	**0,1706**	**-0,3123**	**-0,2875**	-0,3764	**0,3840**	1
Dechow *et al*. (1995)	-0,0044	0,0784	0,0331	0,0350	0,0659	0,1404	**0,1595**	**-0,1583**
Pae (2005)	-0,0520	0,1154	0,0122	0,0762	0,1050	0,1268	0,0482	**-0,2421**
Paulo (2007)	-0,0618	-0,0110	**0,1403**	0,0171	**-0,1423**	0,0393	0,0220	-0,0566
PROD	**0,2081**	0,0289	0,0689	-0,0710	-0,0263	0,0025	0,0763	**0,2091**
DESP	-0,0734	0,1838	0,0651	0,0683	0,1928	**0,2457**	-0,1377	**-0,2723**
REM1	**0,1891**	0,0718	0,0818	-0,0429	0,0376	0,0729	0,0465	**0,1260**

Continuation...

Variable	Dechow *et al.* (1995)	Pae (2005)	Paulo (2020)	PROD	DESP	REM1
ERROR	-0,0044	-0,0520	-0,0618	**0,2081**	-0,0734	**0,1891**
DummySusp	0,0784	0,1154	-0,0110	0,0289	0,1838	0,0718
DummyAdr	0,0331	0,0122	**0,1403**	0,0689	0,0651	0,0818
DummyBig4	0,0350	0,0762	0,0171	-0,0710	0,0683	-0,0429
DummySegList	0,0659	0,1050	**-0,1423**	-0,0263	0,1928	0,0376
TAM	0,1404	0,1268	0,0393	0,0025	**0,2457**	0,0729
ROA	**0,1595**	0,0482	0,0220	0,0763	-0,1377	0,0465
ALAV	**-0,1583**	**-0,2421**	-0,0566	**0,2091**	**-0,2723**	**0,1260**
Dechow *et al.* (1995)	1	**0,6941**	**0,3502**	0,1292	**0,1470**	**0,1570**
Pae (2005)	**0,6941**	1	**0,3098**	-0,0510	**0,2144**	0,0021
Paulo (2007)	**0,3502**	**0,3098**	1	**-0,1581**	-0,0062	**-0,1510**
PROD	0,1292	-0,0510	**-0,1581**	1	0,0884	**0,9500**
DESP	**0,1470**	**0,2144**	-0,0062	0,0884	1	**0,3670**
REM1	**0,1570**	0,0021	**-0,1510**	**0,9500**	**0,3670**	1

Legend: values in bold indicate statistical significance.

Source: developed by the authors

First, it is worth noting that no high correlation was found, which reduced the likelihood of linearity among the variables. As expected, the correlations in Table 4 show that the variables ERROR and DummySusp showed a negative and significant correlation. This result aligns with the notion that if the error falls between -0.05 and 0.05, the company is suspected of managing results to meet the disclosed guidance. In this sense, the smaller the ERROR variable—indicating that actual guidance is closer to the disclosed guidance—the more likely the company is suspected of managing results to achieve the target. A negative and significant correlation was also found between the ERROR variable and the variables DummyBIG4, DummySegList, and SIZE, suggesting that the engagement of specific audit firms, participation in differentiated corporate governance segments, and company size are correlated with the degree of "accuracy" in guidance disclosure. Furthermore, the ERROR variable showed a positive and significant correlation with the LEV variable, indicating that more indebted companies are more prone to deviate from projections. Regarding the variables PROD and REM1, a positive and significant correlation was found, suggesting that the error in achieving the disclosed guidance is explained by management through operational decisions.

Similar to what was found for the ERROR variable, the DummySusp variable showed significant coefficients with the variables DummySegList, SIZE, and LEV, but with opposite signs. Such results suggest that companies participating in differentiated listing segments, larger companies, and less indebted companies tend to disclose more accurate projections.

