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The Repercussions of Restated Financial Statements on Audit Contracts and Auditor Remuneration Among Listed Brazilian Companies

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Abstract

Objective: The objective was to analyze whether companies that restated Financial Statements (FS) experienced changes in auditor fees and replaced the audit firm the year after the event.

Method: Data from 323 non-financial companies listed in B3 were analyzed, totaling 2,712 observations (companies/year) between 2010 and 2020. Data were collected from the websites of the Securities and Exchange Commission of Brazil (CVM), ComDinheiro, and the Perlin data repository (2020). Descriptive statistics, the test for difference between means, and regression with panel data were adopted.

Results: The companies that restated financial statements paid higher auditor fees in the year after the event and were more likely to replace the audit firm.

Contributions: This study is relevant for auditors and members of audit and governance committees as it provides evidence that can support decisions on hiring and dismissing independent auditors. Additionally, it shows that higher fees may compensate for perceived risk while replacing an audit firm after a restatement is a form of punishment and is intended to protect a company's reputation.

Keywords: Restatement of financial statements; Audit fees; Auditor replacement.

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1. Introduction

The primary purpose of financial information is to mitigate information asymmetry and allow timely and assertive decisions (Qasem *et al*., 2020). In this sense, auditors play a crucial role in ensuring the quality and integrity of disclosed information (Reid *et al.,* 2019). As highlighted by Velte (2022), the restatement of financial statements (FS) stands out among the various proxies of the quality of financial information.

The restatement of financial statements concerns the revision of previously disclosed information. Albring *et al.* (2013) note that the amendments implemented during this process may harm a company's growth, leading to uncertainties that may affect contractual relationships and hinder fund-raising. Hennes *et al.* (2014) note that associated costs, such as cost of capital increases, division clauses violations, and shareholder litigation, may reach considerable amounts.

The discussion of losses resulting from restatements is intrinsically linked to market confidence. Information users interpret restatements as a sign of deficient internal controls and financial problems that may ultimately lead to a company's discontinuation (Gertsen *et al*., 2006).

In this context, the need to restate FS indicates that vital issues may have been neglected, which may lead to the dismissal of internal auditors, audit committee members, and external auditors (Hennes *et al*., 2014). A company's initiative to lay off employees is likely a strategy to safeguard its reputation, considering that changing the official audit firm is a form of punishment intended to mitigate adverse market reactions.

The literature indicates that restatements increase reputation and litigation risks for the audited company and its audit firm as the market starts questioning its ability to detect errors (Bankley *et al*., 2012; Liu *et al*., 2009). This may lead auditors to charge higher fees to compensate for perceived risks (Feldmann *et al*., 2009).

The discussion on the restatement of financial statements in the Brazilian context considers different perspectives, including audit firm rotation, earnings management (Martinez & Reis, 2010), the impact on share prices (Netto & Pereira, 2011), an association between the companies' characteristics and the restatement of financial statements (Marques et al., 2016), the relationship between restatement and earnings management practices (Cunha et al., 2017), audit fees, tax aggressiveness (Ávila et al., 2018), the effect of a Big4 on auditor's opinion (Marques et al., 2018), the impact of replacing auditors on audit fees (Dantas & Ramos, 2019), and the influence of auditor litigation risk on audit and non-audit fees (Giordani et al., 2020).

No previous studies were found in the Brazilian context on the relationship between the restatement of financial statements, audit fees, and auditor replacement though, indicating that these aspects are seldom analyzed (Marques et al., 2017). Therefore, this study aims to expand evidence on the implications of restatements of FS on audit fees and the replacement of auditing firms and examine the significance of these associations in emerging markets such as Brazil. In this context, Velte (2022) highlights that the literature on the restatement of financial statements, fees, and subsequent replacement of auditors remains inconclusive, demanding in-depth investigations.

Given the previous discussion and to fill this gap, this study addresses the following problem: **What is the association between the restatement of financial statements, audit fees, and the replacement of auditor firms among companies listed on B3?** The objective was to analyze whether companies restating financial statements experience changes in auditor fees and replace the auditing firm in the year following the event. Data concerning 323 non-financial companies (2,712 firm observations/year) listed on Brasil, Bolsa, and Balcão (B3) from 2010 to 2020 were analyzed using descriptive statistics, the test of the difference between the means, and regression with panel data.

This study's contribution concerns its analysis of the potential implications of restatements on auditor fees and the replacement of audit firms in the Brazilian context. It also provides empirical evidence that contributes to competitiveness in the audit market. Such findings are relevant for firms and audit committees, presenting relevant factors that influence auditor fees and the maintenance and prospecting of contracts. They also support audited companies by providing an understanding of the fee pricing process and client/auditor reputation costs, thus assisting in negotiations.

This study also offers perspectives to investors and other external users of FS, considering that restatements signal low-quality accounting information (Velte, 2022; Zhizhong *et al.*, 2011). This understanding improves decision-making, as FS are crucial sources for evaluating a company's current and potential performance (Chang et al., 2016; Dantas et al., 2011). Furthermore, the results contribute to the academic community as they expand evidence on the implications of restatements for auditor fees and the replacement of audit firms, aspects seldom explored in the Brazilian context and which require further investigation (Velte, 2022).

2. Literature Review and Formulation of Hypotheses

2.1. Relevance and quality of accounting information: Why does a restatement matter?

Information asymmetry between managers and external users is common in corporate environments, requiring incentives and monitoring to mitigate agency problems (Jensen & Meckling, 1976). Considering that managers are "maximizers", they may be encouraged to adopt financial information manipulation practices, leading to the possibility of restating financial statements (Flanagan et al., 2008). Restatements are associated with several risks, such as devaluation of companies, increased capital costs, and damage to the reputation of managers and audit firms, affecting investor credibility (Hennes *et al.*, 2014; Salehi et al., 2017).

