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ACCOUNTING INFORMATION QUALITY AND SYSTEMATIC RISK ON THE BRAZILIAN STOCK MARKET

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ABSTRACT

This study evaluated the association between accounting information quality and systematic risk on the Brazilian stock market based on a sample of 208 firms traded on B3 S/A Brasil, Bolsa, Balcão (1,675 observations) from 2010-2019. The systematic risk was measured with the beta coefficient, while accounting information quality was proxied by revenue predictability and earnings management by discretionary accruals. The data were analyzed with descriptive statistics and least ordinary squares multiple regressions on panel data and quantile regressions. The results showed earnings management by discretionary accruals and low revenue predictability were positively associated with systematic risk. In other words, there is evidence that the lower the accounting information quality in Brazilian firms, the greater the market risk. Our findings not only enrich the debate on the role of accounting information quality in emerging markets such as Brazil, but may subsidize investors in their decision-making by showing how accounting information quality impacts corporate risk and point to how managers can reduce systematic risk and equity costs.

Keywords: Accounting information quality. Systematic risk. Earnings predictability. Earnings management.

Edited in Portuguese and English. Original version in Portuguese.

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1 INTRODUCTION

The accounting information disclosed by organizations plays a fundamental role in improving the efficiency and functioning of the capital market (Dang et al., 2020; Healy & Palepu, 2001). Investors can use accounting information to assist them in evaluating investment opportunities and monitoring the use of resources available to managers (Beyer et al., 2010). In the corporate environment, however, information asymmetry problems are quite present, so the accounting information quality disclosed to the market is considered one of the main mechanisms for reducing asymmetry (Dang et al., 2020).

In addition to being a mechanism to reduce information asymmetry, the accounting information quality is associated with corporate risk since the low level of profit quality can cause the various stakeholders in the firm to make decisions inaccurately due to the use of inappropriate and less transparent information (Dang et al., 2020). Ghosh and Moon (2010) warn that reducing the accounting information quality also affects the likelihood of investors and creditors estimating solvency, liquidity, and bankruptcy risks.

In the specialized literature, there is no consensus on the concept and measurement of accounting information quality, also known as earnings quality (Dechow et al., 2010; Lima et al., 2015). Dechow et al. (2010) suggest that information quality depends on the relevance of the data to the decision and the capacity for informative representation of financial performance. Thus, reported profits are a primary indicator of information quality (Chaney et al., 2011).

Practices that reduce information quality increase the problems of information asymmetry in the capital market. Therefore, they can impact systematic risk since this type of risk represents the sensitivity of the company's returns to market-wide information (Lintner, 1965; Sharpe, 1964; Xing & Yan, 2019). Core et al. (2014) state that disclosing quality information helps improve investors' prediction of future cash flows. Thus, decreasing uncertainty about expected returns helps dilute companies' sensitivity to systematic risk (Cheynel, 2013).

Given the above, and considering the problems of informational asymmetry in the organizational environment, and that accounting information quality plays a vital role in investment allocation decisions and in how market agents analyze the economic and financial situation of the entity, thus impacting the variation in the price and return of its stocks, this study aims to investigate the relationship between the accounting information quality and systematic risk in Brazilian companies.

The research sample brings together Brazilian companies with stocks traded on B3 S/A Brasil, Bolsa, Balcão from 2010 to 2019. Systematic risk is measured by the *beta* coefficient, which is considered one of the most important measures used in measuring risks (Jacquier et al., 2010). This study adopts two proxies for accounting information quality: profit predictability (Francis et al., 2004) and the level of discretionary accruals (Kothari et al., 2005). To investigate the relationship between information quality and systematic risk, regression models using the Ordinary Least Squares (OLS) method are used with panel data with fixed effects for the year and quantile regressions.

Concerning research on the relationship between information quality and systematic risk, it is worth noting that most were conducted in developed countries (Cai et al., 2007; Core et al., 2014; Xing & Yan, 2019). Therefore, with more sophisticated institutional and informational characteristics than emerging markets. And the studies that investigated this theme in the national scenario relate systematic risk with the level of discretionary accruals (Moura et al., 2015; Nardi et al., 2009), with accounting indicators (Amorim et al., 2012), or use systematic risk as an independent or control variable (Pimentel, 2015). Thus, this research is justified by analyzing other determinants capable of influencing systematic risk and identifying these relationships in an emerging nation.