The discretionary accruals estimated by the models of Dechow et al. (1995), Pae (2005), and Paulo (2007) are positively and significantly correlated. Additionally, discretionary accruals are positively correlated with DummyADR and negatively correlated with ROA and LEV. A comparison of these findings with those of Souza et al. (2018) shows similar results in terms of significance and the sign of the ROA variable and only similar significance for the LEV variable.

Panel data regression analysis was used to test the hypothesis. It allows for the examination of a set of companies over a specific period, assuming a dependency relationship in which the error in achieving the disclosed guidance (dependent variable) is influenced by the level of earnings management (independent variable), as outlined in the methodology. The unbalanced panel minimizes sample survival bias, as a company must disclose the same indicator across all the years in the period.

The DummySusp variable was used to control for companies suspected of managing their results to meet forecasts. To strengthen the evidence in this study, an interactive variable, which combined DummySusp with the level of earnings management, was created. The significance of this variable represents the combined magnitude of suspicion and earnings management variables.

Additionally, the variables TAM, ROA, ALAV, Dummy ADR, Dummy Big4, and DummySegList were included in the model to enhance its predictive power by incorporating variables that may influence companies' efforts to achieve the disclosed guidance.

The Chow, Breusch-Pagan LM, and Hausman tests were conducted to determine the most appropriate model (fixed effects, random effects, or POLS). The Chow test compares the POLS model with the fixed effects model and rejects the POLS hypothesis. Subsequently, the Breusch-Pagan LM test, which contrasts the POLS model with the random effects model, also rejects the hypothesis of pooled regression (POLS). Finally, the Hausman test compared the fixed effects model with the random effects model, identifying the latter as the most suitable.

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Table 5

Regressions derived from the General model

General Model						
$ERROR_{it} = \beta_{1+}\beta_2 GR_{it} + \beta_3\, Dummy\_SUSP_{it} + \beta_4\, Dummy\_SUSP_{it}\, x\, GR_{it} + \beta_5 Dummy\_ADR_{it} + \beta_6 Dummy\_BIG4_{it} + \beta_7 Dummy\_SegList_{it\ +} \beta_8 TAM_{it\ +} \beta_9 ROA_{it} + \beta_{10} ALAV_{it} + \varepsilon it$						
	Model 1	**Model 2**	**Model 3**	**Model 4(1)**	**Model 5**	**Model 6**
Variable	**Coefficient**					
Dechow *et al*. (1995)	0,0012					
Pae (2005)		-0,1013				
Paulo (2007)			-3,2709*			
Prod				1,2361**		
Desp					0,5349	
REM1						1,0705***
DummySusp	-0,0839***	-0,0967***	-0,0942***	-0,0648**	-0,0966***	-0,0989***
DummySusp x Dechow *et al*. (1995)	0,3006					
DummySusp x Pae (2005)		0,2117				
DummySusp x Paulo (2007)			5,2634*			
DummySusp x Prod				-1,1973*		
DummySusp x Desp					-0,1787	
DummySusp x REM1						-1,1350**
DummyAdr	0,0976	0,0886	0,0923	0,0500	0,0876	0,0990*
DummyBig4	-0,0872	-0,0424	-0,0192	-0,0275	-0,0396	-0,0242
DummySegList	0,0161	0,0058	-0,0103	0,0375	0,0003	0,0136
TAM	-0,0326**	-0,0297**	-0,0289**	-0,0109	-0,0309**	-0,0327***
ROA	-0,0016	-0,0004	-0,0003	-0,2164	-0,0003	0,0010
ALAV	0,2389	0,2458	0,2874**	0,4324**	0,2525*	0,2398*
Constant	0,2823	0,2979	0,2973	0,0015	0,3039	0,2848
Description						
Observations	108	120	120	110	120	120
Prob > chi2	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
R^2 overall	0,5239	0,5124	0,5295	0,4944	0,5135	0,5736

Legend: (*) Significant at 10*; (**) Significant at 5%; (***) Significant at 1%.

