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Influence of ownership structure on income smoothing in companies listed on B3

Influência da estrutura de propriedade na suavização de resultados em companhias listadas na B3

Influencia de la estructura de propiedad en la suavización de ganancias en empresas que cotizan en B3

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Clademir Teixeira
https://orcid.org/0000-0002-0235-1942
Master's student in Accounting and Administration at the Community University of the Chapecó Region (Unochapecó)
clade_pf@hotmail.com

Fernanda Prigol Valmorbida
https://orcid.org/0000-0002-8784-6935
Master's student in Accounting and Administration at the Community University of the Chapecó Region (Unochapecó)
fernanda.valmorbida@unochapeco.edu.br

Sady Mazzioni
https://orcid.org/0000-0002-8976-6699
Professor at the Community University of the Chapecó Region (Unochapecó)
PhD in Accounting and Administration from the Blumenau Regional University Foundation (FURB)
sady@unochapeco.edu.br

Cristian Baú Dal Magro
https://orcid.org/0000-0002-7609-5806
Professor at the Community University of the Chapecó Region (Unochapecó)
PhD in Accounting and Administration from the Blumenau Regional University Foundation (FURB)
crisbau@unochapeco.edu.br

Caroline Keidann Soschinski
https://orcid.org/0000-0002-0135-0729
Professor at the Community University of the Chapecó Region (Unochapecó)
PhD in Accounting and Administration from the Blumenau Regional University Foundation (FURB)
carolinesoschinski@unochapeco.edu.br

ABSTRACT
The aim of the study is to analyze the influence of ownership structure on earnings smoothing practices in companies listed on B3. The analysis considered multivariate linear regression for a sample of 203 observations, with data referring to the period 2016-2021. The results indicated that the greater presence of international and institutional investors are factors that mitigate earnings smoothing practices. In turn, ownership concentration, government ownership and growth in the number of shareholders in the stock market did not prove to be determinants of income smoothing. The results suggest that the low participation of institutional and international investors may make it necessary to use additional corporate governance mechanisms.
Keywords: results smoothing; ownership structure; quality of accounting information; B3; investors.

RESUMO
O objetivo do estudo é analisar a influência da estrutura de propriedade sobre as práticas de suavização de resultados em companhias listadas na B3. A análise considerou a regressão linear multivariada para uma amostra de 203 observações, com dados referentes ao período de 2016-2021. Os resultados indicaram que a maior presença de investidores internacionais e institucionais são fatores que mitigam as práticas de suavização de resultados. Por sua vez, a concentração de propriedade, a propriedade governamental e o crescimento do número de acionistas no mercado acionário não se mostraram determinantes da suavização de resultados. Os resultados sugerem que a baixa participação de investidores institucionais e internacionais pode tornar necessário o uso de mecanismos adicionais de governança corporativa.
Palavras-chave: suavização de resultados; estrutura de propriedade; qualidade da informação contábil; B3; investidores.

RESUMEN
El objetivo del estudio es analizar la influencia de la estructura de propiedad en las prácticas de suavización de resultados en empresas que cotizan en B3. El análisis consideró regresión lineal multivariada para una muestra de 203 observaciones, con datos referidos al periodo 2016-2021. Los resultados indicaron que la mayor presencia de inversionistas internacionales e institucionales son factores que mitigan las prácticas de alisado de ganancias. A su vez, la concentración de la propiedad, la propiedad estatal y el crecimiento del número de accionistas en el mercado de valores no resultaron ser determinantes de la nivelación de ingresos. Los resultados sugieren que la baja participación de inversionistas institucionales e internacionales puede hacer necesario el uso de mecanismos adicionales de gobierno corporativo.
Palabras clave: suavizado de resultados; estructura de propiedad; calidad de la información contable; B3; inversores.

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1 INTRODUCTION

Accounting aims to capture and transmit reliable information to market agents about the prospects of organizations (Prazeres & Lagioia, 2020). The Basic Conceptual Pronouncement (CPC 00, 2011) deals with the qualitative characteristics of accounting and financial information, its restrictions and the elements that make up the financial statements. These aspects are desirable for the information to demonstrate the real performance of the company to *stakeholders* (Bianchet et al., 2019).

In addition, the quality of accounting information has been strongly related to the ownership structure of companies (Chandrapala, 2013). The ownership structure can be represented by the concentration of ownership (level of centralization of power), identity of the majority stockholder and the direct and indirect involvement of corporate governance mechanisms and structures (Ganz et al., 2019).

Companies with a higher concentration of ownership provide more relevant information to *stakeholders*, which it does not happen in companies with a lower concentration of ownership (Chandrapala, 2013). Feng, Hassan and Elamer (2020) portray that companies with a concentrated ownership structure transmit more information to investors, indicating that large stockholders fulfill the role of inspection and monitoring.