The Brazilian capital market is still underdeveloped (Arruda, Girão, & Lucena, 2015). The country's fragile institutional environment (Moura et al., 2020), low investor protection, and the presence of informational asymmetry among agents are national characteristics that impact the risk related to the return on shareholders' investments and the cost of capital of companies (Siqueira et al., 2017; Vargas et al., 2021). Thus, given the specificities of the Brazilian stock market, it is important to verify the relationship between accounting information quality and systematic risk in this less-developed environment.

Therefore, this study is expected to advance the literature on accounting information quality, as it brings evidence of the effect of the quality of profits on the market risk of Brazilian companies. Moreover, the research findings may be interesting for shareholders and managers since the systematic risk is related to the return on investments required by investors (Amorim et al., 2012) and how companies obtain funds; and for regulatory bodies in relation to the definition of policies to improve the disclosure and accounting information quality since reducing information asymmetry regarding uncertainties and business opportunities helps reduce exposure to corporate risks by stakeholders and improve decision-making processes (Chaney et al., 2011).

2 LITERATURE REVIEW AND HYPOTHESES

Information asymmetry is quite present in the organizational environment, especially in the stock market, and can cause investors to withdraw and affect the liquidity and price of companies' stocks since uninformed investors can misjudge the company's performance and price securities inappropriately (Rodrigues & Galdi, 2017) since information and incentive problems hinder the efficient allocation of resources (Healy & Palepu, 2001).

For Song et al. (2021), information asymmetry may also compromise economic agents' ability to assess business impacts effectively. Given this, accounting works as a mechanism to reduce information asymmetry between agents (Abad et al., 2015; Beyer et al., 2010) since its primary function is to provide relevant information about the organization to the various groups of users through the disclosure of financial reports (Scott, 2015).

Zhai and Wang (2016) state that quality accounting information helps to assess better and understand the company's financial and operational situation and is a prerequisite for the development and efficiency of the capital market (Abad et al., 2015; Paulo et al., 2013). However, the decrease in the accounting information quality and asymmetric information problems between outsiders and insiders can influence the increase in corporate risks (Ghosh & Moon, 2010), among them, market risk (Oliveira Júnior et al., 2023).

Market risk is the probability that the company will suffer losses due to factors that influence the overall performance of the financial markets where it is inserted (Kassi et al., 2019). Schadewitz and Blevins (1998) report that when investors are more rational or more oriented, they can foresee the probable risks of the company so that they avoid assuming investments in companies with low disclosure of information in quantitative and qualitative terms.

According to Almendra et al. (2018), the absolute risk of a company is formed by systematic risk (market risk) and non-systematic risk (diversifiable risk). Amorim et al. (2012) explain that if market investors diversify their investment portfolio efficiently, that is, minimizing non-systematic risk, the component that remains for total risk analysis is systematic risk. It is known that systematic risk, which the beta coefficient can measure, corresponds to the level of variation in the entity's performance relative to the economy in general (Almendra et al., 2018).

Systematic risk directly influences stock prices, altering expected returns (Jeon et al., 2006). In this context, Kassi, Rathnayake, Louembe, and Ding (2019) warn that systematic risk is one of the critical components of financial risk, as investors cannot eliminate it through a diversified portfolio. Also, it is essential to emphasize that external and internal factors influence

systematic risk, and those are related to the political and economic environment, which is why the company cannot control them. In contrast, internal ones relate to the company's choices and decisions (Chiou & Su, 2007), including preparing and disclosing financial statements (Core et al., 2014; Xing & Yan, 2019).

According to Martins and Ventura (2020), financial reports are one of the main references for obtaining information that supports investment decisions. In this sense, companies that provide high-quality financial information can reduce the risk of the investor losing their resources due to the greater transparency of the entity's real economic and financial situation (Easley & O'Hara, 2001), and attract funds and investments, reducing liquidity risks (Nardi *et al*., 2009).

Given the relevance of examining the factors that affect the company's systematic risk to improve the predictive capacity of risks for investors and other stakeholders (Jeon *et al*., 2006), some studies have been developed (Amorim et al., 2012; Cai et al., 2007; Core et al., 2014; Moura et al., 2015; Martinez & Castro, 2011; Nardi et al., 2009, Xing & Yan, 2019) with an emphasis on investigating the relationship between accounting information quality and systematic risk.

