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ORIGINAL ARTICLE

Quality or quantity? The impact on the cost of equity capital

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ABSTRACT

This study aimed to investigate the simultaneous impact of information quality and quantity on the cost of equity capital for Brazilian firms listed on the B3 from 2011 to 2021. We also assessed which of the two, quality or quantity, has a greater impact on the cost of equity capital. Accounting quality and information volume are key factors in determining a company's cost of equity capital. While several studies have explored the relationship between these variables, few have examined them simultaneously, and we were unable to find any that focused on these aspects in the Brazilian market. Our results suggest that companies should prioritize enhancing the quality of information they disclose to investors over simply disclosing more information. Standard setters have a rationale for providing additional guidance on improving information disclosure. A better informed market facilitates better decision-making and reduces information asymmetry. Our results contradict previous studies that have found a positive relationship between information quantity and the cost of equity capital, suggesting that future research on information volume must also consider the quality of that information. We used a sample of 1,347 firm-year observations and employed various methodologies to assess the levels of accounting quality and information volume. Our study controlled for firm size, leverage, market-to-book ratio, beta, growth, internationalization, and the impact of COVID-19 to enhance the robustness of our results. To ensure the validity of our findings, we conducted additional tests using alternative methods to measure quality and quantity, and the results were consistent with our original findings. We found that the quality of financial information impacts the cost of equity capital, whereas the volume does not. Our results underscore the importance of improving information quality and support regulatory requirements for more relevant and understandable disclosure.

Keywords: cost of equity capital, information quality, information volume, readability.

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Qualidade ou quantidade? O impacto no custo de capital próprio

RESUMO

Este estudo teve como objetivo investigar o impacto simultâneo da qualidade e da quantidade de informações sobre o custo de capital próprio das empresas brasileiras listadas na B3 de 2011 a 2021. Também avaliamos qual dos dois, qualidade ou quantidade, tem um impacto maior sobre o custo de capital próprio. A qualidade contábil e o volume de informações são fatores-chave para determinar o custo de capital próprio de uma empresa. Embora vários estudos tenham explorado a relação entre essas variáveis, poucos as examinaram simultaneamente, e não conseguimos encontrar nenhum que se concentrasse nesses aspectos no mercado brasileiro. Nossos resultados sugerem que as empresas devem priorizar o aprimoramento da qualidade das informações que divulgam aos investidores em vez de simplesmente divulgar mais informações. Os órgãos normativos têm uma justificativa para fornecer orientações adicionais sobre a melhoria da divulgação de informações. Um mercado melhor informado facilita a tomada de decisões e reduz a assimetria de informações. Nossos resultados contradizem estudos anteriores que encontraram uma relação positiva entre a quantidade de informações e o custo de capital próprio, sugerindo que pesquisas futuras sobre o volume de informações também devem considerar a qualidade dessas informações. Usamos uma amostra de 1.347 observações empresa-ano e empregamos várias metodologias para avaliar os níveis de qualidade contábil e volume de informações. Nosso estudo controlou o tamanho da empresa, a alavancagem, o índice market-to-book, o beta, o crescimento, a internacionalização e o impacto da COVID-19 para aumentar a robustez de nossos resultados. Para garantir a validade de nossos achados, realizamos testes adicionais usando métodos alternativos para medir a qualidade e a quantidade, e os resultados foram consistentes com nossos achados originais. Constatamos que a qualidade das informações financeiras afeta o custo de capital próprio, enquanto o volume não. Nossos resultados ressaltam a importância de melhorar a qualidade das informações e apoiam as exigências regulatórias para uma divulgação mais relevante e compreensível.

Palavras-chave: *custo de capital próprio, qualidade das informações, volume de informações, legibilidade.*

1. INTRODUCTION

In the context of financial information, having more information available is typically better (Lawrence, 2013). However, when it comes to information disclosure, this might not always hold true (Hwang & Lin, 1999; Athanasakou et al., 2020).

A negative and significant stock reaction is often associated with low levels of communication (Ang & Cheng, 2011), and investors tend to invest more in firms that provide concise and clear disclosures (Lawrence, 2013). This preference arises because increasing the volume of disclosure or information about a firm can reduce investors' uncertainty about how the company is valued (Leuz & Verrecchia, 2005).

In cases where there is an inadequate volume of disclosure and some investors are better informed than others, the disadvantaged investors tend to be cautious, price-protecting themselves and reducing trading activity (Dhaliwal et al., 2011). Consequently, having high quality accounting information and increasing disclosure should lead to a reduction in the cost of capital (Botosan, 1997; Verrecchia, 2001; Leuz & Verrecchia, 2005; Botosan, 2006; Silva, 2013).

To avoid potential litigation, firms and auditors might choose to present all the information they have, even if it is not material. This could be a reason why some firms use accounting standards as checklists, presenting information that is not relevant or useful.

Studying the cost of equity capital in the Brazilian market is relevant because, as shown by Albanez (2015), it significantly influences firms' financing decision-making processes. Her research findings indicate that firms tend to favor debt financing when the cost of equity capital is higher.

When companies present misleading reports with additional disclosure to obfuscate poor performance, the cost of capital may increase (Athanasakou et al., 2020). Therefore, there are several reasons why we believe that firms attempt to strike a balance between information quality and quantity. We expected that quality and quantity of disclosure together would affect the cost of equity capital, but the literature is not clear, raising the question: which dimension of disclosure should be considered more important to investors?

Thus, the purpose of this research is to examine the simultaneous impact of accounting quality and disclosure volume on the cost of equity capital for Brazilian firms. Moreover, we aim to determine which of the two, quality or quantity, has a greater impact on the cost of equity capital.

Previous studies have primarily focused on examining either the quality or volume aspects of accounting

information separately. For instance, Alencar (2005), Lopes and Alencar (2010), and Silva and Pinheiro (2015) studied the impact of disclosure volume, while Leuz and Verrecchia (2005), Lambert et al. (2007), and Nardi et al. (2009) investigated the relationship with information quality.

However, there have been fewer studies that have investigated both aspects simultaneously (e.g., Francis et al., 2008; Athanasakou et al., 2020). We could not find a similar study applied to the Brazilian market, which highlights a significant research gap. Francis et al. (2008) studied 10-k filings, focusing mainly on the North American market. Athanasakou et al. (2020) studied annual report narratives and included absolute accruals as a control variable, but did not focus on the quality of accounting numbers. Our study focuses on information from Brazilian firms and uses multiple metrics to measure quality and quantity, allowing us to find robust results.

The market will require less disclosure if information quality has improved. On the other hand, withholding information can have an equally negative or even worse effect than presenting poor information (Verrecchia, 1990). This suggests that the market might prefer to have low quality information over no information at all. Thus, both aspects, quality and quantity, affect each other and must be studied together to understand how the market values each of them.

To measure the cost of equity capital, we applied the Capital Asset Pricing Model (CAPM) and Easton's (2004) modified price/earnings-to-growth ratio (PEG). Quality was assessed by subtracting operating cash flows from net income, scaled by total assets, and by scaling the variation in net income by the change in operating cash flows, following established methodologies (Barth et al., 2006; Barth et al., 2008; Chen et al., 2010). Disclosure volume was measured by the number of words and using a readability score in the notes to the financial statements filed with the Comissão de Valores Mobiliários (CVM), the Brazilian Securities and Exchange Commission.