The view that the concentration of ownership improves the quality of accounting information is linked to previous studies that carried out less income management practice in this type of configuration of the ownership structure. The studies by Jalil and Rahman (2010) and Holanda and Coelho (2016) presented evidence that the highest number of stockholders with a relevant stake and the highest percentage of outstanding shares collaborate with the lowest level of income management. In short, the strength of minority stockholders curbed the opportunistic attitudes of managers. Complementarily, Prazeres and Lagioia (2020) stated that majority investors tend to demand as much dividend as possible, influencing for less income smoothing.

On the other hand, Callao et al. (2016) showed that the concentration of ownership generates agency conflicts between controlling owners and minority investors. Majority stockholders create information asymmetry by disclosing information that serves their own interests and diverges from the interests of minority stockholders. Studies have shown that companies with a higher concentration of ownership are more prone to income smoothing (Atik, 2009; Carlin, 2009; Torres et al., 2010; Almeida-Santos et al., 2017).

Income management produces profits in desired periods, postponing expenses that affect future profits. It seems a kind of game, in which profit is expected to be better in the future to cover deferred expenses (Martinez, 2001). Income smoothing occurs when managers manage income accounts with the objective of reducing fluctuations in profits (Kajimoto et al., 2019). The income smoothing represents the attempt of managers to reduce abnormal variations in profits (Ribeiro & Colauto, 2016).

In Brazil, Holanda and Coelho (2016) identified associations between income management propensity and ownership structure attributes in publicly traded companies. Torres et al. (2010) studied the relationship between ownership structure and income smoothing, finding evidence of a positive association. However, in the Bianchet et al. (2019) study, the positive relationship between ownership concentration and the practice of earnnings smoothing of accounting was not confirmed, a result that differs from previous studies in the Brazilian context. (Atik, 2009; Carlin, 2009; Torres et al., 2010; Almeida-Santos et al., 2017).

In addition, the separation of ownership and control gives rise to incentives for the manager to select and apply accounting estimates and techniques that can increase his own wealth. According to agency theory, this issue has become more important in recent years, as more companies are listed on the stock exchanges as public companies (Kazemian & Sanusi, 2015).

Given the divergence of results in the Brazilian context, this research seeks to answer the following research problem: what is the influence of the ownership structure on the practices of income smoothing in publicly traded companies listed on B3? To answer the problem, the objective of the study is to analyze the influence of the ownership structure on income smoothing practices in publicly traded companies listed on B3. Based on this objective, the differential of this research is to investigate other characteristics of the ownership structure, in addition to its concentration measure, according to suggestions by Alexander (2019), that research using other measures for ownership structure could advance discussions about its relationship with the quality of accounting information.

The survey results indicated that the concentration of ownership was not related to the practice of income smoothing. However, specific characteristics of the ownership structure influence the quality of information. It was evidenced that the greater presence of international investors and institutional investors in the ownership structure is related to the lower smoothing of income. This shows that the presence of more sophisticated and international investors in the ownership structure has been a governance mechanism that restricts managers' opportunities practices and enhances the quality of accounting information.

This research contributes to identifying the gaps evidenced by the literature (Carlin, 2009; Nia et al., 2017), with regard to ownership dispersion compared to the smoothing of accounting information, when investigating Brazilian companies and adding current evidence that the characteristics of the ownership structure can enhance the quality of accounting information. For companies, this research contributes by showing that the low participation of institutional and international investors may require additional mechanisms of corporate governance, in order to perform the role of monitoring that these agents would do. For external users, the characteristics of the existence of international and institutional investors indicate greater quality of accounting information.

2 THEORETICAL FRAMEWORK

This section covers the theoretical foundations of income smoothing and the relationship between ownership characteristics and the practice of income smoothing.

2.1 Smoothing of Income

One of the most important accounting products for users of accounting information is the result (profit/loss), by which the economic performance of companies is evaluated. However, part of this result may result from accounting adjustments of a discretionary nature, sometimes unrelated to the reality of the business. These adjustments lead executives to "manage" accounting results in the desired direction, with defined purposes that do not express the reality of the business (Martinez, 2001).

Income management is fundamentally characterized as the purposeful alteration of accounting results, aiming to meet particular motivations (Martinez, 2001). In this context, even using accounting principles and standards correctly, there will always be room for the exercise of judgment of the preparers of the financial statements and the realization of estimates and forecasts by managers (Dantas et al., 2018). The desired benefits when practicing income management can be diverse, such as attracting new investors, favoring the contracting of loans at lower costs or improving the organization's image in the capital market (Faria & Amaral, 2015).

Among the types of income management, income smoothing has been used to reduce the variability of accounting results (Paulo, 2007). The practice of income smoothing has the purpose of keeping profits disclosed at the same level and generating short-term benefits (Faria & Amaral, 2015), with the main characteristic of reducing profit variability (Ribeiro & Colauto, 2016). Generally, smoothing creates obscurity that can help companies avoid the scrutiny of third parties (including the government) and facilitate the expropriation of wealth by managers (Leuz et al., 2003).