The quality of financial information is compromised when financial statements are restated, as it indicates that the initial objective of providing reliable information for decision-making was not initially achieved (Salehi et al., 2017). The likelihood of restatements in the Brazilian context is associated with specific characteristics, such as company size, assets growth, whether the company adopts IFRS international accounting standards, and whether one of the Big4 is auditing the company (Marques *et al.*, 2017).

Recent research suggests that companies restating FS face consequences such as the dismissal of auditors, unusually high audit fees, abnormal turnover of managers, and inferior performance than competitors (Hennes *et al.*, 2014; Salehi *et al.*, 2017; Li *et al.*, 2018; Moon *et al.*, 2019). The implications of restatements on audit contracts still require more investigation, considering controversial results and the need for further evidence (Velte, 2022).

2.2. Audit quality and auditor remuneration

An auditor's fundamental role is to independently ensure the conformity of a company's financial statements (Hennes *et al.*, 2014). Salehi *et al.* (2017) emphasize that auditing plays a crucial role in controlling agents' behaviors, and their fees are a determining factor in effective functioning. Implementing robust controls decreases the chances of errors, as inadequacies are identified before reports are released, thus avoiding the need for restatements.

From this perspective, audit fees are intrinsically linked to the degree of risk auditors perceive. Feldmann *et al.* (2009) note that auditors may classify a company as a high-risk client if it has restated statements in the previous period, considering it may threaten its reputation. Blankley *et al.* (2012) argue that a restatement possibly indicates an inadequate assessment of audit risk and auditors' low effort in preparing restatements.

Previous studies highlight a positive association between restatements and auditor fees. Kinney et al. (2004) mainly found this association among smaller clients, suggesting auditors' more significant effort and greater risk. Blankley et al. (2012) found a negative association though, indicating that companies are pressured to make the work more profitable, resulting in low fees and excessive reliance on internal controls, possibly leading to neglectful internal controls.

Bédard and Johnstone (2004) provided evidence that deficient internal controls increase auditors' effort; i.e., increased inherent and control risks demand more hours, effort, and personnel, resulting in higher fees (Chen *et al.*, 2019).

Factors such as audit fees, the size of the audited company, the number of subsidiaries, whether there is an audit committee, and whether a Big4 company was hired influence the fees paid in the Brazilian context (Brighenti *et al.*, 2016). Castro *et al.* (2015) highlight the positive influence of variables related to the client's size and complexity on increased fees. Additionally, they identify differences in how auditors' risk perception influences the fees auditors charge from small and large companies. This finding suggests that auditors tend to charge less from clients with higher leverage and risk, indicating that companies facing financial difficulties tend to request lower auditing costs prices.

Considering that restatements indicate risk (Feldmann et al., 2009) and auditors are encouraged to perform more specialized work (Giordani *et al.*, 2020) when facing high litigation risks, we propose the first hypothesis.

H_1: The restatement of financial statements is positively associated with subsequent auditor remuneration.

Hence, this study investigates how the FS variable behaves and whether independent auditing firms are replaced when companies restate their financial results. The objective is to deepen the discussion on the price of audit fees after restatements (Feldmann *et al.*, 2009; Hennes *et al.*, 2014). On the one hand, the new audit firm is expected to charge higher fees due to reputation and litigation risks associated with restatements. However, market competitiveness may lead audit firms to charge lower fees, even from high-risk clients, to win them over initially (Castro *et al.*, 2015). Therefore, examining how these variables interact (restatements and audit firm replacement) affects the pricing of auditor fees.

2.3 Audit quality and auditor firm's replacement

Although auditing strengthens the credibility of accounting information, audit firms are often held responsible in the case of financial statements being restated, raising questions about the auditor's ability to monitor the disclosure of financial information, especially when distortions have not been previously identified (Hennes *et al*., 2014; Liu *et al*., 2009). In this context, restatements indicate the quality of accounting information and auditing (Chen *et al*., 2019; Dechow & Schrand, 2010).

Given the substantial costs associated with companies restating financial statements, mainly due to a loss of market confidence (Gertsen *et al*., 2006), some companies decide to replace the auditing firm as a corrective measure to regain credibility and reputation; theoretically, they transfer responsibility to the audit firm. In cases of restatements due to fraud, companies face more severe consequences, including subsequent auditors refusing to serve them, even though the risk of litigation concerns information certified by the previous audit firm (Mande & Son, 2013; Thompson & McCoy, 2008; Ma *et al*., 2015).

Hennes *et al*. (2014) note that corrections are more severe when the audit firm is not one of the Big4—together with the company's size and its operational complexity, having a Big4 as the audit firm decreases the likelihood of it being replaced, possibly due to the high costs and few replacement options. However, restatements pose a risk to both the audited company and the audit firm, which may lose market share due to the potential risk of being dismissed after the event (Swanquist & Whited, 2015). Evidence on the subsequent costs of restatements and the role of independent auditing suggests that dismissing auditors is a punitive measure to mitigate the negative impact of restatements and preserve the company's reputation (Hennes *et al*., 2014). Therefore, the second hypothesis follows.

H_2: The restatement of financial statements is positively associated with the subsequent replacement of the audit firm.

Although replacing the audit firm is expected after a restatement, companies may weigh the cost of reputation against that of replacement and decide to maintain the contract with the independent auditor (Mande & Son, 2013). Furthermore, Rocha *et al.* (2016) highlight that hiring non-specific audit services strengthens the ties between the auditor and the client and may negatively impact the decision to switch auditors. Therefore, analyzing how these variables (restatement and audit fees) interact is vital to verify whether companies paying higher fees are less likely to switch audit firms after a restatement than companies paying lower fees.

3. Methodological Procedures

3.1 Sample, data collection and analysis techniques

The sample comprised 323 non-financial companies listed on B3 that released at least one annual financial report restatement from 2010 to 2020, motivated by quantitative or a combination of quantitative and qualitative reasons concerning their financial statements.