After analyzing 1,347 firm-year observations of Brazilian non-financial firms, we found that only certain aspects of information quality, such as income smoothing, had an impact on the cost of equity capital. Other factors, including the level of accruals or small positive net income, as well as the amount of information presented, did not significantly affect the cost of equity capital.

This research aims to contribute to the literature by examining the interplay between these two aspects from different perspectives from what has been done up until now, and to determine which one is more relevant in influencing the cost of equity capital, if any. Our results suggest that quality is more influential than quantity, in line with the requirements of OCPC 07 (Guidance 07 of the Comitê de Pronunciamentos Contábeis, or CPC, the Brazilian Accounting Standards Committee) for more relevant and understandable information rather than a higher volume of disclosure.

Practitioners and auditors can benefit from our findings as they provide insights into how the market perceives information presented in multiple dimensions. The limited relevance of information volume in influencing the cost of equity capital suggests that excessive information may not benefit users and may lead preparers to seek new guidelines from standard setters, especially in the context of litigation.

Analysts and investors will be able to better understand how they are impacted by the information presented and demand better or more disclosure, depending on what they value more. If information quality becomes more relevant to those who prepare the information, it will have a positive impact on decision making.

Furthermore, this study can serve as a reference for future researchers aiming to distinguish between these concepts and incorporate multiple dimensions into financial disclosure research. Our findings contribute to the existing body of research by emphasizing that quality variables should also be considered when analyzing information volume, potentially altering the significance of information quantity.

Section 2 of this paper presents the theoretical framework and variable measurements, including a review of previous research on information quality, disclosure volume, and cost of capital. Section 3 outlines our sample and model. Section 4 presents our results, and Section 5 concludes our study.

2. THEORETICAL FRAMEWORK AND MEASUREMENTS

2.1 Quality

In this study, we concentrate our analysis on the quality of accounting numbers and the methods used to produce them. Our objective is not to assess the quality of the financial texts, but rather to analyze the quality of the figures. Therefore, the theoretical framework we adopt is based on previous studies that have analyzed the quality of accounting numbers.

Previous studies have examined the impact of International Financial Reporting Standards (IFRS) adoption on accounting quality in multiple countries (Sodersrom & Son, 2007; Barth et al., 2008; Chen et al., 2010; Ahmed et al., 2013; Christensen et al., 2015; Silva et al., 2015) or compared International Accounting Standard (IAS) to US Generally Accepted Accounting Principles (GAAP) (Barth et al., 2006). With the exception of Silva et al. (2015), all of the aforementioned studies found that IFRS adoption improved accounting quality, but as Barth et al. (2006) demonstrated, US GAAP seemed to yield better results. More recently, Lassoued and Khanchel (2021) investigated the impact of the COVID-19 pandemic on earnings management in 2,031 European firms and found a significant effect of the health crisis.

Based on these previous studies, information quality can be measured by indicators such as reduced earnings management, timelier loss recognition, and higher value relevance. These studies employed various metrics to measure these characteristics, with quality as the dependent variable. In our study, quality is the independent variable.

We aimed to include as many variables as possible while simultaneously maintaining a balance between quality-related variables, quantity-related variables, and necessary controls. Some additional variables were used and are explained in the robustness analysis.

Moreover, previous studies have used different methods to measure accruals for earnings management metrics. In our study, we calculated accruals using two metrics: the absolute value of the difference between net income and operating cash flows divided by total assets and the absolute change in net income scaled by total assets (based on the metrics used by Barth et al., 2006; Barth et al., 2008; Chen et al., 2010). The premise of our study is that companies with lower absolute accruals and simultaneously less income smoothing (i.e. higher variation in net income scaled by the change in operating cash flow) provide better quality information.

2.2 Quantity

Several studies have focused on the impact of information load on investors' decisions (Chewning Jr. & Harrell, 1990; Stocks & Harrell, 1995; Ang & Cheng, 2011; Lawrence, 2013). These studies have demonstrated that when individuals face information overload, they tend to make lower quality decisions (i.e., decisions that are less consistent), have lower prediction accuracy, show reduced agreement with a composite judge, and exhibit less consensus. Moreover, clearer and more concise information tends to result in higher returns.

Research on information also explores the relationship between quality and quantity. For example, Verrecchia's (1990) study examined how the quality of information available to a manager influences their motivation to disclose it. Using a discretionary disclosure model, he found that managers are more inclined to disclose higher quality information.

In another study, Francis et al. (2008) investigated how voluntary disclosure affects earnings quality. They analyzed data from 677 US firms over the period 1991-2001 and discovered that firms with higher earnings quality tended to provide more voluntary disclosure.

These findings suggest that quality and quantity are related and can directly impact each other.

Although readability indexes, such as the Gunning Fog Index, are often employed to measure disclosure quality, many of these metrics only analyze the length of sentences and words, rather than their content. Therefore, it may be more accurate to consider readability metrics as methods of measuring information quantity. This could explain why, as observed in Loughran and McDonald's (2014) study, using file size as a metric yielded better results than the Gunning Fog Index.

In our study, we sought a proxy for accounting information volume. Since there is no standardized format for presenting such information in Brazil, these readability metrics could strongly affect our results. To address this concern, we followed Li's (2008) index for length and measured the quantity of information as the sum of words and the Flesch readability index of the notes to the financial statements filed with the CVM.

To measure readability, we applied the Flesch index adapted to Portuguese by Martins et al. (1994), which has been used in linguistic studies ever since it was created. The formula is:

$$\text{Adapted FLESCH index} = -84.6 \times (\text{number of syllables} / \text{number of words}) - 1.015 \times (\text{number of words} / \text{number of sentences}) + 248.835$$

While we acknowledge that other channels may also be used for disclosure, we chose these metrics because firms that have significant events affecting their results tend to use the notes to explain the financial impact of such events. Thus, our premise is that firms that choose to overload their disclosures will also do so in the notes.

2.3 Cost of Equity Capital

Several studies have explored factors that can impact the cost of equity capital. For instance, Hail and Leuz (2007) analyzed international variations across 40 countries, Dhaliwal et al. (2011) examined the relationship with corporate social responsibility (CSR), Gonçalves et al. (2013) studied the level of disclosure of social responsibility reports among Brazilian firms, Dhaliwal et al. (2016) focused on the customer concentration risk, and Ke (2022) explored the impact of the COVID-19 pandemic, among many others.

Some studies have mathematically demonstrated that higher information quality leads to a lower cost of equity capital (e.g., Leuz & Verrecchia, 2005; Lambert et al., 2007; Habib et al., 2019). Lambert et al. (2007) specifically found that accounting information quality can directly and indirectly influence the cost of capital by shaping market participants' perceptions of cash flow distribution and impacting decisions that alter future cash flow distribution.

In the Brazilian context, Nardi et al. (2009) could not establish a clear relationship between earnings management and the cost of equity capital. While this relationship can vary, in general, higher information quality tends to correlate with a lower cost of capital. Similarly, in an analysis of IFRS adoption in Australia, Habib et al. (2019) found that IFRS reduced information quality, which increased the cost of equity capital.

Numerous studies have found a negative relationship between the level of disclosure and the cost of equity capital (e.g., Francis et al., 2005; Botosan, 1997; Botosan, 2006; Francis et al., 2008; Dhaliwal et al., 2011; Embong et al., 2012; Yamani et al., 2021). Botosan (2006) proposed two theoretical research streams that support this idea: reduced investor estimation risk and reduced information asymmetry and/or transaction costs.