It is also considered that the smoothing of income constitutes a representative influence in relation to the usefulness of profits for investors (Schipper & Vincent, 2003; Castro & Lima, 2021). Thus, the management of a company can be motivated to smooth the income disclosed as a method to increase stockholder wealth or personal benefits (Ronen & Sadan, 1981; Carlson & Bathala, 1997).

The smoothing of income is a conscious action of management, which uses the judgment of accounting estimates to reduce profit volatility (Mirzajani & Heidarpoor, 2018). The intended benefit of reducing the volatility of reported results is to "reassure" risk-averse investors, who tend to prefer more stable profits. The smoothing of results can also be used to present the continuous increase in profits (Ávila & Costa, 2015; Fabio, 2019). In this context, there is strong evidence that income smoothing occurs frequently among private companies in developed economies (Doan et al., 2020). However, it is a practice of income management that impairs the quality of accounting information (Leuz et al., 2003; Fabio, 2019).

On the other hand, income smoothing can contribute to improving profit informativeness if managers use their discretion to communicate the valuation of future profits. This statement provides the ability for users of the financial statements to predict future income based on current income information. The logic of the effect of income smoothing on the persistence of profits is the suppression of the fluctuation of profits between periods (Ernawati & Suartana, 2018).

The practice of income smoothing allows the entity to minimize the volatility of profits, mitigating its business risk, making its shares better valued by the market (Almeida-Santos et al., 2017). In addition, managers adopt this practice because profit volatility is generally seen by creditors and investors as an indicator of risk (Torres et al, 2010). In order to identify and verify the degree of smoothing of the results used by companies, there are theoretical models (Almeida et al., 2012), especially the models of Eckel (1981) and Leuz et al. (2003).

According to Eckel (1981, p. 28) "the identification of the behavior of smoothing results is not a trivial task for the investigator". The method used by Eckel (1981) is recognized for the way it is possible to divide samples of organizations into two types: smoothing and non-smoothing. Eckel's (1981) model starts from the premise that revenues and profits must be linear over time and, therefore, must grow or decrease in the same proportion. However, when this relationship does not occur, it may be due to some interference from managers to smooth the results (Gomes et al., 2021).

For Eckel (1981), there are two types of smoothing: natural and intentional. Natural smoothing is presented as something inherent in the business. The intentional results from the willingness of managers to practice certain actions with the purpose of obtaining results aligned with their interests (Ribeiro & Colauto, 2016). Artificial smoothing implies the use of *accruals*, that is, accounts that do not affect cash flow and are not based on economic events. Actual smoothing involves economic events, also affecting cash flow. However, in both cases, there is the intention of the executives to smooth the results (Almeida et al., 2012).

Intentional smoothing is the result of managers' willingness to perform certain actions with the purpose of obtaining a result that is aligned with their own interests (Castro & Martinez, 2009). Ronen, Tzur and Yaari (2007) argue that intentional smoothing can be subdivided into real and artificial. Actual smoothing refers to economic choices that affect the company's cash flow (Ribeiro & Colauto, 2016). Artificial smoothing represents accounting manipulations performed by management to smooth yields.

These manipulations do not represent underlying economic events or affect cash flows, but shift costs and/or revenues from one period to another. For example, a company can increase or decrease reported profit simply by changing its actuarial assumptions regarding pension costs (Eckel, 1981).

The model proposed by Leuz et al. (2003) aims to capture the degree to which executives exercise profit smoothing by changing the accounting components of profit as a result of adjustments to the accrual basis. The model establishes that cash flow is equal to net income minus accruals. Thus, accruals is the difference between net income and cash flow, involving all amounts that are considered in the calculation of the accounting result (profit), but that do not generate effective movement of resources (Faria & Amaral, 2015).

Martínez-Jerez (2008) argues that accruals are constituted by the integral values of the income accounts that entered into the profit calculation, but which do not imply a necessary movement of financial resources. Thus, profit is a measure of economic character and accruals impact the difference of this result to the financial value (Faria & Amaral, 2015). Gaio (2010) explains that the Leuz et al. (2003) model measures profit smoothing as the ratio between the standard deviation of operating profit at the company level and the standard deviation of operating cash flow, with variables scaled by total assets at the beginning of the period. Thus, values below 1 (one) indicate more variability in operating cash flows than in operating profits, which implies the use of *accruals* to smooth profits. Values above 1 (one) indicate less smoothness of gains (Francis et al., 2004).

2.2 Ownership Structure and Income Smoothing

The ownership structure can be defined as the corporate structure of the company, that is, it is the distribution of shares among the different types of stockholders that a company has (Richter & Weiss, 2013; Ma et al., 2017; Moura et al., 2018). In their seminal work, Demsetz and Lehn (1985) argued that ownership structure is endogenously determined by company- and industry-specific factors such as risk and capital requirements (Richter & Weiss, 2013).