Accounting information quality is strictly related to the relevance of financial information and the quality of profits (Benkraiem et al., 2021). Higher-quality profits can help reduce the level of information asymmetry among agents (Diamond & Verrecchia, 1991) since it is an element of financial statements with a high information burden (Locatelli et al., 2021) to improve the decision-making processes of accounting information users who are generally interested in evaluating current performance and estimating the company's future cash flows (Chaney et al., 2011; Ghosh & Moon, 2010).

The broad set of criteria for measuring and disclosing accounting information enables the manager to adopt accounting choices to make financial statements more informative (Dechow et al., 2010) to reflect the company's real performance and indicate the most relevant information to the market (Healy & Wahlen, 1999). However, it also allows managerial opportunism to manipulate incomes and obtain personal advantages (Buchholz et al., 2020).

When accounting practices are adopted in a discretionary manner to change the company's real performance and the evaluation of users, such practices compromise the accounting information quality (Buchholz et al., 2020). It is known that, in the literature, there is no single metric to assess accounting information quality (Lima et al., 2015). Several models have been developed that capture different measures to estimate the accounting information quality, among them earnings management and profit predictability.

Earnings management reflects management's propensity and extent to manipulate profits from accounting methods and criteria based on generally accepted accounting principles (Fan et al., 2021) without explicitly violating regulations or standards (Schipper, 1989). One should note that the intentional manipulation of accounting information through earnings management practices can lead to a decrease in the quality of financial reports, as it shows misleading information to the market that can be harmful to investors and other stakeholders (Buchholz et al., 2020; Healy & Wahlen, 1999; Kim et al., 2012) who use financial reports in their decision-making processes.

In turn, profit predictability is related to accounting information quality since it reflects how past profits can explain current profits (Mazzioni et al., 2016). According to the authors, the higher the accounting information quality, the more past profits predict current and future profits. Regarding this metric, Mazzioni and Klann (2018) state that, in addition to the predictability of profits being an essential measure of accounting information quality for investors in investment evaluations and decisions, it is an ideal complement to the relevance of accounting information since the more accurate the estimates of future incomes, the greater the accuracy in predicting expected dividends and in estimating stock prices (Mazzioni & Klann, 2018).

Using data from companies listed on the London Stock Exchange, Cai et al. (2007) examined the effect of information quality, around profit announcements and trading events, on systematic risk. The authors found that profit announcements lead to significant changes in systematic risk when information quality is low. Nonetheless, when information quality is high, profit announcements do not lead to any material change in systematic risk.

Amorim et al. (2012) investigated the relationship between accounting variables and systematic risk in the Brazilian stock market from 1995-2009. The results showed that some accounting variables, such as the Market-to-book index, the liquidity index, the capital of third parties on shareholders' equity, the EBIT, and leverage, can influence systematic risk.

Moura et al. (2015) investigated the association between earnings management and systematic risk in Brazilian companies from 2010-2013. The results showed a positive association between the company's *beta* and the level of discretionary accruals, indicating that market risk is higher in companies with higher discretionary accruals. Meanwhile, Nardi et al. (2009) did not identify any association between the level of discretionary accruals and the cost of equity measured by the *beta* coefficient.

Martinez and Castro (2011) sought to identify the level of income smoothing of Brazilian companies from 1998-2007 and to analyze their relationship with systematic risk and stock returns. The results revealed that companies with a higher level of income smoothing have a significantly lower *beta* and perform better than those with a lower level. Oliveira Junior et al. (2023) found evidence that a higher accounting information quality reduces informational asymmetry problems, thus impacting the systematic risk of Brazilian companies.

Analyzing a global sample of 35 countries from 1990-2004, Core et al. (2014) found evidence that accounting information quality disclosure negatively influences systematic risk, given that more accurate accounting information helps reduce uncertainty about expected returns and improve investors' forecasts of future cash flows.

Xing and Yan (2019) investigated the effect of accounting information quality on the systematic risk of companies listed in the databases of CRSP and Compustat from 1962 to 2012. The results showed a negative and significant relationship between the two constructs, indicating that increased information quality decreases systematic risk.

Thus, considering that financial markets are characterized by problems of informational asymmetry between agents, especially in less developed institutional and informational environments, and that accounting information quality disclosed by companies can influence the systematic risk of companies, the following research hypothesis was formulated:

> **Hypothesis 1**: The accounting information quality influences the systematic risk in Brazilian companies.