In Brazil, there is no consensus on this issue. Alencar (2005) initially concluded that the level of disclosure has no impact on the cost of capital. However, in subsequent research by Lopes and Alencar (2010), where they developed a Brazilian disclosure index to assess specific components and attributes of the disclosed information, they found the same negative relationship between disclosure volume and the cost of equity capital, mirroring the findings of international studies. This relationship was also found by Gonçalves et al. (2013), who studied the level of social disclosure. In contrast, Silva and Pinheiro (2015) could not find any relationship between these two variables after the adoption of IFRS.

Another research field that has gained attention explores the impact of narrative content on the cost of equity capital (e.g., Athanasakou et al., 2020; Elshandidy & Acheampong, 2021). Athanasakou et al. (2020) examined the relationship between narrative characteristics and the cost of equity capital using a sample of 5,152 observations of UK-listed firms from 2003 to 2014. They hypothesized a U-shaped relationship between these variables and incorporated control variables (beta, leverage, MTB, size, etc.), with the results supporting their hypothesis.

Elshandidy and Acheampong (2021) investigated the connection between the cost of capital and textual hedge disclosure of European banks from 2005 to 2017. Their findings indicated that textual hedge disclosure not only reduced a bank's cost of equity capital, but also its cost of debt, subsequently affecting the cost of capital represented by the WACC (weighted average cost of capital).

Therefore, our research aims to test the following hypotheses:

> H1: Longer financial statements lead to a decrease in the cost of equity capital.
>
> H2: Higher quality financial statements lead to a decrease in the cost of equity capital.

We base our expectations on the premise that as information quality improves, the threshold level of disclosure required by the market decreases and vice versa. This is because the market penalizes risky assets more when information is withheld compared to when information is available (Verrecchia, 1990). Consequently, the market is likely to demand less disclosure when information quality is high.

Francis et al. (2008) found a negative relationship between the level of voluntary disclosure and the cost of equity capital, but when they included a variable for earnings quality, the negative relationship disappeared. This leads us to test the following hypothesis:

> H3: The quality of financial statements is more significant than the volume of information in determining the cost of equity capital.

As mentioned by Botosan (2006), the cost of equity capital is an expected amount and therefore not directly observable. The Capital Asset Pricing Model (CAPM) is commonly used in the literature to estimate the cost of equity capital, despite criticisms regarding its ability to effectively explain returns, since the risk premium is inferred ex post (Gode & Mohanram, 2003; Botosan, 2006; Lopes & Alencar, 2010). However, it provides us with a substantial dataset, since its components are readily available in databases for Brazilian data. The use of the CAPM is consistent with previous studies conducted in the Brazilian market (Alencar, 2005; Gonçalves et al., 2013; Silva & Pinheiro, 2015; Gatsios et al., 2016; Manoel et al., 2016).

In order to estimate the cost of equity capital using the CAPM, we first calculated the beta following the methodology proposed by Fama and French (2007). This involved calculating the covariance of a firm's returns (R_i) with the market returns (R_M), divided by the variance of the market returns (Equation 1).

$$\beta_{iM} = \frac{cov(R_i, R_M)}{\sigma^2(R_M)} \quad [1]$$

We then used this beta value in Equation 2 to calculate the cost of equity capital (ks):

$$ks_i = R_F + \beta_{iM}(R_M - R_F) \quad [2]$$

where R_F is a risk-free rate, for which we used the Selic rate (Sistema Especial de Liquidação e de Custódia).

Previous studies (Hail & Leuz, 2006; Dhaliwal et al., 2011; Dhaliwal et al., 2016; Ghoul et al., 2016; Athanasakou et al., 2020; Elshandidy & Acheampong, 2021; Ke, 2022) have also measured the implicit cost of equity capital as the average of some or all of the following estimates: Claus and Thomas (2001), Gerbhardt et al. (2001), Ohlson and Juettner-Nauroth (2005), and Easton (2004).

In our research, as an additional method for the cost of equity, we chose to use only the model presented by Easton (2004) because it is better suited to Brazilian data. This is because other models would require a longer time series, resulting in even more significant data loss compared to the CAPM. As argued by Lopes and Alencar (2010), Brazil has a shorter time series of historical information and high volatility in market activity. Therefore, following the approach taken by these authors and others (e.g., Francis et al., 2005; Habib et al., 2019), we opted for the model based on accounting variables.

Hail and Leuz (2005) found that Easton's model provides a proxy for the cost of equity capital that is consistent with the other models we have mentioned, and Dhaliwal et al. (2011) tested all models separately and found similar results. Additionally, this model is less likely to be affected by accounting differences compared to models that rely on forecasted book values (Gode & Mohanram, 2003), which allows us to compare our results with foreign studies.

Easton (2004) introduces a modified price/earnings-to-growth ratio (PEG) to estimate the cost of equity capital, which is expressed by the following model:

$$ks_{MPEG} = \frac{dps_{t+1}}{2P_0} + \sqrt{\left(\frac{dps_{t+1}}{2P_0}\right)^2 + \frac{eps_{t+2} - eps_{t+1}}{P_0}} \quad [3]$$

where P_0 is the price per share at the current date, dps_{t+1} is the analysts' dividends per share forecast for the following year, eps_{t+1} is the average of the analysts' earnings per share forecast for one year ahead, and eps_{t+2} is the same average for two years ahead. However, one limitation of this model is that it requires a positive change in the predicted earnings per share that includes reinvested dividends to obtain a numerical solution.

3. RESEARCH DESIGN AND SAMPLE

The summarized model for this research is presented as follows:

$$ks_{it} = \alpha + \beta_1 WORDS_{it} + \beta_2 FLESCH_{it} + \beta_3 SMO_{it} + \beta_4 ACC_{it} + \beta\, Controls_{it} + \mu \quad [4]$$

where ks is the cost of equity capital for company i at the end of year t, WORDS is the natural logarithm of the number of words presented to the CVM as notes to the financial statements of company i at the end of year t, FLESCH is the natural logarithm of the Flesch index adapted to Portuguese as in Equation 1 for company i's notes to its financial statements at the end of year t, SMO is the absolute change in net income divided by the change in operating cash flows of company i at the end of year t, and ACC is the absolute accruals calculated as the net income minus operating cash flows scaled by total assets of company i at the end of year t. To measure the cost of equity (ks), we used the CAPM and Easton's (2004) modified PEG.

To account for left-skewed values, we applied the natural logarithm to our dependent variable when calculated using the modified PEG ratio (mPEG). We also followed Li's (2008) approach to measure words and applied the natural logarithm of the number of words due to its skewness across firms and extreme values. We applied the same approach for the Flesch index, given its inherent positive values.

All data related to our dependent and control variables, as well as information quality, were obtained from Eikon Refinitiv. The notes used in our analysis were obtained from the companies' websites or the B3 (the Brazilian Stock Exchange), when available. It should be noted that the notes analyzed were presented by the companies in PDF format. To process them, we used a Python script to convert them into text files (.txt) and subsequently performed the count of the numbers of words, syllables, and sentences.

As a proxy for the number of syllables, we employed a vowel counting method, and for the number of sentences, we relied on punctuation counting (including periods, exclamation marks, question marks, etc.). Due to this last proxy, we had to exclude numbers from the analysis because in Brazil, periods are also used as thousands separators.