In this sense, the development and growth of companies has contributed to an increasingly clear and effective separation between the holders of capital (principal) and managers (agentess). In fact, stockholders have less capacity and opportunity to influence the management of the company by channeling this function to managers (Ferreira et al., 2003; Mendes & Rodrigues, 2007). However, knowing whether the ownership rights of a company are held by only a few stockholders or by many and what is the relative size of the shareholdings of different stockholders are important concerns (Richter & Weiss, 2013).

In the USA and UK capital markets, it is possible to find a dispersed ownership structure, in other developed and developing markets, most companies have family control. In Brazil, the concentration of ownership can be considered high in most companies, especially in companies with family control (Carlin, 2009) and government (Brandão, 2022). Carlson and Bathala (1997) argue that differences in ownership structure are relevant to explain the income smoothing in companies, suggesting that the lower the concentration of ownership the greater the probability of income smoothing.

Ownership structure characteristics were considered in the studies by Kim and Yi (2006), Ding et al. (2007) and Bianchet et al. (2019). However, Alexander (2019) suggests that future research use other measurement variables to determine the effects of these variables on income smoothing, such as: institutional ownership, family ownership, controlling ownership. In view of the above, this study considers the factors of concentration of ownership, government ownership, international ownership, institutional ownership and number of stockholders to determine the income smoothing in Brazilian companies listed on B3.

2.2.1 Concentration of Ownership

The concentration of ownership is related to the centralization in the company's decision-making power and explores how centralized this power is (Demsetz & Lehn 1985; Ganz et al., 2020). Juhmani (2013) noted that the shareholding concentration is represented by a significant portion of the company's shares held by one or a few stockholders.

However, the concentration of ownership can allow the largest stockholders to improve managerial capacity, as controlling stockholders have stronger incentives to correct information, actively monitor managerial behaviors and effectively reduce opportunistic behaviors of managers, pressuring them to disclose more relevant information (Chang & Zhang, 2010).

The concentration of ownership is predominant in Brazilian companies, in which a small number of stockholders have a high participation, resulting in an overlap between management and ownership (Sarlo et al., 2010). In seeking to maximize their interests, majority stockholders act opportunistically by expropriating minority stockholders (Dami et al., 2006; Rogers et al., 2007).

Arguments based on Smith (1976) and Salamon and Smith (1979), suggest that managers of management-controlled companies try to present operating results in the most favorable way possible, to avoid stockholder unrest (Carlson & Batalha, 1997). In this sense, Torres et al. (2010) argue that the more concentrated the ownership and control structure, the greater the tendency for income smoothing to occur.

In the Brazilian case, the concentrated ownership and control structure provides opportunistic incentives for managers to reduce the quality of accounting information through income management (Torres et al, 2010). The findings of Lanzana (2004), Correia and Louvet (2010) and

Holanda and Coelho (2016) demonstrated that the percentage of total capital held by the largest stockholders positively influences the practice of income smoothing. Demsetz and Lehn (1985) argue that greater shareholdings guarantee greater control for owners (Richter & Weiss, 2013) and, in this sense, a facet of the concentration of ownership is the decrease in the quality of financial reports (Doan et al., 2020). In view of the above, the following hypothesis is hypothesized:

H_1 - The highest concentration of ownership is positively related to income smoothing.

2.2.2 Government ownership

Government ownership is the government's equity interest in companies listed on a stock exchange. The Government's objective, as a stockholder, in addition to profits, also includes social issues (Juhmani, 2013; Hu et al., 2016; Moura et al., 2019). The government, as a provider of the maximization of public welfare, needs to continuously seek transparency in the disclosure of corporate information to users (Choi et al., 2010). However, Mendes and Rodrigues (2006) report results indicating that companies with a government presence in the capital structure can encourage managers to change the published results (Mendes & Rodrigues, 2006).

Ben-Nasr et al. (2015) examined the relationship between stockholder identity and profit quality and found that companies with higher government ownership are associated with abnormal *accruals*, i.e., greater income smoothing. Similarly, in the study by Doan et al. (2020), evidence was found that banks with a greater presence of state-controlled stockholders tend to smooth their results, which is consistent with the entrenchment behavior of controlling stockholders for the extraction of private benefits. In view of the above, the following hypothesis is hypothesized:

H_2 - Government participation in the ownership structure is positively related to income smoothing.

2.2.3 International ownership

Companies can be influenced by international practices if there is stock participation of international investors in their ownership structures (Moura et al., 2019). International investors tend to invest in companies with lower risk and, in a way, produce more relevant accounting information (Soliman et al., 2013). Foreign participation in control can be an incentive to meet the demand for quality accounting information, raising costs related to the provision of managed results (Holanda & Coelho, 2016). Thus, companies with concentrated ownership and control that income smoothing do so with less intensity when they have foreign capital (Torres et al., 2010). Empirically, evidence demonstrates that foreign ownership restricts income management (Nia et al., 2017). In view of the above, the following hypothesis is proposed:

H_3 – The existence of international investors in the ownership structure is negatively related to income smoothing.