Considering also that profit predictability and earnings management by discretionary accruals measure specific characteristics of accounting information quality and are not substitutes for each other (Dechow et al., 2010), the following sub-hypotheses were formulated:

H_{1a}: Less predictable profits positively influence systematic risk.
H_{1b}: The level of earnings management positively influences systematic risk.

3 METHODOLOGICAL PROCEDURES

The research population brings together the companies with stocks traded on B3 from 2010-2019. The analysis time is justified due to understanding the period of mandatory adoption of IFRS in Brazil (2010) and precedes the beginning of the Covid-19 crisis in the country (2020). The data necessary to estimate the research variables were obtained secondarily through the Compustat® platform. Companies in the financial sector were excluded from the study due to

following specific accounting regulations to avoid biases and problems in the specification of models; and companies with data and information unavailable to calculate the research variables. Thus, the research sample was defined as 208 companies, totaling 1,675 observations.

To achieve the general objective, which consists of investigating the relationship between systematic risk (RISK) and accounting information quality (AIQ) in the companies listed in B3, and testing the research hypotheses, model I was used, namely:

$$RISK_{i,t} = \alpha + \beta_1 AIQ_{i,t} + \beta_2 SIZ_{i,t} + \beta_3 ROA_{i,t-1} + \beta_4 LEVER_{i,t} + \beta_5 BIG4_{i,t} + \varepsilon_{i,t} \quad \text{Model I}$$

Wherein:
$RISK_{i,t}$ = systematic risk of the company *i* in period *t*;
AIQ = quality proxies of accounting information;
$SIZ_{i,t}$ = = size of the company *i* in period *t;*
$ROA_{i,t-1}$ = return on assets of the company *i* in period *t-1*;
$LEVER_{i,t}$ = leverage of the company *i* in period *t;* and
$BIG4_{i,t}$ = audit quality of the company *i* in period *t*.

The dependent variable is systematic risk. Similar to that adopted by Almendra et al. (2018) and Olibe et al. (2008), the proxy used to indicate systematic risk was the *beta* coefficient obtained in the Economática® database, which reflects the variation of stock returns relative to the variations of the market itself, measured according to Equation 1.

$$Beta = \frac{Covar\ [OscStock,\ OscInd]}{StDv\ [OsInd]} \quad \text{Equation 1}$$

Wherein:
Covar = covariance function;
OscStock = oscillation of the stock;
OscInd = oscillation of market indices; and
StDv= standard deviation function.

It is important to mention that *beta* values below 1 represent a lower volatility of stocks, indicating that stocks are less sensitive to market swings and signaling lower risk assets; and that when higher than 1, they represent higher volatility of stocks, being more affected (positively or negatively) by market swings, indicating a high level of risk (Almendra et al., 2018; Gitman, 2010). Meanwhile, negative *beta* values indicate that stocks show returns in opposite directions to those of the market.

In the case of the independent variable of accounting information quality (AIQ), two proxies were used: profit predictability (Francis et al., 2004) and discretionary accruals (Kothari et al., 2005). Thus, Model I was estimated twice: once using profit predictability (PROFPRED) as a proxy for accounting information quality; and once with discretionary accruals (DA), the second metric indicating the accounting information quality of the companies in the sample.

Francis et al. (2004) portray that profit predictability refers to the ability of profits from previous periods to predict a company's future income. To estimate the profit predictability, we used the model proposed by Francis et al. (2004), also adopted by Mazzioni and Klann (2018), according to Equation 2.

$$NP_{i,t} = \beta_0 + \beta_1 NP_{i,t-1} + \varepsilon_{i,t} \quad \text{Equation 2}$$

Wherein:

$NP_{i,t}$ = quotient between net profit before extraordinary items of the company *i* in year *t* and the weighted average of the number of stocks outstanding during year *t*.
$NP_{i,t-1}$ = quotient between net profit before extraordinary items of the company *i* in year *t* and the weighted average of the number of stocks outstanding during year *t-1*; and
$\varepsilon_{i,t}$ = regression error term.

Following Francis et al. (2004) and Mazzioni and Klann (2018), the standard deviation of the regression error term (ε) was used as a proxy to indicate the profit predictability. One should note that values closer to 0 imply more quality and predictable profits, while values closer to 1 imply less predictable and more volatile incomes (Mazzioni & Klann, 2018).