The number of observations was reduced because, unlike other models, the Modified Jones Model, used to estimate accruals, incorporates accounts receivable data, affecting the final number of observations.

Model 4: Only observations of errors in achieving the disclosed guidance for the EBITDA variable were considered, as earnings management through operational decisions involving production levels would not impact net revenue.

Source: Developed by the authors

All models exhibit similar levels of explanatory power, with the lowest and highest explanatory power found in those where the level of earnings management was estimated using the Prod model (R^2 = 49.44%) and REM1 (R^2 = 57.95%), respectively.

Note that the variables DummySusp and TAM showed significant coefficients with negative signs in all models except the Prod model. As expected, this result for DummySusp aligns with the findings in the Correlation Matrix, as DummySusp is derived from ERROR. When ERROR falls between -5% and 5%, the company is considered suspect, and "1" is assigned. If the company is classified as non-suspect, "0" is assigned. As outlined in the methodology, the pursuit of new investments, the complexity of operations, and the need to convey stability and transparency prompt larger companies to strive to meet their disclosed guidance, thereby showing fewer errors in their projections.

Only two variables were significant at the 5% level and with the expected signs— DummySusp and TAM— in Models 1 and 2, where discretionary accruals were respectively estimated according to Dechow et al. (1995) and Pae (2005).

Significance was found in Model 3 for discretionary accruals estimated using Paulo's (2007) model, DummySusp, DummySusp x Paulo (2007), and the control variables TAM and ALAV. The accruals estimated by Paulo's (2007) model showed a negative and significant coefficient at the 10% level, indicating that companies manage their earnings through accounting choices to meet the disclosed guidance. Furthermore, reinforcing this finding, the interactive variable was also significant at the 10% level.

These results indicate that the disclosure of guidance drives the practice of earnings management, as managers use accounting choices to meet established targets or reduce profit variability, thereby conveying a lower perception of risk to the market. This finding aligns with the studies of Lin *et al.* (2006), Athanasakou et al. (2008), Silva, Pinto, and Paulo (2016), Zhang *et al.* (2018), and Souza *et al.* (2018). Thus, the disclosure of projections (guidance) represents a greater propensity for earnings management (Krishnan *et al.*, 2012).

The significance and signs expected for the DummySusp and TAM variables have already been discussed. Contrary to expectations, variable ALAV showed a significant coefficient at the 5% level with a positive sign, suggesting that leveraged companies tend to project unrealistic outcomes and fail to meet projections. These companies might be motivated to disclose optimistic projections to attract capital and/or pessimistic projections to surprise the market with positive results.

Significance was found in Model 4 for abnormal production levels, DummySusp, DummySusp x Abnormal Production Levels, DummyADR, and the control variable ALAV. Abnormal production levels showed a positive and significant coefficient at 5%, indicating that companies manage their earnings through operational decisions. Furthermore, reinforcing this finding, the interactive variable was significant at 10%. While the coefficient for accrual-based earnings management was negative, it was positive for management through operational decisions, and the interactive variables were significant in both models. This indicates that companies use accrual-based earnings management when projections exceed actual results to meet disclosed guidance. However, companies resort to operational activity management when the guidance is below actual results.

The significance and signs expected for DummySusp, TAM, and ALAV were already discussed for most models. The DummyADR variable showed statistical significance at 10%; however, its sign, like ALAV's, differed from the expected. Nevertheless, the results of ADR-issuing companies suggest that they tend to project values higher than what they achieve, driven by market expectations because they were included in a select group of companies.

Only three variables were significant at 10% and with the expected signs in Model 5, where the level of earnings management was estimated based on abnormal discretionary expenses: DummySusp and TAM, as well as ALAV, which had no expected sign. All of these variables already had their significance and expected signs discussed previously.