2.2.4 Institutional ownership

The institutional investor is related to the shareholding of banks, insurance companies, pension funds, investment managing company, among others (Soliman et al., 2013; Hu et al., 2016; Moura et al., 2019). Institutional ownership has the ability to control management through the effective monitoring process to reduce results management practices (Ernawati & Suartana, 2018).

The volume of stocks traded by institutional investors is large, so they are important agents for the stock market (Hu et al., 2016), being influential in organizational decisions, exercising substantial voting power and having information advantages over other stockholders (Chang & Zhang, 2010; Oh et al., 2011; Hu et al., 2016; Moura et al., 2019). Institutional ownership plays an important role in minimizing agency conflicts that occur between managers and stockholders (Ernawati & Suartana, 2018).

In this sense, institutional investors prioritize corporate managers to focus on long-term profitability rather than worrying about managing results to achieve immediate profits. This type of institutional investor acts as a monitoring mechanism, restricting the management of the income by investee companies (Bushee, 2001; Velury & Jenkins, 2006; Nia et al., 2017).

Empirical studies by Widhianningrum and Amah (2012) and Kusumaningtyas (2014) examined the effect of institutional ownership on income management and identified that institutional ownership has a negative effect on income management (Ernawati & Suartana, 2018). Similarly, Kustono et al. (2021) showed that institutional ownership has a negative effect on income smoothing, with managers' ability to perform income smoothing and opportunistic management behavior limited by institutional ownership.

Considering that institutional investors are more concerned about the long-term effects of management decisions on wealth, it is understood that these will encourage managers to signal higher quality profits. Supporting this point of view, previous studies have suggested that companies with high levels of institutional ownership are less likely to manage results (Bushee, 1998; Jiambalvo et al., 2002; Ramalingegowda & Yu, 2012; Chen et al., 2020). In view of the above, the following hypothesis is proposed:

H_4 – The existence of institutional investors in the ownership structure is negatively related to income smoothing.

2.2.5 Number of Stockholders

Brazilian companies have modified their ownership structure that was recently very concentrated in a single investor or in a small group of investors and has become quite divided and disseminated among a large number of stockholders (Martin et al., 2004). In Brazil, the stockholders' agreement has also been recurrent, in which two or more investors without family relations with the owners of the capital or commercial, stock control of the company through a contract that disciplines, among other aspects, the right to vote at meetings (Crisóstomo & Brandão, 2019).

Amihud and Mendelson (2000) documented that companies that have a greater number of individual stockholders have greater liquidity in their stocks. In turn, Delvizio et al. (2020) found evidence that liquidity influences the relevance of accounting information, suggesting that companies with greater liquidity are more closely monitored by the market, demanding higher quality accounting information.

In Brazil, the number of individual investors increased from 0.5 million in 2016 to 4.2 million at the end of 2021 (B3, 2021). Considering the significant increase in the number of investors in the Brazilian stock market in recent years, the following research hypothesis is proposed:

H_5 – The presence of individual stockholders in the ownership structure is negatively related to the income smoothing.

3 METHODOLOGY

Based on the procedures adopted, the research can be characterized as descriptive in terms of objectives, archival in terms of procedures and with a quantitative approach (Martins & Theóphilo, 2009). As for the procedures, it is noteworthy that the data were collected from the standardized financial statements, available in Economática®, which according to Smith (2003), defines a research as an *archival type,* considering that it involves the collection of secondary data in a database. The universe of the research comprised the companies listed in Brazil, Bolsa, Balcão (B3).

For the definition of the sample, the companies active on the date of collection were considered, adjusted for the following exclusions: i) companies belonging to the financial and insurance system; ii) companies with missing or incomplete economic and financial data; iii) companies with negative equity.

The collection occurred in database x and in the reference form of B3 (item 15.1/2 and 15.3) manually. The analyzed data include the period from 2016 to 2021, characterized by the impeachment of the president (2016), economic turbulence and the pandemic caused by the Coronavirus (Covid19).

For the income smoothing variable, the model of Leuz et al. (2003) was used, widely used in the literature and demonstrated in Table 1 (Castro & Martinez, 2009; Konraht et al., 2016; Bianchet et al., 2019; Castro & Lima, 2021).

It is verified that the income smoothing is obtained by the ratio between the standard deviation of operating profit for the period (2016 to 2021) and the standard deviation of operating cash flow for the period (2016 to 2021).

Table 1
Income Smoothing Metric

Dependent variable	Metrics	Source author	Database
Smoothing (SMOOTH)	$\frac{\sigma\ Operating\ profit_{it}}{\sigma\ Operating\ Cash\ Flow_{it}}$	Leuz, Nanda and Wysocki (2003), Francis et al. (2004)	Economics

Source: Developed by the authors.