Discretionary accruals, the second proxy for accounting information quality in this study, which aims to measure the level of earnings management adopted by companies, were estimated based on the model proposed by Kothari et al. (2005), operationalized by the multiple linear regression model (OLS) *cross-section* by sector and year, through Equation 3.

$$TCA_{i,t} = \beta_0 + \beta_1(1/A_{i,t-1}) + \beta_2(\Delta V_{i,t} - \Delta AR_{i,t}) + \beta_3(PPE_{i,t}) + \beta_4 ROA_{i,t} + \varepsilon_{i,t} \quad \text{Equation 3}$$

Wherein:
$TCA_{i,t}$ = total *accruals* of the company *i* in period *t*, obtained through the division between profit before extraordinary items and operating cash flow;
$A_{i,t-1}$ = Company asset *i* at the end of period *t-1*;
$\Delta V_{i,t}$ = change in net sales revenue of the company *i* from period *t-1* to period *t*, staggered by Asset from period *t-1*;
$\Delta AR_{i,t}$ = variation of the Accounts Receivables item of the company *i* from period *t-1* to period *t*, staggered by Assets from period *t-1*;
$PPE_{i,t}$ = balance of the Fixed Assets account of the company *i* at the end of period *t*, staggered by Assets of period *t-1*;
$ROA_{i,t}$ = Return on Asset of the company *i* at the end of period *t*, staggered by Assets of period *t-1*; and
$\varepsilon_{i,t}$ = discretionary accruals, a proxy for accounting information quality.

Kothari et al. (2005) state that between the performance of the company and the estimation of discretionary accruals, there is a mechanical relationship. Thus, controlling the performance effect by ROA provides a more reliable estimation of discretionary accruals.

Like other studies involving systematic risk proxies (Iatridis, 2012; Low, 2009; Olibe et al., 2008; Tessema, 2020; Xing & Yan, 2019), the following control variables were used: company size (SIZ), return on assets (ROA); leverage (LEVER), and audit quality (BIG4). Table 1 shows the variables used, their operationalization, source, and theoretical framework.

Table 1
Control Variables

Variable	Operationalization	Source	Theoretical Basis
Size (SIZ)	Natural Logarithm of the Asset	Compustat®	Olibe et al. (2008) Xing and Yan (2019)
Return on Asset (ROA)	Ratio between operating profit and lagged Asset	Compustat®	Xing and Yan (2019)
Leverage (LEVER)	Ratio between total debts and Asset	Compustat®	Low (2009) Olibe et al. (2008)
Audit quality (BIG4)	Dummy, which assumes the value 1 for the company audited by one of the Big Four, and the null value for the other	Compustat®	Iatridis (2012) Tessema (2020)

Source: Research data.

When it comes to the analysis procedures, we first sought to present the behavior of the dependent and independent variables of the study. Thus, the research data were demonstrated and analyzed using descriptive statistics techniques (mean, median, standard deviation, minimum and maximum values, and quartiles) to verify their dispersion and disposition.

Then, to test the research hypotheses and present more robust evidence on the relationship between the accounting information quality and systematic risk, multivariate analysis, regression through ordinary least squares (OLS), and quantile regression techniques were used. Quantile regression was used in addition to regression by the OLS method to analyze the relationship between the proxies accounting information quality and systematic risk at different levels (quartiles). In other words, the effect of adopting more (less) aggressive earnings management practices by discretionary accruals and greater (less) profit predictability on the systematic risk of the companies in the sample.

4 RESULTS AND DISCUSSION

Table 2 presents the results of the systematic risk descriptive statistics (RISK) and the accounting information quality proxies: profit predictability (PROFPRED) and discretionary accruals (DA); in addition to the control variables: size (SIZ), return on asset (ROA), leverage (LEVER), and audit quality (BIG4).

Table 2
Descriptive statistics

Variable	Mean	Standard deviation	Minimum	Quartile			Maximum
				1st	2nd	3rd	
RISK	0.6989	0.8209	-1.2126	0.1763	0.5776	1.1170	3.3453
PREVL	0.8654	6.1078	-32.2478	-0.1864	0.7302	1.4886	25.0773
DA	-0.0012	0.1124	-0.3357	-0.0568	-0.0017	0.0481	0.4922
SIZ	3.4171	0.8310	1.1348	2.8973	3.4284	3.9776	5.4652
ROA_{t-1}	0.0133	0.1505	0.1505	-0.0165	0.0323	0.0814	0.4128
LEVER	0.6058	1.5668	0.1089	0.4941	0.6797	0.9152	14.5867
BIG4	0.7272	0.445	0	0	1	1	1

Note. RISK = Systematic risk. PROFPRED = Predictability of profits. DA = Level of discretionary accruals. SIZ = Size. ROA = Return on Assets at the beginning of the year. LEVER = Leverage. BIG4 = Audit Quality. Number of observations = 1,675. Source: Research data.