The reasons for restatements were classified according to Marques *et al.* (2016). Restatements due to quantitative reasons involved numerical changes to the financial statements, explanatory notes, interest on equity, dividends, unit of measurement, number of shares, or capital budgets. Representations due to qualitative reasons included textual changes in financial statements, explanatory notes, auditors' reports, management reports, updating/correcting registration data, presentation of a new disclosure channel, changing disclosure, report of standardized financial statements from previous years, or resending due to errors in the submission process.

Data on restatements and auditor opinions were obtained from Standardized Financial Statements available at the Brazilian Securities and Exchange Commission (CVM) website, and information on audit fees was collected from the Reference Forms. The other variables were collected from the *ComDinheiro* website and Perlin's (2020) data repository. Data were Winsorized between 1% and 99% to treat outliers and analyzed using descriptive statistics, test of differences between means, and regression with panel data.

The sample started with 3,511 observations; those missing data in the CVM Reference Form or restatements due to qualitative or unidentified reasons were excluded; hence, 2,712 observations remained in the final sample.

Hypotheses 1 and 2 were analyzed, and regression analysis techniques were used with panel data using Ordinary Least Squares (OLS) and Logistic regression (Logit), respectively. The Chow, Breusch-Pagan, and Hausman tests were used to choose the type of panel (Pooled, fixed effects, or random effects). The regression was estimated to have robust standard errors to mitigate potential problems.

Additionally, a Logit regression was estimated for hypothesis 2 (H_2), interpreting the Odds Ratios to analyze the likelihood of companies restating FS to replace independent auditors in the subsequent year compared to those that did not restate FS.

3.2 Models and variables

Models 1 and 2, controlling for sector and year, were used to analyze the hypothesis that there is an association between the restatement of financial statements and the remuneration of subsequent auditors (H_1). The models were adapted from Blankley *et al.* (2012), Cahan and Sun (2015), Castro *et al.* (2015), Chen *et al.* (2019), Dantas and Ramos (2019), Feldmann *et al.* (2009), Marques *et al.* (2017), Marques *et al.* (2016), and Salehi *et al.* (2017).

$$\text{Audfees}_{it+1} = \beta_0 + \mathbf{D_1Reapr_{it}} + \mathbf{D_2AudRep_{it+1}} + \sum_{k=1}^{16} \beta_k \, \text{Controls}_{it} + \varepsilon_{it} \quad (1.1)$$

$$\text{Totalfee}_{it+1} = \beta_0 + \mathbf{D_1Reapr_{it}} + \mathbf{D_2AudRep_{it+1}} + \sum_{k=1}^{16} \beta_k \, \text{Controls}_{it} + \varepsilon_{it} \quad (1.2)$$

$$\text{Audfees}_{it+1} = \beta_0 + \mathbf{D_1Reapr_{it}} + \mathbf{D_2AudRep_{it+1}} + \mathbf{D_3Reapr_{it}} * \mathbf{AudRep_{it+1}} + \sum_{k=1}^{16} \beta_k \, \text{Controls}_{it} + \varepsilon_{it} \quad (2.1)$$

$$\text{Totalfee}_{it+1} = \beta_0 + \mathbf{D_1Reapr_{it}} + \mathbf{D_2AudRep_{it+1}} + \mathbf{D_3Reapr_{it}} * \mathbf{AudRep_{it+1}} + \sum_{k=1}^{16} \beta_k \, \text{Controls}_{it} + \varepsilon_{it} \quad (2.)$$

This study's explained variable is the audit fee paid in the year following a restatement. Operationalization, according to Blankley *et al.* (2012), Chen *et al.* (2019) and Salehi *et al.* (2017), involved calculating the logarithm of the amounts paid, deflated by the annual inflation index to reduce variability due to the inflationary effect. The dependent variable was operationalized in two ways: (i) total specific fees for audit services *(Audfees$_{it+1}$)*; and (ii) total fees paid to the audit company, including consulting/advisory services and others not related to auditing *(Totalfee$_{it+1}$)*.

According to Chen *et al.* (2019), Feldman *et al.* (2009), and Marques *et al.* (2016), the explanatory variable of interest in models 1 and 2 is a dummy (Restate$_{it}$) assuming 1 when the company restated FS due to a quantitative reason related to the financial disclosure and 0 otherwise.

Models 3 and 4 were used to analyze Hypothesis 2 to verify the association between restatements and a subsequent auditor replacement. Following Hennes *et al.* (2014), Ma *et al.* (2015), and Mande and Son (2013), the dependent variable was Auditor Replacement in the subsequent year.

$$\text{AudRep}_{it+1} = \beta_0 + \mathbf{D_1Resta_{it}} + \mathbf{\beta_1 Audfee_{it+1}} + \sum_{k=1}^{16} \beta_k \, \text{Controls}_{it} + \varepsilon_{it} \quad (3.1)$$

$$\text{AudRep}_{it+1} = \beta_0 + \mathbf{D_1Resta_{it}} + \mathbf{\beta_1 Totalfee_{it+1}} + \sum_{k=1}^{16} \beta_k \, \text{Controls}_{it} + \varepsilon_{it} \quad (3.2)$$

$$\text{AudRep}_{it+1} = \beta_0 + \mathbf{D_1Resta_{it}} + \mathbf{\beta_1 Totalfee_{it+1}} + \sum_{k=1}^{16} \beta_k \, \text{Controls}_{it} + \varepsilon_{it} \quad (4.1)$$

$$\text{AudRep}_{it+1} = \beta_0 + \mathbf{D_1Resta_{it}} + \mathbf{\beta_1 Audfee_{it+1}} + \mathbf{\beta_2 Resta_{it} * Audfee_{it+1}} + \sum_{k=1}^{16} \beta_k \, \text{Controls}_{it} + \varepsilon_{it} \quad (4.2)$$

The explanatory variable in models 3 and 4 was dummy *AudRep$_{it+1}$*, which indicates whether the company replaced auditors in the year following a restatement due to quantitative reasons concerning financial statements (Hennes *et al.*, 2014; Ma *et al.*, 2015; Mande & Son, 2013).