According to the model used, each company resulted in one observation for the period, resulting in 203 observations.

Table 2 shows the explanatory variables.

Table 2
Explanatory variables

Explanatory Variable	Metrics	Source author	Database
Ownership concentration (CONC)	Percentage of common stocks of the main stockholder.	Moura et al. (2019)	Economics
Government ownership (GOVOWNERSHIP)	Percentage of common stocks held by the government.	Moura et al. (2019)	Reference Form – [B]³
International ownership (INTOWNERSHIP)	Percentage of common stocks held by international investors.	Moura et al. (2019)	Reference Form – [B]³
Institutional ownership (INSTOWNERSHIP)	Percentage of common stocks held by institutional investors.	Moura et al. (2019)	Reference Form – [B]³
Increase in stockholders (INSTOCKHOLDER)	Percentage of growth in the number of stockholders in year t, compared to year t-1.	Elaborated by the authors.	Reference Form – [B]³
Size Ln_TAM	Natural logarithm of the book value of the company's total assets.	Habbash et al. (2014)	Economics®
Audit AUD	Dummy variable, being 1 for companies audited by big four and 0 for the others	Carpes, Pamplona and Cunha (2019)	Reference Form – [B]³
Level of Corporate Governance at B3 (LCG)	*Dummy* variable, being 1 for companies with different levels of corporate governance and 0 for the others	Catapan and Colauto (2014)	[B]³

Source: Developed by the authors.

Table 2 shows the variables of interest involving ownership structure and control variables. Data analysis was developed using multivariate linear regression (according to Equation 1), with cross-section analysis.

$$SMOOTH = \beta_0 + \beta_1 CONC + \beta_2 PROPGOV + \beta_3 PROPINT + \beta_4 PROPINST + \beta_5 ACIOPF + \beta_6 LnTAM + \beta_7 AUD + \beta_8 LCG + \varepsilon \qquad (1)$$

To validate the model, the lack of multicollinearity of the data was verified through the VIF test (Variance Inflation Factor); the absence of serial autocorrelation of the residues, through the Durbin-Watson test (DW); and for the existence of homoscedasticity in the behavior of the residues, the Pesarán-Pesarán test was used.

4 ANALYSIS AND DISCUSSION OF RESULTS

The descriptive statistics related to the research variables comprise the data of the companies listed in B3, in the period from 2016 to 2021, which originated 203 observations, presented in Table 3.

Table 3
Descriptive statistics of quantitative variables

	N	Minimum	Maximum	Mean	Standard Deviation
SMOOTH	203	0,0938	7,9328	1,1502	0,8864
CONC.	203	0,0610	1,0000	0,4778	0,2778
GOVOWNERSHIP	203	0,0000	1,0000	0,0668	0,1998
INTOWNERSHIP	203	0,0000	1,0000	0,0705	0,1983
INSTOWNERSHIP	203	0,0000	0,7277	0,1501	0,4134
INSTOCKHOLDER	203	-0,3987	2.907,8000	34,9417	256,2546
TAM	203	26.764	882.072.600	17.965.978	69.175.443
AUDIT	203	0,0000	1,0000	0,7123	0,4122

Source: Developed by the authors.
Legend: SMOOTH: smoothing of income; CONC: concentration of ownership; GOVOWNERSHIP: government ownership; INTOWNERSHIP: international ownership; INSTOWNERSHIP: institutional ownership; ACIONPF: increase of individual stockholders; TAM: total assets of the company; AUDIT: audit.

Table 3 shows that the mean smoothing of all companies is equal to 1.1502. It is important to remember that values below 1 (one) indicate more variability in operating cash flows than in profits, as a result of the use of *accruals* to smooth profits. Considering the result of the study whose mean was above 1 (one), it indicates less smoothness of gains (Francis et al., 2004).

The mean indicators of the study exceed those of Bianchet (2017), who investigated 129 non-financial companies listed on B3, in the period from 2010 to 2016, and found a mean smoothing index equal to 0.6412. Ribeiro and Colauto (2016) used two metrics to identify the income smoothing, with data referring to the period from 2009 to 2014, in 58 publicly traded companies listed on the Brazilian stock exchange, finding means of 0.638 and 0.934, respectively.

Therefore, there was a change in smoothing practices in the two periods investigated. The differences in results may be due to the composition of the samples and by influences of the economic environment of each period. The smoothing calculation resulted in an observation-company in the analysis period. For the other variables, the mean behavior for the same period was considered. The results reveal that the main stockholder owned, on mean, 47.78% of the voting stocks (CONC).

In the investigated sample, the mean government ownership for the period was 6.68% (GOVOWNWESHIP), the mean international investor ownership was 7.05% (INSTOWNERSHIP), while the mean institutional investor ownership was 15.01%. The average growth in the number of individual stockholders was 3,494.17% and 71.23% of the observations are from companies audited by big four. Table 4 shows the frequency of categorical variables in the study.