It is observed that the values of the proxy representing the systematic risk range between -1.2126 and 3.3453, a mean of 0.6989. These results show the presence of companies whose stocks behave in opposite directions to market returns, given the presence of negative betas and companies with high volatility relative to those presented by the market. These results are lower than those of Silva et al. (2016), who identified *beta* values between -4.91 and 16.39, resulting in a mean of 0.88.

Regarding the first proxy for accounting information quality, it appears that profit predictability indicates a mean of 0.8654, a standard deviation of 6.1078, a minimum value of -32.2478, and a maximum value of 25.0773, demonstrating the high volatility of the profits of the companies in the sample, which, according to Mazzioni and Klann (2018), shows the low profit predictability, leading to low returns. According to Francis et al. (2004) and Yoon (2007), profit predictability is characterized by indicating the ability of past profit to predict future profit and less predictable profits induce higher market risk premiums (Graham et al., 2005). These results suggest a low accounting information quality of the companies in the sample, corroborating the findings of Pimentel and Aguiar (2012).

As for discretionary accruals, the second proxy for accounting information quality, Table 2 shows a mean of -0.0012, providing evidence that this earnings management strategy has been used more to reduce company profits, contrary to those that were exposed by Santana et al. (2020). Moreover, it is verified that the income management by discretionary accruals showed high heterogeneity, suggesting that the companies in the sample have different levels regarding the quality of their information, which may be a factor that explains the high oscillation verified in systematic risk, corroborating what was found by Oliveira Junior et al. (2023).

It is also verified that the group of companies in the sample has a mean Asset of 3.4171 and a mean profitability of 1.33%. Concerning leverage, companies' total debts represent, on average, 60.6% of their assets. Nevertheless, there is a high standard deviation, that is, a large dispersion of the indebtedness of the companies in the sample. One should also note that approximately 73% of the companies in the sample are audited by companies of the Big Four group, converging with the findings of Arcúrio and Gonçalves (2020).

To verify the influence exerted by the accounting information quality on systematic risk in Brazilian companies, regression with panel data with fixed effects for the year and quantile regression were used, which make it possible to identify how the independent variables of the study relate to the dependent variable throughout its distribution (Yu et al., 2015).

Table 3 presents the result of the regressions that analyzed the relationship of profit predictability (PROFPRED), a proxy for accounting information quality, with systematic risk (RISK).

Table 3

Influence of profit predictability on systematic risk

$$RISK_{i,t} = \alpha + \beta_1 PROFPRED_{i,t} + \beta_2 SIZ_{i,t} + \beta_3 ROA_{i,t-1} + \beta_4 LEVER_{i,t} + \beta_5 BIG4_{i,t} + \varepsilon_{i,t}$$

Variable	OLS	Quartile			VIF
		1st	2nd	3rd	
PREVL	0.0102	-0.1037	-0.0725	-0.4994***	1.31
SIZ	0.3050***	0.1453***	0.1423***	0.1516***	1.41
ROA_{t-1}	-0.1390***	-0.0649***	-0.0805***	-0.0955***	1.20
LEVER	-0.00823	-0.010*	0.0015	0.0080	1.14
BIG4	-0.1541**	0.0845	0.0697	0.0494	1.28
Intercept	-0.2138	-0.3695***	0.0423	0.5304***	
Pseudo R^2	-	0.0250	0.0208	0.0181	
Prob > F	8.34***	-	-	-	
Within	0.0277	-	-	-	
Between	0.0179	-	-	-	
Overall	0.0294	-	-	-	
No. of Observations			**1.675**		

Note. (*) Significance at 10%; (**) Significance at 5%; (***) Significance at 1%. RISK = Systematic risk. PROFPRED = Predictability of profits. SIZ = Size. ROA = Return on Assets at the beginning of the year. LEVER = Leverage. BIG4 = Audit Quality. Source: Research data.

The results of the regression by the OLS method, presented in Table 3, demonstrate a non-significant relationship between PROFPRED and RISK. However, Graham et al. (2005) reveal that profit predictability is seen as desirable and a concern among financial executives. These results indicate that predictability does not influence systematic risk. Also, even though profits are less predictable (more volatile), decreasing the accuracy in predicting future cash flows and increasing the possibility of errors in the valuation of assets by investors (Dechow et al., 2010; Francis et al., 2004; Mazzioni & Klann, 2018), this does not result in greater systematic risk.