CVM Resolution No. 23, effective February 25, 2021, provides that the maximum time allowed for an audit firm to serve the same client is five consecutive years. This time may be extended to 10 years when there is a Statutory Audit Committee. Observations concerning the rotation of auditors according to the guidelines were excluded, so only voluntary replacements were considered.

Like models 1 and 2, the explanatory variable of interest was dummy Restate$_{it}$, indicating whether the companies restated financial statements due to a quantitative reason related to financial standards (Chen *et al.*, 2019; Hennes *et al.*, 2014; Marques *et al.*, 2016).

Control variables, recognized in the literature for their association with audit fees (H_1), and auditor replacement (H_2), were used to mitigate endogeneity problems and the omission of variables (Blankley *et al.*, 2012; Castro *et al.*, 2015; Chen *et al.*, 2019; Dantas & Ramos, 2019; Feldmann *et al.*, 2009; Hennes *et al.*, 2014; Ma *et al.*, 2015; Mande & Son, 2013; Marques *et al.*, 2017; Marques *et al.*, 2016; Rocha *et al.*, 2016; Salehi *et al.*, 2017). These variables include:

- Company size: associated with higher fees and a lower probability of auditors being replaced (Chen *et al.*, 2019; Hennes *et al.*, 2014).
- Liquidity: indicates the audited company's payment ability. It was linked to lower risk for the auditors and reflected a lower probability of auditor replacement (Castro *et al.*, 2015; Hennes *et al.*, 2014).
- ROE volatility: it is considered an indicator of risk for the auditor and is positively associated with auditor fees and replacement due to the need for more specialized audits (Qasem et al., 2020).
- Debt, losses, and sales growth: Leveraged companies with sales losses and growth were identified as more likely to replace auditors and were also associated with higher fees (Jaggi & Lee, 2002; Mande & Son, 2013; Rocha *et al.*, 2016).
- Modified opinion and a Big4 auditor: associated with higher fees and lower probability of auditor replacement (Jaramillo *et al.*, 2012; Rocha *et al.*, 2016; Hennes *et al.*, 2014).
- Audit committees: are associated with higher fees but also act as an anti-replacement mechanism, decreasing the probability of auditor replacement (Abbott *et al.*, 2003; Waresul & Moizer, 1996; Carcello & Neal, 2003).

Economic variables, such as life cycle stage, corporate governance segment, economic sector, and year, were used to capture economic aspects. Table 1 lists the control variables, how they were operationalized, and previous studies supporting the expected relationships with the variables explained in models (1), (2), (3), and (4).

Table 1

Operationalization of control variables

Acronym	Description	Operationalization	Expected signs		Previous studies
			$Audfees_{it+1}$	$AudRep_{it+1}$	
$Size_{it}$	Size	Natural Logarithm of AT_{it}	(+)	(-)	Chen et al. (2019), Hennes et al. (2014), Rocha et al. (2016)
LC_{it}	Current liquidity	$\frac{AC_{it}}{PC_{it}}$	(-)	(-)	Castro et al. (2015), Chen et al. (2019), Salehi et al. (2017)
CR_{it}	Proportion of Accounts Receivable and Inventory	$\frac{CR_{it} + Est_{it}}{AT_{it}}$	(+)	(+)	Blankley et al. (2012), Chen et al. (2019), Landsman et. al (2009), Salehi et al. (2017)
σ $(ROE)_{it}$	Coefficient of variation of Return on PL	$\frac{\sigma(ROE_{it})}{\mu(ROE_{it})}$	(+)	(+)	Salehi et al. (2017)
$Debt_{it}$	Debt	$\frac{EmprFinC_{it} + EmprFinNC_{it}}{AT_{it}}$	(+)	(+)	Castro et al. (2015), Chen et al. (2019), Mande and Son (2013)
$Grow_{it}$	Sales Growth	$\frac{RL_{it} - RL_{it-1}}{RL_{it-1}}$	(+)	(+)	Cahan e Sun (2015); Rocha et al. (2016)
$Prej_{it}$	Accumulated loss	Dummy assumes 1 if the company presents accumulated losses in the period, and 0 otherwise	(+)	(+)	Blankley et al. (2012); Brighenti et al. (2016), Mande and Son (2013)
$Opin_{it}$	Auditor Opinion	Dummy assumes 1 for modified opinion, and 0 otherwise	(+)	(+)	Brighenti et al. (2016) Mande e Son (2013), Rocha et al. (2016), Salehi et al. (2017)
$Auditor_{it}$	Not Big4	Dummy assumes 1 if the company was not audited by a Big4 (DTT, EY, PwC or KPMG), and 0 if audited by a Big4.	(-)	(+)	Castro et al. (2015), Chen et al. (2019), Hennes et al. (2014)
$CAUD_{it}$	Auditor Committee	Dummy assumes 1 when there is an audit committee, and 0 otherwise.	(+)	(-)	Carcello and Neal (2003), Rocha et al. (2016)
ECV_{it}	Life Cycle Stage	Dummy assumes 1 for the i^{th} internship in year t, and 0 otherwise.	(+/-)	(+/-)	Dickinson (2011)
$SEGM_{it}$	Economic segment	Dummy assumes 1 for the i^{th} segment in year t, and 0 otherwise.	(+)	(-)	Bortolon et al. (2013), Dantas e Ramos (2019), Marques et al. (2017)
$Sector_{it}$	Economic sector	Dummy for the i^{th} sector in year t, and 0 otherwise.	(+/-)	(+/-)	Reid et al. (2019)
$Year_{it}$	Year	Dummy assumes 1 for year t, and 0 otherwise.	(+/-)	(+/-)	Marques et al. (2017)

Note: $AT_{i,t}$ – Total Assets; $AC_{i,t}$ – Current Assets; $PC_{i,t}$ – Current Liabilities; $CR_{i,t}$– Accounts Receivable; $Est_{i,t}$– Stock; $EmprFinC_{i,t}$– Loan and Current Financing; $EmprFinNC_{i,t}$– Loan and Non-Current Financing; $RL_{i,t}$ – Firm's Net revenue/year; $RL_{i,t-1}$ – Firm's Net Revenue of the firm in the previous year; *DTT*: companies audited by Deloitte; *EY*: companies audited by Ernst Young; *KPMG*: companies audited by KPMG; *PWC*: companies audited by PriceWaterHouseCoopers.