Finally, significance was found in Model 6 for the aggregate measure of abnormal production levels and discretionary expenses, DummySusp, DummySusp x Aggregate Measure, DummyADR, and the control variables TAM and ALAV. Abnormal production levels showed a positive and significant coefficient at 1%, indicating that companies manage their earnings through operational decisions. Furthermore, this finding is supported by the interactive variable, which was significant at 5%. However, its result is ultimately inconclusive due to a lack of significance for the abnormal discretionary expenses variable.

5. Final Considerations

This study aimed to investigate whether earnings management practices explain the achievement of disclosed guidance by Brazilian companies. Thus, actual figures were collected and compared with disclosed guidance, generating the variable error in achieving guidance. Next, whether earnings management practices explain the error in achieving guidance was verified, and other variables that may explain the error in achieving guidance were identified in the literature. The Modified Jones Model (Dechow et al., 1995), Pae (2005), Roychowdhury (2006), and Paulo (2007) models were used to measure earnings management practices.

The general objective was achieved by applying panel data analysis. The models' dependent variables were the error in achieving the guidance according to two metrics: EBITDA and net revenue. The hypothesis tested was that companies adopt earnings management practices to meet their forecasts. A dummy variable, DummySusp, was included to identify whether companies are suspected of using earnings management practices to meet their forecasts (guidance).

The discretionary accruals, estimated using Paulo's (2007) model, and the abnormal production levels, estimated using Roychowdhury's (2006) model, and the interactive variables with DummySusp, showed significant coefficients, indicating that companies manage their earnings to meet disclosed guidance. These results align with the findings of Lin *et al* (2006), Athanasakou *et al*. (2008), Silva *et al*. (2016), Zhang *et al*. (2018), and Souza *et al*. (2018). Furthermore, they reinforce the assertion by Krishnan et al. (2012) that the disclosure of guidance increases the propensity for earnings management practices. Thus, the study's hypothesis that Brazilian companies use earnings management practices to meet disclosed guidance was confirmed, and the study's general objective was achieved.

However, while the coefficient for accrual-based earnings management was negative, it was positive for operational decision-based management. This indicates that companies use accrual-based management to meet disclosed guidance when projections exceed actual results. Conversely, companies resort to operational activity management when guidance is below actual results. As Cohen and Zarowin (2010) noted, managers may employ multiple earnings management strategies depending on each choice's associated costs. According to Silva *et al.* (2016), operational decision-based management, which negatively impacts a company's future cash flows, entails higher long-term costs than accrual-based management. Additionally, accrual-based management is constrained by audits and internal controls. These results emphasize that studying a single type of earnings management in isolation may not lead to robust conclusions. These findings fulfill this study's second specific objective.

This study contributed to enriching the discussion on guidance and earnings management. It also proved that investors and regulatory and supervisory bodies in the Brazilian capital market should seek alternatives to detect and/or inhibit opportunistic managerial practices in companies. These efforts could involve promoting the disclosure of projections more aligned with the companies' capacities or curbing earnings management practices aimed at meeting disclosed guidance, which necessarily implies improving the quality of accounting information.

Furthermore, this study enriched the literature on the use of earnings management to meet disclosed guidance by considering (i) the limited availability of studies on earnings management and guidance, (ii) the inclusion of a variable to capture the error in achieving disclosed guidance, reinforcing this study's innovative nature, (iii) evidence of the trade-off between earnings management strategies employed by Brazilian companies, and (iv) the investigation of earnings management practices within the Brazilian context—an emerging market. These characteristics distinguish this study from studies conducted in developed countries.

This study's limitations include the reduced number of observations, which underscores the need for companies to advance their understanding of the actual value of disclosing guidance to the market. Furthermore, regulatory bodies have a role to play in fostering this understanding and facilitating such progress (Silva, 2019).

Finally, future studies should include additional models for estimating earnings management, use alternative variables to estimate the error in achieving disclosed guidance, and compare the Brazilian context with those of other countries.

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