Table 4
Frequency of the categorical variable

LCG	Frequency	Percentage
NO	78	38.4
YES (New Market, Level 2, Level 1, Bovespa More)	125	61.6
Total	203	100

Source: Developed by the authors.

Table 4 shows that of the 203 companies listed in the B3 investigated in the research, 125 companies have some type of corporate governance, with a representativeness of 61.60% of the sample. Table 5 presents the income smoothing by the set of companies by economic sector, allowing to compare the behavior of which sectors smoothed more incomes.

Table 5
Smoothing by economic sector

Sector	SMOOTH mean	N	SMOOTH <1	SMOOTH >1
Industrial goods	1.1429	34	18	16
Communications	1.5848	3	2	1
Cyclical consumption	0.9891	53	29	24
Non-cyclical consumption	1.3893	17	6	11
Primary materials	1.3892	18	5	13
Oil, gas and biofuels	1.7853	7	0	7
Health	1.0371	15	10	5
Information technology	1.0749	5	1	4
Public utilities	1.0863	51	33	18
Total	1.1502	203	104	99

Source: Developed by the authors.
Note: Values below 1 greater smoothing and values above 1 indicate less smoothing of incomes.

The results in Table 5 indicate that the cyclical consumption sector was the only one with a mean below 1, signaling a greater presence of income smoothing. Other sectors such as health, information technology and public utility had means close to 1, although slightly higher. These results are in line with the findings of Carlin (2009), who when studying a sample of 141 companies listed on B3, identified that the cyclical consumption sector was the one that presented the greatest income smoothing.

Overall, it can be seen that 51% of companies had a smoothing rate below 1 and 49% above 1, suggesting two homogeneous groups in terms of behavior. Highlight for the oil, gas and biofuels group, in which all companies demonstrated behavior of less smoothing. This result is consistent with the findings of Gomes et al. (2021), who when studying companies in the Brazilian stock market, in the period 2013 to 2017, observed that 48% smooth incomes and 52% did not adopt such practice.

Table 6 shows the correlations between the research variables, in order to determine their relationships and occurrence of multicollinearity between them.

Table 6
Pearson correlation of quantitative explanatory variables

	CONC.	GOVOWNERS	INTOWNERS	INSTOWNERS	INSTOCKHOLD	LNTAM	AUDIT
CONC.	1						
GOVOWNERSH	0.223**	1					
INTOWNERSHI	-0.202**	-0.096	1				
INSTOWNERS	-0.156*	-0.043	-0.051	1			
INSTOCKHOLD	-0.052	-0.045	-0.032	0.032	1		
LNTAM	-0.044	0.194**	0.215**	-0.140*	0.007	1	
AUDIT	-0.089	-0.059	0.105	0.053	-0.066	0.449**	1

Source: Developed by the authors.
**. significant correlation at level 0.01 *The correlation is significant at the 0.05 level (2 extremities).
Legend: SMOOTH: income smoothing; CONC: concentration of ownership; GOVOWNERSHIP: government ownership; INTOWNERSHIP: international ownership; INSTOWNERSHIP: institutional ownership; INSTOCKHOLDER: increase in individual stockholders; LNTAM: natural logarithm of total assets; AUDIT: audit.

Table 6 shows that the variable CONC correlates significantly with the other ownership structure variables, at the level of 1% with GOVOWNERSHIP and INTOWNERSHIP and at the level of 5% with INSTOWNERSHIP. However, the INSTOCKHOLDER variable does not correlate with the other variables significantly.

The size variable correlates positively GOVOWNERSHIP and INTOWNERSHIP and negatively with INSTOWNERSHIP, significantly. The AUDIT variable has a positive and statistically significant correlation only with TAM. It is important to highlight that no high correlations were found between the variables, allowing the concomitant use in the model of ordinary least squares.

Table 7 presents the results of the multivariate linear regression econometric model (Equation 1), to analyze the determining factors of the income smoothing in the investigated sample.

Table 7 shows that the set of explanatory and control variables is significant to explain the behavior of the dependent variable (Statistic F), however, with low explanatory power of the model (R^2): 5.3%. Goldberger (1998) considers that R^2 plays a modest role in regression analysis, constituting a measure of the quality of the fit of a linear regression of sample least squares in a data set, and the classical regression model does not require it to be high.

Table 7

Result for income smoothing

Variables	Coefficient	L	Significance	Tolerance	VIF
(Constant)	1.764	3.019	0.003		
CONC.	0.074	0.274	0.784	0.658	1.520
GOVOWNERSHIP	0.392	1.206	0.229	0.872	1.147
INTOWNERSHIP	0.796	2.469	0.014**	0.901	1.110
INSTOWNERSHIP	0.266	1.745	0.083*	0.929	1.076
INSTOCKHOLDER	0.000	-0.868	0.386	0.982	1.018
LNTAM	-0.038	-0.891	0.374	0.604	1.655
AUDIT	-0.415	-2.426	0.016**	0.741	1.349
LCG	0.182	1.114	0.267	0.581	1.721
R^2 adjusted	0.053		Durbin-Watson		1.832
F Statistic	2.410**		Pesarán - Pesarán		0.239

Source: developed by the authors.