4. Data analysis and results

4.1 Descriptive analysis of the quantitative variables

The descriptive statistics (Table 2), based on the *t-test* for differences between the means of the restatement and no restatement groups, approximately 16.85% of the total observations in the sample comprised data from companies that restated FS in the period.

Table 2
Descriptive statistics of quantitative and qualitative variables used in the model

	N	No restatement N = 2.255[1]	Restatement N = 457[1]	p-value
$Audfees_{it+1}$	2,393	12.73 (1.41)	12.95 (1.42)	0.00**
$Totalfee_{it+1}$	2,393	12.80 (1.45)	13.03 (1.46)	0.00**
$Size_{i,t}$	2,712	21.17 (1.97)	21.52 (1.93)	0.00***
$LC_{i,t}$	2,705	2.03 (3.16)	1.86 (2.75)	0.30
$Debt_{i,t}$	2,712	0.35 (0.35)	0.32 (0.29)	0.08.
$\sigma ROE_{i,t}$	1,849	51.29 (45.92)	50.45 (44.57)	0.80
$CR_{i,t}$	2,712	0.24 (0.22)	0.23 (0.21)	0.70
$Grow_{i,t}$	2,306	0.09 (0.39)	0.23 (0.50)	0.00***
$AudRep_{it+1}$	2,321			0.14
Did not replace		1,453 (75%)	276 (72%)	
Replaced		482 (25%)	110 (28%)	
$Auditor_{it}$	2,653			0.00***
NBIG4		669 (30%)	107 (24%)	
DTT		354 (16%)	76 (17%)	
KPMG		438 (20%)	81 (18%)	
PWC		327 (15%)	83 (18%)	
EY		414 (19%)	104 (23%)	
$Prej_{it}$	2,712			0.07.
No		1,481(66%)	320(70%)	
Yes		774 (34%)	137 (30%)	
$Opin_{it}$	2,708			0.60
No		2,093 (93%)	422 (92%)	
Yes		158 (7.0%)	35 (7.7%)	
$CAUD_{it}$	2,712			0.20
No		1,842 (82%)	361 (79%)	
Yes		413 (18%)	96 (21%)	
ECV_{it}	2,623			0.00**
Grow		513 (23%)	138 (32%)	
Decl		142 (6.5%)	18 (4.1%)	
Intro		252 (12%)	58 (13%)	
Matur		1,078 (49%)	182 (42%)	
Turb		202 (9.2%)	40 (9.2%)	
$SEGM_{it}$	2,712			0.01**

	N	No restatement N = 2.255[1]	Restatement N = 457[1]	p-value
TRAD		1,300 (58%)	227 (50%)	
L1		137 (6.1%)	39 (8.5%)	
L2		89 (3.9%)	21 (4.6%)	
NM		729 (32%)	170 (37%)	

Notes: [1]Mean (Standard deviation); n (%). [2]T-test for the quantitative variables. Kruskal-Wallis Test for the qualitative variables*** p < 0.001; ** p < 0.01; * p < 0.05; . p < 0.10. ***Audfee***$_{it+1}$: Logarithm of the values paid, deflated according to the inflation index observed in year t+1; ***Totalfee***$_{it+1}$: Logarithm of the values paid, deflated according to the inflation index observed in year t+1; ***Size***$_{i,t}$: Company's size/year; ***LCit***: Company's current liquidity/year; ***Debt***$_{i,t}$: Firm leverage/year; ***σROE***$_{i,t}$: Volatility of the firm's Return on Equity/year; ***CR***$_{i,t}$: Firm's Proportion of Accounts Receivable and Inventory/year; ***Grow***$_{i,t}$: Variation of company's net sales/year. ***AudReplace***$_{i,t+1}$: *Dummy* assumes 1 when the audit firm was replaced on the subsequent year, and 0 otherwise; ***Auditor***$_{i,t}$: *Dummy* assumes 1 if the company was not audited by a Big4 (*DTT, EY, PwC or KPMG*), and 0 if it was audited by a Big4 in year t; NBIG4: Companies not audited by a Big4 in year t. ***Prej***$_{i,t}$: *Dummy* assumes 1 when company recorded a loss/year, and 0 otherwise. ***Opin***$_{i,t}$: Dummy assumes 1 when the company received a modified opinion, and 0 otherwise; ***CAUD***$_{i,t}$ Dummy assumes 1 when the company has an audit committee, and 0 otherwise; ***ECV***$_{i,t}$: Dummy assumes 1 for the ith stage in year t, and 0 otherwise (Growth, Decline, Introduction, Maturity, and Turbulence); ***SEGM***$_{i,t}$: *Dummy* assumes 1 if company is Level 1 (L1), 2 if Level 2 (L2), 3 if Novo Mercado (NM), and 0 if Traditional.

The companies that restated their FS reported significantly higher audit fees than their counterparts that did not restate FS, which corroborates previous studies (Chen *et al*., 2019; Feldmann *et al*., 2009). This relationship is explained by the low quality of accounting information and ineffective internal controls associated with restatements (Gertsen *et al.,* 2006). As auditors perceive these companies to impose a higher risk, they charge higher fees to compensate for litigation and reputation risks (Chen *et al*., 2019; Feldmann *et al*., 2009).