Some firms benefit from reducing information asymmetry, which incentivizes them to find ways to mitigate this issue (Ang & Cheng, 2011). Thus, certain characteristics of firms may affect both the dependent and independent variables, causing endogeneity through omitted variable bias. To address the possible effects of other factors that may impact the cost of equity capital, we included controls, which are presented in Table 1.

Table 1
Operationalization of control variables

Variable	Operationalization	References
Size	Logarithm of total assets	Francis, Khurana & Pereira (2005) Francis, Nanda, & Olsson (2008) Lopes & Alencar (2008) Silva (2013) Gonçalves et al. (2013) Silva & Pinheiros (2015) Manoel, Eça, & Moraes (2016) Gatsios et al. (2016) Habib, Bhuiyan, & Hasan (2019) Athanasakou et al. (2020) Yamani, Hussainey, & Albitar (2021) Elshandidy & Acheampong (2021)
Leverage (LEV)	Total liabilities divided by total assets	Francis, Khurana, & Pereira (2005) Dhaliwal et al. (2011) Ghoul, Guedhami, & Pittman (2016) Manoel, Eça, & Moraes (2016) Habib, Bhuiyan, & Hasan (2019) Elshandidy & Acheampong (2021)
Beta	The covariance of the stock price in relation to the market price	Gode & Mohanram (2003) Hail & Leuz (2006) Lopes & Alencar (2008) Francis, Nanda, & Olsson (2008) Dhaliwal et al. (2011) Rover (2013) Dhaliwal et al. (2016) Habib, Bhuiyan, & Hasan (2019) Athanasakou et al. (2020) Ke (2022)
MB	Market to book ratio	Alencar (2005) Gode & Mohanram (2003) Francis, Khurana, & Pereira (2005) Dhaliwal et al. (2011) Athanasakou et al. (2020) Yamani, Hussainey, & Albitar (2021)

Table 1
Cont.

Variable	Operationalization	References
Growth	Percentage growth in revenue	Lopes & Alencar (2008) Manoel, Eça, & Moraes (2016) Habib, Bhuiyan, & Hasan (2019)
COVID	An indicator variable equal to 1 if 2020 or 2021 and 0 otherwise	Ke (2022)
ADR	An indicator variable equal to 1 if the firm has American Depositary Receipt (ADR) and 0 otherwise	Alencar (2005) Lopes & Alencar (2008) Rover (2013) Silva (2013) Gonçalves et al. (2013)

Source: *Prepared by the authors.*

The original sample for this study consisted of 363 non-financial firms operating in Brazil (4,313 observations) that provided information to the CVM between 2011 and 2021.

To ensure the robustness of our analysis, we took measures to address potential liquidity that could impact our model specifications based on market data. This involved the removal of observations with missing values and those lacking price quotes. As a result, we obtained an unbalanced panel dataset consisting of 1,347 firm-year observations for the CAPM model and 434 for the model based on Easton's (2004) modified PEG ratio.

The distribution of observations across years for both models is presented in Table 2.

Table 2
Distribution of observations across years

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total
Panel A – CAPM												
Observations	73	82	103	110	116	125	129	150	149	156	154	**1,347**
In %	5.4	6.1	7.6	8.2	8.6	9.3	9.6	11.1	11.1	11.6	11.4	**100**
Panel B – Modified PEG ratio												
Observations	19	25	30	43	43	31	41	42	40	72	48	**434**
In %	4.4	5.8	6.9	9.9	9.9	7.1	9.4	9.7	9.2	16.6	11.1	**100**

Source: *Prepared by the authors.*

One of the main limitations of our study is the limited availability of certain data points for Brazilian firms in databases such as Eikon Refinitiv and Capital IQ. This limitation primarily affected variables that required data not fully disclosed in these databases. Despite our efforts to cross-reference multiple sources, we encountered challenges in obtaining comprehensive data.

While we explored multiple databases, including Capital IQ, for potential data supplementation, we ultimately decided to maintain consistency by using the Eikon Refinitiv dataset throughout our analysis. This decision was driven by the need to ensure uniformity in data sources given the different data organization structures between databases. We also lost data in cases where the PDF only contained information in figure format, or when there was an error when copying text for analysis.

It is important to note that some PDF documents presented challenges for data extraction due to their formatting. In instances where information was presented solely in figure format, or where copying text resulted in errors, data loss occurred.

4. RESULTS

Table 3 presents descriptive statistics for the main variables and controls in our study.

Table 3
Descriptive statistics

	N.	Mean	Standard Deviation	Minimum	Median	Maximum
Dependent variables						
CAPM	1,347	0.09	0.09	-0.65	0.09	0.90
mPEG	434	-1.66	0.64	-3.65	-1.67	1.06
Quantity estimates						
WORDS	1,347	9.78	0.63	6.76	9.86	11.47
FLESCH	1,347	2.68	0.50	-0.93	2.72	3.98
Quality estimates						
SMO	1,347	370.62	3,639.47	0.00	1.62	84,378.9
ACC	1,347	2.33	21.26	0.00	0.88	510.11
Control variables						
SIZE	1,347	22.03	1.81	15.60	21.97	27.62
LEV	1,347	1.10	4.57	0.00	0.59	70.37
MB	1,347	1.60	4.46	-44.54	0.89	65.04
BETA	1,347	-0.03	0.86	-5.98	0.01	4.25
GROWTH	1,347	0.29	3.69	-9.16	0.08	126.49
COVID	1,347	0.23		0	0	1
ADR	1,347	0.23		0	0	1

Note: *Only the mPEG ratio is presented using the number of observations available for this model. CAPM is the cost of equity capital, calculated according to the model of the same name. mPEG is the natural logarithm of the cost of equity capital, calculated according to the modified PEG ratio of Easton (2004). WORDS is the natural logarithm of the number of words presented to the CVM as notes to the financial statements. FLESCH is the natural logarithm of the Flesch readability index. SMO is the absolute change in net income scaled by the change in operating cash flows. ACC is the absolute accruals, calculated as net income minus operating cash flows, scaled by total assets. SIZE is the logarithm of total assets. LEV is total liabilities divided by total assets. MB is the market-to-book ratio. BETA is the covariance of the stock price in relation to the market. GROWTH is the percentage growth in revenue. COVID is an indicator variable equal to 1 if the year is 2020 or 2021, and 0 otherwise. ADR is an indicator variable equal to 1 if the firm has an ADR, and 0 otherwise.*
Source: *Prepared by the authors.*

The cost of equity capital as measured by the CAPM and the two quality variables exhibit higher variability, as do leverage, market-to-book, beta, and growth. This is to be expected given that we are studying a diversified group of firms over an eight-year time series.

It is worth noting that before the log transformation of the WORDS variable, the average was 20,914.45 words, with a standard deviation of 11,629.20 and a median of 19,173. The smallest file in the sample had 860 words, while the largest had 95,465. Similarly, the Flesch index before transformation had a mean of 16.20 and a median of 15.25, which means that most firms had disclosures that were difficult to understand. This shows that the sample includes quite diverse companies.

As larger firms may attract more and better diversified groups of shareholders with greater risk tolerance, they tend to be less subject to discounting. Verrecchia (2001) suggests that higher quality information may be positively related to greater disclosure for larger firms than for smaller ones. This is consistent with the findings of Iturriaga and Hoffmann (2005) and Silva et al. (2015), who found that size, leverage, and variations in revenue can impact earnings management. Ang and Cheng (2011) found that low cash, high leverage, and high asset growth are associated with high levels of total communication. Therefore, our model could potentially suffer from multicollinearity issues. To check this, we first analyzed the pairwise correlations of the variables, which are presented in Table 4.