However, when analyzing the quantile regression results for quartile 75, it appears that there is a negative and significant relationship between systematic risk (RISK) and the profit predictability proxy. It is, therefore, evident that when the profit volatility is accentuated. It

means that when the quality of profits is lower, the lower predictability of current profits is reflected in greater systematic risk, which is why the first sub-hypothesis (H_{1a}) is not rejected.

Companies with high systematic risk are most affected by market fluctuations. When there are positive variations, the returns are more significant than the market's. On the other hand, when the variations are negative, the losses tend to be greater. Thus, these results imply that this characteristic of accounting information enhances systematic risk only in companies with low profit predictability and high market risk, converging with the argument of Francis et al. (2005) that investors can identify the risk of systematic information, and require greater returns, as compensation, due to taking on higher risk investments, even corroborating the asset pricing theory (Damodaran, 2007).

Table 4 shows the regressions results that analyzed the second proxy's influence on accounting information quality, earnings management through discretionary accruals (DA) and systematic risk.

Table 4
Influence of discretionary accruals on systematic risk

$RISK_{i,t} = \alpha + \beta_1 DA_{i,t} + \beta_2 SIZ_{i,t} + \beta_3 ROA_{i,t-1} + \beta_4 LEVER_{i,t} + \beta_5 BIG4_{i,t} + \varepsilon_{i,t}$

Variable	OLS	Quartile			VIF
		1st	2nd	3rd	
DA	-0.0026	0.0791	0.2269**	0.2138	1.23
SIZ	0.3050***	0.1478***	0.1578***	0.1546***	1.41
ROA_{t-1}	-0.1387***	-0.0738***	-0.1047***	-0.1202***	1.20
LEVER	-0.0082	-0.0112*	0.0005	0.0054	1.14
BIG4	-0.1537**	0.0916	0.0727	0.0278	1.28
Intercept	-0.2147	-0.3789***	-0.0031	0.5412***	
Pseudo R^2	-	0.0246	0.0221	0.0166	
Prob > F	8.34***	-	-	-	
Within	0.0277	-	-	-	
Between	0.0180	-	-	-	
Overall	0.0294	-	-	-	
No. of observations			**1.675**		

Note. (*) Significance at 10%; (**) Significance at 5%; (***) Significance at 1%. RISK = Systematic risk. DA = Level of discretionary accruals. SIZ = Size. ROA = Return on Assets at the beginning of the year. LEVER = Leverage. BIG4 = Audit Quality. Source: Research data.

According to Table 4, the regression result by the OLS method did not identify a significant relationship between the level of earnings management by discretionary accruals and systematic risk. Meanwhile, the quantile regression result demonstrates a positive and significant relationship at 5% in the second quartile between the level of earnings management by discretionary accruals and systematic risk. Thus, there is evidence that earnings management by discretionary *accruals* positively influences systematic risk, not rejecting the second sub-hypothesis (H_{1b}). These findings are convergent with those of Moura et al. (2015), Xing and Yan (2019), and Oliveira Junior et al. (2023) and divergent from the results found by Nardi et al. (2009).

Generally, accruals are the difference between cash flow and accounting results arising from recognizing income and expenses on an accrual basis (Dechow et al., 1999; Felix & Bezerra, 2022). To this end, the association between cash flow and profit is used by investors to assess the quality of accruals and identify information risk (Francis et al., 2005). However, high levels of discretionary *accruals*, involving the intentional manipulation of managers to distort accounting results, increase the information risk of investors; that is, they increase the level of information asymmetry due to the reduction in accounting information quality, leading to a higher systematic risk for companies that adopt this strategy of handling accounting information (Francis et al., 2005).

Corroborating the results presented in Table 3, it can be seen that the profitability of the assets and the audit quality showed a negative and significant association with systematic risk in the companies in the sample. At the same time, the size variable has a positive and significant relationship. On the other hand, leverage presented a negative and significant relationship with systematic risk in companies with lower market risk, converging with the findings of Amorim et al. (2012).

Given the above, neither of the two sub-hypotheses (H_{1a} and H_{1b}) can be rejected since it was found that both the less predictable profits and the increase in the level of discretionary accruals are reflected in greater systematic risk. Thus, the H_1 hypothesis that accounting information quality influences systematic risk in Brazilian companies cannot be rejected.