As for the control variables, company size *(Size*$_{it}$*)* and sales growth *(Grow*$_{it}$*)* are statistically associated with restatements (Cunha *et al*., 2017; Huang & Nardi, 2020; Landsman *et al*., 2009; Marques *et al*., 2017; Soares *et al*., 2018; Stice, 1991), a finding that is in line with previous studies. Due to greater operational complexity, larger companies are more likely to present errors in their financial reports, justifying the need for restatements (Marques et al., 2016). Growing companies face management challenges associated with greater audit risk and, consequently, higher fees (Stice, 1991).

In the context of audit firms, despite the statistically significant differences between the groups, most companies are audited by a Big4, which reflects market concentration, also found by previous studies (Chen *et al*., 2019; Hennes *et al*., 2014; Marques *et al.,* 2016; Marques *et al*., 2017; Huang & Nardi, 2020). The prevalence of companies audited by the Big4 possibly explains a search for independent and transparent audit firms. However, such a concentration suggests potential sample bias.

As for accumulated losses, companies that did not restate FS but had accumulated losses surpassed those that restated FS. Companies reporting losses were expected to be more susceptible to restatements. However, the analysis shows divergent results, indicating that companies may voluntarily restate FS to adjust or improve their financial statements, avoiding adverse reactions from the market.

Regarding life cycle stages, the highest frequency of restatements occurred among companies in the Maturity and Growth stages, partially contradicting expectations. Companies in the extreme stages would be expected to restate financial statements, but the results did not fully corroborate such an expectation.

Regarding governance levels, companies in the Traditional segment presented the highest number of restatements, followed by the *Novo Mercado* segment. Such a result contradicts the expectation that companies with higher levels of governance would incur in fewer errors and, therefore, fewer restatements (Salehi et al., 2017). However, in accordance with previous studies, the demand for higher-quality audits in large companies using one of the Big4 may increase the likelihood of restatements (Marques *et al.*, 2017).

4.2 Association between restatements and independent auditors' fees

Regression analysis with panel data (robust standard errors) was used to analyze Hypothesis 1 (H_1), which predicts a positive association between restatements and the subsequent increase in auditor fees. In addition to providing associative evidence, the techniques adopted here were intended to solve heteroscedasticity and autocorrelation problems in the model. Table 3 addresses two analyses, the first (1), constructed through regression with specific audit fees *(*$Audfees_{it+1}$*)*, and the second (2), having total fees as the explained variable *(*$Totalfee_{it+1}$*)*.

Table 3

Regression statistics to analyze the association between audit fees (specific/total) and restatements ***(*** H_1 ***)***

	Mod.1.1	**Mod.2.1**	**Mod.1.2**	**Mod.2.2**
Intercept	1.35 * (0.62)	1.37 * (0.62)	1.38 * (0.63)	1.40 * (0.63)
$Restate_{it}$	0.07 (0.04)	0.12 * (0.05)	0.03 (0.04)	0.08 (0.05)
$AudRep_{it+1}$	-0.12 *** (0.03)	-0.09 * (0.04)	-0.11 ** (0.03)	-0.08 * (0.04)
$Restate_{it}$ * $AudRep_{it+1}$		-0.19 * (0.09)		-0.18 * (0.09)
DTT_{it}	0.27 *** (0.07)	0.26 *** (0.07)	0.25 *** (0.07)	0.25 *** (0.07)
$KPMG_{it}$	0.09 (0.07)	0.09 (0.07)	0.10 (0.07)	0.10 (0.07)
PWC_{it}	0.21 ** (0.07)	0.20 ** (0.07)	0.22 ** (0.07)	0.22 ** (0.07)
EY_{it}	0.26 *** (0.07)	0.25 *** (0.07)	0.28 *** (0.07)	0.27 *** (0.07)
$Size_{it}$	0.54 *** (0.03)	0.54 *** (0.03)	0.55 *** (0.03)	0.55 *** (0.03)
LC_{it}	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
$Debt_{it}$	0.09 (0.10)	0.09 (0.10)	0.09 (0.11)	0.10 (0.11)
σROE_{it}	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
CR_{it}	-0.20 (0.18)	-0.20 (0.18)	-0.23 (0.18)	-0.23 (0.18)
$Grow_{it}$	0.06 (0.04)	0.06 (0.04)	0.08. (0.04)	0.07. (0.04)
$Prej_{it}$	0.02 (0.05)	0.02 (0.05)	-0.02 (0.05)	-0.02 (0.05)
$Opin_{it}$	-0.01 (0.05)	-0.01 (0.05)	-0.01 (0.05)	-0.01 (0.05)
$CAUD_{it}$	0.03 (0.06)	0.04 (0.06)	0.00 (0.06)	0.01 (0.06)
$Intro_{it}$	-0.01 (0.06)	0.00 (0.06)	-0.02 (0.06)	-0.01 (0.06)
$Matur_{it}$	0.02 (0.04)	0.02 (0.04)	0.02 (0.04)	0.02 (0.04)
$Turb_{it}$	-0.07 (0.06)	-0.06 (0.06)	-0.07 (0.06)	-0.06 (0.06)
$Decl_{it}$	0.01 (0.08)	0.01 (0.08)	0.03 (0.08)	0.03 (0.08)
$L1_{it}$	0.22 * (0.10)	0.22 * (0.10)	0.24 * (0.10)	0.24 * (0.10)
$L2_{it}$	-0.36 * (0.15)	-0.36 * (0.15)	-0.42 ** (0.15)	-0.42 ** (0.15)
NM_{it}	-0.02 (0.18)	-0.02 (0.18)	0.04 (0.19)	0.04 (0.19)
N	1.382.00	1.382.00	1.382.00	1.382.00
R^2	0.72	0.72	0.71	0.71
Adjusted R^2	0.71	0.71	0.70	0.70
p-value	0.00	0.00	0.00	0.00
Panel type	EA	EA	EA	EA
Year control	Yes	Yes	Yes	Yes
Sector control	Yes	Yes	Yes	Yes