Table 4
Pearson correlation matrix of continuous variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) CAPM	1										
(2) mPEG	0.027	1									
(3) WORDS	0.025	-0.000	1								
(4) FLESCH	0.018	-0.018	0.274***	1							
(5) SMO	-0.017	-0.032	-0.000	-0.006	1						
(6) ACC	0.001	-0.058	-0.159***	-0.038	-0.010	1					
(7) SIZE	0.002	0.130***	0.688***	0.206***	0.054**	-0.264***	1				
(8) LEV	0.025	0.051	-0.165***	0.013	0.003	0.469***	-0.318***	1			
(9) MB	-0.026	-0.355***	0.032	0.024	-0.005	-0.035	0.049	-0.038	1		
(10) BETA	-0.029	0.062	0.029	0.034	-0.020	-0.016	0.030	-0.079***	-0.036	1	
(11) GROWTH	-0.016	0.102**	-0.074***	0.006	-0.002	0.005	-0.062**	0.005	-0.001	-0.010	1

Note: ** p < 0.10; ** p < 0.05; *** p < 0.01.*
CAPM is the cost of equity capital, calculated according to the model of the same name. mPEG is the natural logarithm of the cost of equity capital, calculated according to the modified PEG ratio of Easton (2004). WORDS is the natural logarithm of the number of words presented to the CVM as notes to the financial statements. FLESCH is the natural logarithm of the Flesch readability index. SMO is the absolute change in net income scaled by the change in operating cash flows. ACC is the absolute accruals, calculated as net income minus operating cash flows, scaled by total assets. SIZE is the logarithm of total assets. LEV is total liabilities divided by total assets. MB is the market-to-book ratio. BETA is the covariance of the stock price in relation to the market.
Source: *Prepared by the authors.*

As expected, the variables for information quality (ACC) and volume (FLESCH) are significantly but not highly correlated, indicating that these concepts might be distinct. We did find a moderate correlation between size and number of words (WORDS), which is reasonable given that larger firms tend to have more transactions and higher complexity, requiring more information. The same was true for the Flesch index, which was correlated with size. Interestingly, we found a high negative correlation between the cost of equity capital (mPEG) and the market-to-book ratio (MB), suggesting that higher MB values may lead to lower ks.

We performed a Variance Inflation Factor (VIF) test to detect multicollinearity among the variables, and the results for the CAPM model indicated that the highest VIF was 2.88, which is below the critical threshold of 5. Moreover, the mean VIF was 1.42, indicating that the variables were not highly correlated and that multicollinearity was not a significant concern in our analysis. The test for the PEG ratio model presented the same results (highest VIF of 2.59 and mean VIF of 1.34).

To further investigate the relationships among these variables, we used panel data with firm fixed effects. Our results, presented in Table 5, use cluster-robust standard errors.

Table 5
Fixed effects panel regressions with robust standard errors for cost of equity capital on information quantity and quality

	Full – CAPM (1)	Full – mPEG (2)	Quantity – CAPM (3)	Quantity – mPEG (4)	Quality – CAPM (5)	Quality – mPEG (6)
WORDS	0.0026	-0.0673	0.002	-0.0852		
	(0.016)	(0.203)	(0.016)	(0.202)		
FLESCH	0.0003	-0.0265	0.0004	-0.0315		
	(0.007)	(0.098)	(0.007)	(0.098)		
SMO	-0.0000**	-0.0000*			-0.0000**	-0.0000*
	(0.000)	(0.000)			(0.000)	(0.000)
ACC	-0.0002***	0.0129			-0.0002***	0.0135
	(0.000)	(0.051)			(0.000)	(0.051)
SIZE	-0.0138*	-0.0678	-0.0129*	-0.0793	-0.01338**	-0.0757
	(0.007)	(0.103)	(0.007)	(0.111)	(0.007)	(0.095)

Table 5
Cont.

	Full – CAPM (1)	Full – mPEG (2)	Quantity – CAPM (3)	Quantity – mPEG (4)	Quality – CAPM (5)	Quality – mPEG (6)
LEV	0.0036***	0.1099	0.0041***	-0.0880	0.0036***	0.1065
	(0.001)	(0.373)	(0.001)	(0.365)	(0.001)	(0.367)
MB	-0.0001	-0.0316**	-0.0000	-0.0318**	-0.0000	-0.0314**
	(0.001)	(0.015)	(0.001)	(0.015)	(0.001)	(0.015)
BETA	0.0064**	0.0019	0.0064**	0.0031	0.0064**	0.0003
	(0.003)	(0.045)	(0.003)	(0.045)	(0.003)	(0.045)
GROWTH	-0.0002	0.0278***	-0.0002	0.0277***	-0.0002	0.0268***
	(0.000)	(0.009)	(0.000)	(0.009)	(0.000)	(0.010)
COVID	-0.0351***	-0.0019	-0.0358***	0.0098	-0.0349***	-0.0037
	(0.006)	(0.085)	(0.006)	(0.085)	(0.006)	(0.856)
ADR	-0.0098	-0.2141*	-0.0087	-0.1728	-0.0094	-0.2260*
	(0.021)	(0.123)	(0.020)	(0.133)	(0.021)	(0.125)
Constant	0.3785**	0.7212	0.3621**	1.1716	0.3964***	0.1611
	(0.182)	(2.253)	(0.181)	(2.384)	(0.147)	(2,128)
Observations	1,347	434	1,347	434	1,347	434
R^2	0.037	0.057	0.036	0.050	0.037	0.056
Adjusted R^2	0.029	0.032	0.029	0.030	0.031	0.036
Fixed Effect	Firm	Firm	Firm	Firm	Firm	Firm

Note: ** p < 0.10; ** p < 0.05; *** p < 0.01.*
CAPM is the cost of equity capital, calculated according to the model of the same name. mPEG is the natural logarithm of the cost of equity capital, calculated according to the modified PEG ratio of Easton (2004). WORDS is the natural logarithm of the number of words presented to the CVM as notes to the financial statements. FLESCH is the natural logarithm of the Flesch readability index. SMO is the absolute change in net income scaled by the change in operating cash flows. ACC is the absolute accruals, calculated as net income minus operating cash flows, scaled by total assets. SIZE is the logarithm of total assets. LEV is total liabilities divided by total assets. MB is the market-to-book ratio. BETA is the covariance of the stock price in relation to the market. GROWTH is the percentage growth in revenue. COVID is an indicator variable equal to 1 if the year is 2020 or 2021, and 0 otherwise. ADR is an indicator variable equal to 1 if the firm has an ADR, and 0 otherwise.
Source: *Prepared by the authors.*

We also applied industry fixed effects and found that the coefficients and significances remained similar. The main difference is based on the full modified PEG model, where the absolute accruals variable lost its significance (p-value of 0.801).

Our study found that the quality variables were the only variables of interest that presented significant results, indicating that we cannot reject our hypothesis H3 that information quality is more important than volume for the cost of equity capital. However, it is important to note that the economic significance of these quality variables was relatively low.

We expected the sign of SMO to be negative, which was confirmed, given that lower levels of this variable indicate more income smoothing and, consequently, worse information quality and a higher cost of equity capital. These findings are consistent with previous research (Leuz & Verrecchia, 2005; Lambert et al., 2007; Habib et al., 2019).