The capital market allows the investor to invest resources in securities that generate expectations of returns, and, as a result, there is an inherent risk to this activity (Souza Filho et al., 2017). Souza Filho et al. (2017) state that one of these risks is the information gap that exists between investors, so the disclosure of specific information of an organization, such as accounting information quality, can minimize problems of informational asymmetry (Souza Filho et al., 2017), and, therefore, the systematic risk, in order to affect the expected returns if they influence the investor in the decision-making process (Armstrong et al., 2013).

In emerging markets such as Brazil, the information environment is less developed than in more developed countries (Porta et al., 1997), in addition to being characterized by a weak institutional environment (Moura et al., 2020), which provides a higher level of uncertainty for organizations and investors relative to the economic returns of their investments. Siqueira et al. (2017) explain that the informational imbalance about assets traded in the stock markets represents a risk for investors, which would cause these agents to claim a higher premium to trade assets they consider risky since the risk is a factor strongly related to the probability of the return on investment being lower than expected (Damodaran, 2007).

In this context, it is worth remembering that systematic risk is sensitive to market information. And in environments characterized by asymmetric information problems, where it becomes difficult to distinguish good and bad assets and make more efficient investments, the accounting information quality at the company level can be a fundamental determinant for investment decisions (Martins & Barros, 2021). Siqueira et al. (2017) complement that the informational risk related to an asset can be a factor priced by market agents (Siqueira et al., 2017).

From the above, the low quality of profits can lead to an increase in systematic risk since capital providers can make a mistaken assessment of the disclosed accounting numbers and decrease the accuracy of the future returns of their investments (Durnev & Kim, 2005), discouraging themselves from acquiring stocks of the company or investing in the stock market itself. Thus, the association of the increase in systematic risk with the levels of uncertainty in the country's institutional and informational environment can cause the exit of investors, the increase in the cost of equity (Moura et al., 2015), and the growth of political and economic risk in the market, in order to negatively impact the macroeconomics.

5 FINAL CONSIDERATIONS

This research analyzed the relationship between the accounting information quality and systematic risk in the Brazilian stock market from 2010-2019. Proxies for accounting information quality, profit predictability (Francis et al., 2004), and the level of earnings management by discretionary accruals (Kothari et al., 2005) were used. The beta coefficient was used to estimate the systematic risk in the companies in the sample, which reflects the variation of stock returns relative to the market variations.

The descriptive analysis showed that Brazilian publicly-held companies have a moderate systematic risk and that their values fluctuate in opposite directions and are higher than market

returns. Also, the companies showed less predictable and more volatile profits and discretionary accruals were used to decrease the company's profit. The analysis of the relationship between accounting information quality and systematic risk found that less predictable profits and earnings management strategies by discretionary accruals potentiate systematic risk, ratifying the relevance of accounting information in issues related to market risk.

In the theoretical field, this study contributes to subsidizing the discussions about the role of accounting information quality in emerging markets since, in addition to acting in reducing the problems of informational asymmetry among the firm's stakeholders, it can be one of the determinants that impact systematic risk since this corporate risk is sensitive to market information and influences both the obtaining of funds from third parties and the return on shareholders' investments.

Thus, the study brings essential contributions to investors regarding decision-making processes based on accounting information and risk, as financial reports with quality information can help minimize the risk of mispricing assets and improve estimates and predictive capacity regarding risks related to investment decisions. It also contributes to managers and executives regarding actions aimed at minimizing systematic risk since internal factors also influence this risk, and the decision to improve information quality comes from senior management.

Li and Xia (2021) emphasize the high relevance of the financial market for the economic development of a country and that the instability of this market can have serious consequences for the economy. Therefore, the findings of this research also contribute to subsidizing the regulatory authorities in the idealization and implementation of policies that encourage companies to evidence accounting information quality, in order to improve the functioning of the stock market, which, despite certain weaknesses, is in the process of evolving, in order to bring benefits to both investors and companies with stocks traded there.

Among the limitations of the research, proxies related to the accounting information quality stand out, as the information is limited to financial reports and captures certain characteristics of accounting information. Thus, it is suggested, for future studies, investigations on the influence of other profit quality metrics on systematic risk, as well as the examination of the relationship between accounting information quality and other corporate risks, such as, for example, bankruptcy and credit.

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