*** p < 0.0001; ** p < 0.01; * p < 0.05. Clustered robust standard errors.

The results summarized in Table 3 indicate significant associations between variables related to restatements and audit contracts. According to previous studies, the main variable ($Restate_{it}$) presents a significant positive association at 5% with specific fees ($Audfees_{it}$), supporting H_1 (Chen *et al.*, 2019; Feldmann *et al.*, 2009). Companies restating FS tend to pay higher fees for audit services in the following year, which reflects the auditors' perceived risk and level of specialization (Bedard & Johnstone, 2004; Giordani et al., 2020; Mayoral & Segura, 2007).

The replacement of the audit firm ($AudRep_{it+1}$) is significantly and negatively associated (at 5%) with both specific fees and total fees, corroborating previous studies (Castro et al., 2015; Dantas & Ramos, 2019; Feldmann et al., 2009). Such an association persists after a restatement, as evidenced by the significant negative coefficient on the interaction variable $Restate_{it}$*$AudRep_{it+1}$. Decreased fees may be explained by several factors, such as the transition from a Big4 to a non-Big4 audit, the audit firms' strategy of charging lower fees at the beginning of a relationship with a company, and the company's desire to cut costs.

Companies audited by one of the Big4 show a significant positive association (at 0.1% and 1%) with specific and total fees, compared to companies not audited by a Big4, reflecting the notion of premium quality (Brighenti et al., 2016; Castro *et al.*, 2015; Hennes *et al.*, 2014). The variable $Size_{it}$ shows a significant positive association, at 0.1%, with specific and total fees, indicating that larger companies tend to pay higher fees, also in agreement with previous studies (Brighenti et al., 2016; Castro et al., 2015; Chen *et al.*, 2019; Dantas & Ramos, 2019).

Different levels of corporate governance influence audit fees in different ways, such as increasing or decreasing fees. This finding aligns with the notion that higher levels of governance are costly but possibly reflect a higher quality of reports and internal controls, leading auditors to charge lower fees (Griffin et al., 2008). Sales growth ($Grow_{it}$) presents a significant positive association (at a 10% level) with total fees ($Totalfee_{it+1}$), reflecting the difficulty in controls and the risk of restatement associated with sales growth (Kryzanowski & Zhang, 2013; Landsman et al., 2009; Stice, 1991). Other variables were not statistically significant, and the global model shows an R^2 of approximately 72% for specific fees and 71% for total fees after the inclusion of control variables. These findings contribute to understanding the dynamics between restatements, audit fees, and the replacement of audit firms.

4.3 Association between restatements and the replacement of audit firms

The Logit approach with robust standard error was adopted to analyze hypothesis 2 (H_2), controlling for year, sector, and the obligation to replace the audit firm. The results presented in Table 4 (odds ratio), indicate that companies that restate financial statements are more likely to replace auditing firms, regardless of whether the contract involves specific audit fees only ($Audfees_{it+1}$) or includes additional services ($Totalfee_{it+1}$). These findings support H_2 and align with previous studies, such as Hennes et al. (2014), Ma *et al.* (2015), and Mande and Son (2013), who highlighted that restatements reflect low-quality financial information and impose significant repercussions, especially for auditors, who face the loss of reputation due to a failure in timely detecting errors. Hence, companies may voluntarily terminate the contract with an audit firm to mitigate adverse market reactions, indicating that corrective measures were intended to exempt them from the responsibility for failure and restore investor confidence (Hennes *et al.*, 2014; Ma *et al.*, 2015).

Table 4

Logistic regression to analyze the association between the replacement of the audit firm and restatements (H_2)

	$AudRep_{it+1}$			
	Mod. 3.1	**Mod. 4.1**	**Mod. 3.2**	**Mod. 4.2**
$Restate_{it}$	1.01 (0.19)	55.52 * (103.18)	1.01 (0.19)	38.66 * (69.14)
$Audfees_{it+1}$	0.77 ** (0.06)	0.82 * (0.07)		
$Restate_{it} \cdot Audfees_{it+1}$		0.74 * (0.10)		
$Totalfeeit_{+1}$			0.82 * (0.67)	0.87 (0.77)
$Restate_{it} \cdot Totalfeeit_{+1}$				0.76 * (0.10)
DTT_{it}	1.49 (0.37)	1.50 (0.37)	1.44 (0.35)	1.45 (0.36)
$KPMG_{it}$	1.48. (0.36)	1.46 (0.35)	1.45 (0.35)	1.42 (0.34)
PWC_{it}	0.95 (0.25)	0.94 (0.25)	0.93 (0.25)	0.92 (0.25)
EY_{it}	0.99 (0.24)	0.96 (0.24)	0.99 (0.24)	0.95 (0.24)
$Size_{it}$	1.12 (0.08)	1.12 (0.08)	1.09 (0.08)	1.08 (0.08)
Lc_{it}	1.01 (0.04)	1.01 (0.04)	1.01 (0.04)	1.01 (0.04)
$Debt_{it}$	0.69 (0.24)	0.67 (0.24)	0.70 (0.24)	0.68 (0.24)
σROE_{it}	1.00. (0.00)	1.00. (0.00)	1.00. (0.00)	1.00. (0.00)
CR_{it}	1.37 (0.53)	1.33 (0.51)	1.33 (0.51)	1.29 (0.50)
$Grow_{it}$	0.99 (0.20)	0.96 (0.19)	1.00 (0.20)	0.96 (0.19)
$Prej_{it}$	0.94 (0.17)	0.94 (0.17)	0.92 (0.17)	0.93 (0.17)
$Opin_{it}$	1.09 (0.26)	1.08 (0.26)	1.09 (0.26)	1.09 (0.26)
$CAUD_{it}$	0.95 (0.17)	0.95 (0.17)	0.94 (0.17)	0.93 (0.16)
$Intro_{it}$	0.75 (0.20)	0.74 (0.20)	0.75 (0.20)	0.74 (0.20)
$Matur_{it}$	1.36. (0.24)	1.33 (0.24)	1.35. (0.24)	1.32 (0.24)
$Turb_{it}$	1.52 (0.41)	1.50 (0.40)	1.53 (0.41)	1.50 (0.40)
$Decl_{it}$	0.89 (0.32)	0.92 (0.33)	0.89 (0.32)	0.91 (0.33)
$L1_{it}$	1.03 (0.17)	1.03 (0.17)	1.02 (0.16)	1.02 (0.16)
$L2_{it}$	1.10 (0.25)	1.05 (0.24)	1.12 (0.26)	1.08 (0.25)
NM_{it}	1.00 (0.27)	0.99 (0.27)	1.01 (0.28)	1.01 (0.28)
N	1.277	1.277	1.277	1.277
GL	40.00	41.00	40	41
AIC	1,371.99	1,369.15	1,376.10	1,373.8
LogLik	-645.99	-643.58	-648.04	-645.90
Sensitivity	0.57	0.60	0.67	0.70
Accuracy	0.70	0.69	0.61	0.61
Year Control	Yes	Yes	Yes	Yes
Sector Control	Yes	Yes	Yes	Yes