On the other hand, we expected ACC to be positive because lower values of this variable indicate a lower probability of earnings management, which should reduce the cost of equity capital. However, while the sign of the income smoothing variable supports our hypothesis (H2), the accruals variable is negative, indicating that lower accruals may have a positive impact on the cost of equity capital. However, this result does not hold for the modified PEG ratio models, since ACC was not significant, as found by Athanasakou et al. (2020).

The lack of significance of the variable for disclosure volume in explaining the cost of equity capital was unexpected considering the literature (Francis et al., 2005; Botosan, 1997; Botosan, 2006; Dhaliwal et al., 2011; Embong et al., 2012; Yamani et al., 2021).

Francis et al. (2008) found that in the presence of their earnings quality variable, their disclosure volume variable became non-significant. To further test our hypothesis, we used models 3 to 6 and could not find any change in the results. Therefore, our evidence indicates that the amount of information is irrelevant in explaining the cost of equity capital (rejecting H1), while H2 holds, implying that higher quality financial information leads to a lower cost of equity capital. Similar to Francis et al. (2008) reasoning, we could understand that it is not how much information is disclosed that matters, but rather specific aspects of its quality.

One possible reason why the number of words was not significant in explaining the cost of equity capital in our study is the relationship between data availability and file length. Brazilian firms that have data in databases such as Eikon Refinitiv tend to present more information, possibly because of their interest in the capital markets. This could be supported by the fact that among the observations we studied, the company with the smallest number of words in its notes still had a file with 860 words for the sample of 1,347 observations and 8,490 words for the sample of 434 observations.

In addition, previous studies that have found significance in disclosure volume (Francis et al., 2005; Botosan, 1997; Francis et al., 2008; Dhaliwal et al., 2011; Yamani et al., 2021) have typically measured it as a checklist of certain information that firms present, effectively analyzing information content rather than volume.

Another possible reason for the insignificance of this variable is the variety of reasons why a company may present more or less information. These reasons may be firm-specific and difficult to control for. For instance, some companies may choose to present more information to avoid litigation, while others may disclose more to conceal negative information. Some companies may use financial standards as checklists or even to improve disclosure. It is also possible that companies use a combination of these reasons to choose the level of disclosure. The impact on the cost of capital for each of these reasons would differ, resulting in an average impact of zero.

4.1 Robustness Analysis

There are various alternatives available in the literature to calculate both the quality and quantity of information. Quality can also be measured by timely loss recognition, as seen in previous studies (Barth et al., 2006; Barth et al., 2008; Chen et al., 2010; Christensen et al., 2015). This can be done by using the frequency of large negative net income as an indicator variable. However, we chose not to include the frequency of large negative net income as an indicator variable due to its low prevalence in our sample (less than 7%). This omission aimed to prevent potential bias that could arise from a lack of variability in this variable.

We also considered using small positive net income (SPOS) as an alternative quality measure, which is an indicator variable that equals 1 if net income scaled by total assets is between 0 and 0.01, as in previous research (e.g., Barth et al., 2006; Barth et al., 2008). However, including SPOS in our models 1, 2, 5, and 6 of Table 5 did not change the significance of any other variable. This is also the case when SPOS is the only variable for quality in our models.

We also measured accruals according to Richardson et al. (2005), where:

$$\text{Accruals}_t = \text{Accrual Earnings}_t - \text{Cash Earnings}_t \quad (5)$$

Considering that:

$$\text{Accrual Earnings}_t = \text{Change in Assets}_t - \text{Change in Liabilities}_t + \text{Net Cash Distributions to Equity}_t \quad (6)$$

$$\text{Cash Earnings}_t = \text{Change in Cash}_t + \text{Net Cash Distributions to Equity}_t \quad (7)$$

then:

$$\text{Accruals}_t = \text{Change in Net Equity}_t - \text{Change in Cash}_t \quad (8)$$

Total accruals were alternatively measured as in Equation 8 and scaled by total assets. The main difference between this measure and the one we originally used is that it includes other comprehensive income (OCI). For the modified PEG ratio model, our results remained the same. However, the sign changed for the CAPM model and became positive, indicating that a higher level of accruals leads to higher cost of equity capital, which is

consistent with previous literature; on the other hand, the income smoothing variable became non-significant.

Applying the three accrual categories deflated by total assets of Richardson et al. (2005) separately, we lost 89 observations, but the results showed that the change in non-current operating assets and the change in financial assets are positive and significant to explain the cost of equity capital in the CAPM model, but not significant for the mPEG model.

Even though our results changed their signs, the variables remained significant, indicating that quality affects the cost of equity capital while quantity does not. This change might be caused by the lower reliability of the accruals included in the alternative metric. It is not the goal of our research to investigate the impact of OCI on the cost of equity capital, but further research should look into this.

Another option to measure quality is through the Jones (1991) model modified by Dechow et al. (1995) (Chen et al., 2010). Discretionary accruals can be defined as the subtraction of non-discretionary accruals from total accruals. Dechow et al. (1995) analyzed alternative accruals-based models to detect earnings management and showed that the modified version of the model developed by Jones (1991) had greater power to detect earnings management.

To measure earnings management, we followed previous studies (Jones, 1991; Dechow et al., 1995; Francis et al., 2008; Chen et al., 2010) and used the absolute number of discretionary accruals (DA) as a proxy. The underlying assumption is that companies with less earnings management will have better accounting information. However, due to data availability constraints, the sample size of our CAPM as the cost of equity capital model was reduced to 851 firm-year observations and the modified PEG ratio model was reduced to 339 firm-year observations. As a result, our analysis includes a subset of observations, which may have implications for the generalizability of our additional findings.

For the full model, the income smoothing variable remained significant and negative, with low economic significance. However, DA was not significant in both the CAPM and modified PEG ratio as the cost of equity capital models. The same was true for the models without the information volume variables.

When we replaced ACC and SMO with DA, the results for the quantity variable remained unchanged. However, we did not find any significant effect of quality (t-statistics of -0.72 for the full CAPM model and -1.00 for the mPEG model), which could be attributed to the loss of 37% of the sample, as mentioned above.

Decision makers have a limited ability to integrate information into their decisions, which follows an inverted U curve. As the amount of input information provided increases, the amount of information that decision makers integrate into their decision outputs also rises. However, beyond a certain maximum processing level, further increases in the amount of information provided reduce the amount of information integrated into decision makers' decision outputs (Chewning Jr. & Harrell, 1990; Stocks & Harrell, 1995; Hwang & Lin, 1999; Athanasakou et al., 2020).

To test for the documented U-shaped relationship between financial narratives and information usage, we used the raw number of words divided by 1,000, the Flesch index, and their squared forms as proxies for disclosure volume in models 1 to 4. However, we did not observe any significant change for the proxy for disclosure volume or information quality.

Initially, we did not follow the approach suggested by Loughran and McDonald (2014) because file size can be influenced by text formatting, figures, headers, etc. However, we later tested our models using the natural logarithm of file size, measured in bytes, as a length proxy to ensure that our results were not affected by these factors. We analyzed the size of the .txt files. We found that the results remained unchanged, with similar coefficients and standard errors, as the word count and file size variables were highly correlated (Pearson's correlation of 0.997, prior to the log transformations).

We conducted additional tests to investigate how the cost of equity capital was affected by the COVID-19 pandemic. We analyzed whether including only the year 2020 as a control would impact our results since the COVID variable was significant but negative in our CAPM models. Our results remained the same for our variables of interest, only changing the significance of some control variables (i.e., leverage and beta were no longer significant in all CAPM models).