*** p < 0.001; ** p < 0.01; * p < 0.05; . p < 0.10. Clustered robust standard errors.

Regarding specific audit fees ($Audfees_{it+1}$), a significant association was found, indicating that higher fees are less likely to influence the replacement of audit firms than lower fees. Two aspects possibly explain this relationship: (i) high fees possibly provide auditors with better working conditions, enabling them to allocate additional resources and specialize their teams to minimize adverse risks (Chen et al., 2019; Harahap et al., 2018); (ii) however, excessively high fees may make auditors susceptible to their clients' undue influence on the audit firm's opinion, undermining the integrity of the financial statements (Setyawati et al., 2023), as suggested by the Agency Theory proposed by Jensen and Meckling (1976). Nevertheless, no statistical significance was found for the relationship between total fees ($Totalfee_{it+1}$) and the decision to replace the audit firm.

The interactions $Restate_{it}$*$Audfees_{it+1}$ and $Restate_{it}$*$Totalfee_{it+1}$ were statistically significant. Companies that restated FS and paid higher fees were less likely to replace the audit firm after a restatement. This finding suggests that, even though negotiation of new contracts may be harmed after a restatement and consequent loss of reputation, companies paying higher fees are less likely to replace the audit firm due to high replacement costs and the limited availability of audits of comparable quality (Hennes *et al.*, 2014; Mande & Son, 2013). Furthermore, new auditors may demand even higher fees than the previous ones to compensate for the risk of litigation and loss of reputation (Chen *et al.*, 2019; Giordani *et al.*, 2020). Thus, maintaining the current contract may be an acceptable alternative, considering the importance of organizational reputation and market implications (Swanquist & Whited, 2015).

Additionally, companies with volatile ROE are more likely to replace the audit firm than those with stable ROE. This variable is a risk proxy and reflects how the market assesses a company. Companies with highly volatile ROE may prefer more specialized auditors due to business uncertainties and complexity (Qasem et al., 2020).

As for the other control variables, no significant associations were found to influence the voluntary decision to replace the audit firm.

5. Conclusion

The impact of restating financial statements (FS) on audit contracts was investigated from 2010 to 2020 in a sample of 323 non-financial companies listed on B3. We used statistical methods and panel regressions to examine the relationship between restatements and audit fees (H_1) and the likelihood of companies replacing the audit firm (H_2).

The results show that companies restating FS tend to pay higher fees the following year, which supports H_1. This finding aligns with the literature suggesting that the remuneration of audit contracts increases due to perceived risk. However, when the audit firm is replaced after a restatement, fees tend to decrease, possibly due to a transition from a Big4 to a non-Big4 audit firm (Feldmann *et al.,* 2009) or due to efforts to reduce costs (Dantas & Ramos, 2019).

Additionally, companies restating FS are more likely to voluntarily change the audit firm, confirming H_2. It indicates that audited companies seek punishment to exempt themselves from the responsibility for the failure and regain investor confidence. Auditors and audited companies seek to mitigate the adverse impacts of restatements, with new auditors incorporating litigation and reputation risk into their fees and companies blaming the former auditors for the restatement, replacing the audit firm.

These results provide a relevant contribution to stakeholders involved in audit contract negotiations, including auditors and audit and governance committees. Such evidence supports decisions concerning the hiring of independent audit firms and strengthens Jensen and Meckling's Agency Theory (1976) by highlighting empirical evidence related to the costs imposed by conflicts of interest between agents.

Nonetheless, some of this study's intrinsic limitations must be acknowledged. Based on data from non-financial companies listed on B3, the results do not allow for the generalization of results to different sectors or countries. A lack of specific analysis regarding which financial indicators were changed during restatements may have influenced the results. The low occurrence of quantitative and *ex officio* restatements also limits the analysis of the effects of such an event despite its potential impact on the replacement of audit firms and changes in auditors' fees.

Future analyses are suggested to address these limitations and consider factors not explored here, such as regulatory and corporate governance elements, possibly influencing the companies' decisions regarding audit contracts after restatements. Applying the Difference in Differences (DiD) approach may help examine the pre- and post-restatement effects on the replacement of audit firms and fee changes. A more in-depth analysis of the negotiation process between the parties involved is a relevant variable to explore, considering the specific type of restatements.

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