According to Athanasakou et al. (2020), new regulatory initiatives could lead to an unintended overload in annual reports, as firms may be unable to identify the optimal level of disclosure upon initial adoption. These authors suggest that in the absence of normative guidelines on what to exclude, firms tend to include a long checklist of items in their annual reports. In 2014, the CPC issued Guidance 07 (OCPC 07) to assist companies in complying with disclosure requirements.

This guidance highlighted that information overload could hinder the ability of financial statement users to make appropriate decisions.

We added an indicator variable to our model to control for the years from 2011 to 2014, the period prior to the issuance of OCPC 07. Even though this variable was significant in the CAPM models, the results of the other variables remained as in Table 5. Further research is needed to fully understand the impact of OCPC 07 on reducing information overload in annual reports.

5. CONCLUSION

Several studies have already examined the effects of the quality and quantity of accounting information on the cost of equity capital, but few have analyzed both simultaneously. In our research, we investigated the impact of information quality and quantity on the cost of equity capital of Brazilian companies listed on the B3 from 2011 to 2021.

We employed various methodologies to calculate quality and quantity, and the results remained consistent across different approaches. Using a panel data approach, our results highlighted that income smoothing emerged as a significant factor in all models where it was included. In contrast, the volume of information did not have a significant impact, and the level of accruals was not as consistent as income smoothing, as different metrics showed different significance and/or signs.

Our results support the notion that the cost of equity capital is primarily influenced by specific aspects of accounting and financial information quality, while the quantity of information has a lesser or potentially negligible impact. Thus, we conclude that high quality information takes precedence over a greater quantity of information in influencing the cost of equity capital.

The implications of our study extend to both accounting research and practical application. Our results challenge prior research that found a relationship between information volume and the cost of equity capital. However, considering that these prior studies did not include information quality as a control variable, it is possible that their results might have differed. This underscores the need for further research in this area.

Furthermore, our research has implications for regulators and companies alike. The absence of a significant impact of large volumes of information, at least on the cost of equity capital, suggests that a greater emphasis should be placed on improving information quality, rather than merely meeting standard requirements. Our findings are consistent with the objectives of OCPC 07, which emphasize the importance of enhancing information quality, rather than treating standard requirements as mere checklists.

Enhancing information quality not only empowers investors to make more informed decisions, but also fosters market efficiency by reducing information asymmetry.

REFERENCES

Ahmed, A., Neel, M., & Wang, D. (2013). Does Mandatory Adoption of IFRS Improve Accounting Quality? Preliminary Evidence. *Contemporary Accounting Research, 30*(4), pp. 1344-1372. doi:https://doi.org/10.1111/j.1911-3846.2012.01193.x

Albanez, T. (2015). Impact of the cost of capital on the financing decisions of Brazilian companies. *International Journal of Managerial Finance, 11*(3), pp. 285-307. doi:10.1108/IJMF-02-2014-0026

Alencar, R. C. (2005). Custo do Capital Próprio e Nível de Disclosure nas Empresas Brasileiras. *BBR – Brazilian Business Review, 2*(1), pp. 1-12.

Ang, J., & Cheng, Y. (2011). The endogeneity of information asymmetry and corporate financing decisions. *The Journal of Financial Research, 34*(3), pp. 411-440.

Athanasakou, V., Eugster, F., Schleicher, T., & Walker, M. (2020). Annual Report Narratives and the Cost of Equity Capital: U.K. Evidence of a U-shapped Relation. *European Accounting Review, 29*(1), pp. 27-54. doi:https://doi.org/10.1080/09638180.2019.1707102

Barth, M. E., Landsman, W. R., & Lang, M. H. (2008). International accounting standards and accounting quality. *Journal of Accounting Research, 46*(3), 467-498.

Barth, M. E., Landsman, W. R., Lang, M. H., & Williams, C. (2006). Accounting Quality: International Accounting Standards and US GAAP. *Working Chapter*.

Botosan, C. A. (1997). Disclosure Level and the Cost of Equity Capital. *The Accounting Review, 72*(3), pp. 323-349. Retrieved from https://www.jstor.org/stable/248475

Botosan, C. A. (2006). Disclosure and the cost of capital: what do we know? *Accounting and Business Research, 36*(1), pp. 31-40. doi:https://doi.org/10.1080/00014788.2006.9730042

Chen, H., Tang, Q., Jiang, Y., & Lin, Z. (2010). The Role of International Financial Reporting Standards in Accounting

Quality: Evidence from the European Union. *Journal of International Financial Management and Accounting, 21*(3), pp. 220-278.

Chewning Jr, E., & Harrell, A. (1990). The effect of information load on decision makers' cue utilization levels and decision quality in a financial distress decision task. *Accounting, Organizations and Society, 15*(6), pp. 527-542.

Christensen, H., Lee, E., Walker, M., & Zeng, C. (2015). Incentives or Standards: What Determines Accounting Quality Changes around IFRS Adoption? *European Accounting Review, 24*(1), pp. 31-61.

Claus, J., & Thomas, J. (2001). Equity Premia as Low as Three Percent? Evidence from Analysts' Earnings Forecasts for Domestic and International Stock Markets. *The Journal of Finance, 56*(5), pp. 1629-1666.

Comitê de Pronunciamentos Contábeis – CPC. (2014, Setembro 26). *Orientação Técnica OCPC 07 – Evidenciação na Divulgação dos Relatórios Contábil-Financeiros de Propósito Geral.* Retrieved from CPC website: http://www.cpc.org.br/CPC/Documentos-Emitidos/Orientacoes/Orientacao?Id=95

Dechow, P., Sloan, R., & Sweeney, A. (1995). Detecting earnings management. *The Accounting Review, 70*(2), pp. 193-225.

Dhaliwal, D., Judd, J., Serfling, M., & Shaikh, S. (2016). Customer concentration risk and the cost of equity capital. *Journal of Accounting and Economics, 61*, pp. 23-48.

Dhaliwal, D., Li, O., Tsang, A., & Yang, Y. (2011). Voluntary Nonfinancial Disclosure and the Cost of Equity Capital: The Initiation of Corporate Social Responsibility Reporting. *The Accounting Review, 86*(1), pp. 59-100. doi:10.2308/accr.00000005

Easton, P. D. (2004). PE Ratios, PEG Ratios, and Estimating the Implied Expected Rate of Return on Equity Capital. *The Accounting Review, 79*(1), pp. 73-95.

Elshandidy, T., & Acheampong, A. (2021). Does hedge disclosure influence cost of capital for European banks? *International Review of Financial Analysis, 78*, pp. 1-23. doi:https://doi.org/10.1016/j.irfa.2021.101942

Embong, Z., Mohd-Saleh, N., & Hassan, M. (2012). Firm size, disclosure and cost of equity capital. *Asian Review of Accounting, 20*(2), pp. 119-139. doi:10.1108/13217341211242178

Fama, E., & French, K. (2007). The Capital Asset Pricing Model theory And evidence. *Journal of Economic Perspectives, 18*(3), pp. 25-46.

Francis, J., Khurana, I., & Pereira, R. (2005). Disclosure Incentives and Effects on Cost of Capital around the World. *The Accounting Review, 80*(4), pp. 1125-1162.

Francis, J., Nanda, D., & Olsson, A. (2008). Voluntary Disclosure, Earnings Quality, and Cost of Capital. *Journal of Accounting Research, 46*(1), pp. 53-99. doi:10.1111/j.1475-679X.2008.00267.x

Gatsios, R., Silva, J., Ambrozini, M., Assaf Neto, A., & Lima, F. (2016). Impact of adopting IFRS standard on the equity cost of Brazilian open capital companies. *Revista de Administração Mackenzie, 17*(4), pp. 85-108. doi:http://dx.doi.org/10.1590/1678-69712016/administracao.v17n4p84-107

Gebhardt, W., Lee, C., & Swaminathan, B. (2001). Toward an Implied Cost of Capital. *Journal of Accounting Research, 39*(1), pp. 138-176.

Ghoul, S., Guedhami, O., & Pittman, J. (2016). Cross-country evidence on the importance of Big Four auditors to equity pricing: The mediating role of legal institutions. *Accounting, Organizations and Society, 54*, pp. 60-81. doi:http://dx.doi.org/10.1016/j.aos.2016.03.002

Gode, D., & Mohanram, P. (2003). Inferring the Cost of Capital Using the Ohlson–Juettner Model. *Review of Accounting Studies, 8*, pp. 399-431.

Gonçalves, R., Medeiros, O., Niyama, J., & Weffort, E. (n.d.). Social Disclosure e Custo de Capital Próprio em Companhias Abertas no Brasil. *Revista Contabilidade & Finanças, 24*(62), pp. 113-124. doi:https://doi.org/10.1590/S1519-70772013000200003

Habib, A., Bhuiyan, M., & Hasan, M. (2019). IFRS adoption, financial reporting quality and cost of capital: a life cycle perspective. *Pacific Accounting Review, 31*(3), pp. 497-522. doi:10.1108/PAR-08-2016-0073

Hail, L., & Leuz, C. (2006). International Differences in the Cost of Equity Capital: Do Legal Institutions and Securities Regulation Matter? *Journal of Accounting Research, 44*(3), pp. 485-531.

Hwang, M., & Lin, J. (1999). Information dimension, information overload and decision quality. *Journal of Information Science, 25*(3), pp. 213-218.

Iturriaga, F., & Hoffmann , P. (2005). Earnings management and internal mechanisms of corporate governance: empirical evidence from Chilean firms. *Corporate Ownership & Control, 3*(1), pp. 17-29.

Jennings, J., Kim, J., Lee, J., & Taylor, D. (2023). Measurement error, fixed effects, and false positives in accounting research. *Review of Accounting Studies*. doi:https://doi.org/10.1007/s11142-023-09754-z

Jones, J. J. (1991). Earnings Management During Import Relief Investigations. *Journal of Accounting Research, 29*(2), pp. 193-228.

Ke, Y. (2022). The impact of COVID-19 on firm's cost of equity capital: Early evidence from U.S. public firms. *Finance Research Letters, 46*, pp. 1-8. doi:https://doi.org/10.1016/j.frl.2021.102242

Lambert, R., Leuz, C., & Verrecchia, R. E. (2007). Accounting Information, disclosure, and the cost of capital. *Journal of Accounting Research, 45*(2), pp. 385-420.

Lassoued, N., & Khanchel, I. (2021). Impact of COVID-19 Pandemic on Earnings Management: An Evidence from Financial Reporting in European Firms. *Global Business Review*, pp. 1-25. doi:10.1177/09721509211053491

Lawrence, A. (2013). Individual investors and financial disclosure. *Journal of Accounting and Economics, 56*, pp. 130-147. doi:https://doi.org/10.1016/j.jacceco.2013.05.001

Leuz, C., & Verrecchia, R. (2005). Firms' Capital Allocation Choices, Information Quality, and the Cost of Capital. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=495363

Li, F. (2008). Annual report readability, current earnings, and earnings persistence. *Journal of Accounting and economics, 45*(2), pp. 221-247. doi:https://doi.org/10.1016/j.jacceco.2008.02.003

Lopes, A., & Alencar, R. (2010). Disclosure and cost of equity capital in emerging markets: The Brazilian case. *The International Journal of Accounting, 45*, pp. 443-464. doi:doi:10.1016/j.intacc.2010.09.003

Loughran, T., & McDonald, B. (2014). Measuring readability in financial disclosures. *The Journal of Finance, 69*(4), pp. 1643-1671.

Manoel, A., Eça, J., & Moraes, M. (2016). Custo do capital próprio em empresas brasileiras do setor sucroenergético: um estudo considerando a adoção das normas internacionais de contabilidade. *Revista Universo Contábil, 12*(2), pp. 17-137. doi:10.4270/ruc.2016217

Martins, T. B., Ghiraldelo, C. M., Nunes, M. G., & Oliveira Junior, O. N. (1996). Readability Formulas Applied to Textbooks in Brazilian Portuguese. *Notas do ICMSC-USP, Série Computação, 28*.

Nardi, P., Silva, R., Nakao, S., & Valle, M. (2009). A relação entre gerenciamento de resultados contábeis e o custo de capital das companhias abertas brasileiras. *5*(4), pp. 06-26. doi:10.4270/ruc.2009428

Ohlson, J., & Juettner-Nauroth, B. (2005). Expected EPS and EPS Growth as Determinants of Value. *Review of Accounting Studies, 10*, pp. 349-365.

Richardson, S., Sloan, R., Soliman, M., & Tuna, I. (2005). Accrual reliability, earnings persistence and stock prices. *Journal of Accounting and Economics, 39*, pp. 437-485. doi:10.1016/j.jacceco.2005.04.005

Rover, S. (2013). *Disclosure socioambiental e custo de capital próprio de companhias abertas no Brasil.* Tese de Doutorado, Universidade de São Paulo, Contabilidade e Atuária, São Paulo.

Silva, A., Pletsch, C., Klann, R., Fasolin, L., & Scarpin, J. (2015). Influence of international accounting convergence on the level of earnings management in both Brazilian and Chilean companies. In I. Lourenço, & M. Major, *Standardization of financial reporting and accounting in Latin American countries* (pp. 195-215). IGI Global.

Silva, D., & Pinheiro, L. (2015). O impacto do nível de disclosure sobre o custo de capital próprio das companhias abertas brasileiras. *Revista de Contabilidade e Organizações, 25*, pp. 73-88. doi:http://dx.doi.org/10.11606/rco.v9i25.97726

Silva, R. L. (2013). *Adoção completa das IFRS no Brasil: Qualidade das demonstrações contábeis e o custo de capital próprio.* Tese de Doutorado, Universidade de São Paulo, Contabilidade e Atuária, São Paulo.

Soderstrom, N., & Sun, K. (2007). IFRS Adoption and Accounting Quality: A Review. *European Accounting Review, 16*(4), pp. 675-702.

Stocks, M., & Harrell, A. (1995). The impact of an increase in accounting information level on the judgement quality of individuals and groups. *Accounting, Organizations and Society, 20*(7/8), pp. 685-700.

Verrecchia, R. E. (1990). Information quality and discretionary disclosure. *Journal of Accounting and Economics, 12*, pp. 365-380.

Verrecchia, R. E. (2001). Essays on disclosure. *Journal of Accounting and Economics, 32*, pp. 97-180.

Yamani, A., Hussainey, K., & Albitar, K. (2021). The impact of financial instruments disclosures on the cost of equity capital. *International Journal of Accounting & Information Management, 29*(4), pp. 528-551. doi:10.1108/IJAIM-02-2021-0052