* Significant at 10%; ** Significant at 5%.

Legend: SMOOTH: income smoothing; CONC: concentration of ownership; GOVOWNERSHIP: government ownership; INTOWNERSHIP: international ownership; INSTOWNERSHIP: institutional ownership; INSTOCKHOLDER: increase in individual stockholders; TAM: natural logarithm of total assets; AUDIT: audit.

For Gujarati (2006, p. 179), “the researcher should be more concerned with the logical or theoretical relevance of the explanatory variables in relation to the dependent variable and its statistical significance”. In this sense, the variables used in the model are recurrent in previous studies and present theoretical consistency for their use.

It can be seen that the ownership concentration variable (CONC) did not demonstrate a significant relationship with the income smoothing dependent variable (SMOOTH). This result leads to the rejection of hypothesis H_1: companies with a higher concentration of ownership present greater smoothing of results.

The result does not support the argument that the concentration of ownership decreases the quality of financial reports (Doan et al., 2020), also diverging from the findings of Torres et al. (2010), who when investigating Brazilian companies identified greater income smoothing when there is a greater concentration of ownership. However, the results are consistent with the study by Bianchet et al. (2019), who also found no influence of ownership concentration on income smoothing practices in Brazilian stock market companies.

Regarding the variable government ownership (GOVOWNERSHIP), the results showed no statistically significant relationship with the variable dependent on income smoothing (SMOOTH). The findings suggest the rejection of the H_2 hypothesis: companies with government participation in the ownership structure present greater income smoothing.

Ben-Nasr et al. (2015) examined the relationship between stockholder identity and the quality of profits and found that companies with more state ownership are associated with abnormal *accruals*, i.e. more income smoothing. In the study by Doan et al. (2020), evidence was found that banks with a greater presence of state-controlled stockholders tend to smooth their incomes, which is consistent with the entrenchment behavior of controlling stockholders for the extraction of private benefits.

The results contradict the findings of the studies by Ben-Nasr et al., (2015) and Doan et al. (2020), which identified a more frequent behavior of income smoothing in companies with state participation in the ownership structure.

The international ownership variable (INTOWNERSHIP) showed a positive and statistically significant relationship at the level of 5% with the variable dependent on income smoothing (SMOOTH). It is important to remember that higher values in the SMOOTH index indicate lower smoothing practice by companies. Thus, according to the system adopted in the analysis, the greater the presence of international investors, the lower the income smoothing in the investigated sample. Therefore, the H_3 hypothesis can be accepted: companies with international investors in the ownership structure have less income smoothing.

The research findings are in line with those observed by Torres et al. (2010), that the practice of income smoothing is less adopted in companies with foreign capital. The result reinforces the argument that foreign participation acts as a demand factor for higher quality accounting information (Holanda & Coelho, 2016) and restricts income management (Nia et al., 2017).

Regarding the institutional ownership variable (INSTOWNERSHIP), the results showed a positive and statistically significant relationship at the level of 10% with the variable dependent on income smoothing (SMOOTH). Considering that the higher the values of the SMOOTH index, the lower the smoothing practice by companies, the presence of institutional investors was related to the lower the income smoothing in the investigated sample. Thus, the H_4 hypothesis can be accepted: companies with institutional investors in the ownership structure have less income smoothing.

The results are consistent with Kustono et al. (2021), who observed a negative effect of institutional ownership on income smoothing. The study findings support the argument that institutional investors concerned about long-term effects will encourage managers to more effectively signal reported profit, confirming evidence from Jiambalvo et al. (2002) and Ramalingegowda and Yu (2012).

In recent years, there has been a significant growth in the number of individual investors in the Brazilian stock market. The study presents this element as an innovative determining factor in the study of smoothing in Brazil. The result of Table 7 indicates that this phenomenon was not significant to influence smoothing practices.

Thus, it remains to reject hypothesis H_5: companies with a greater presence of individual stockholders in the ownership structure have less income smoothing. This result represents a contribution to the study of the subject in Brazil, given that no previous studies were found that investigated the influence of growth on the number of individual investors on the income smoothing.

It is noted that the presence of individual investors represents a different effect from that of institutional investors, validating the argument that the latter are more proficient than other investors in the analysis of financial statements and invested wealth (Velury & Jenkins, 2006).

Regarding the control variables, only AUDIT was significantly related to the variable dependent on income smoothing (SMOOTH), however, in a negative way. Considering that the higher the values of the SMOOTH index, the lower the smoothing practice by companies; companies audited by big four were more likely to smooth incomes. The results of the studies contradict Almeida and Almeida (2009), that the companies audited by the Big Four have a lower degree of discretionary accruals in relation to the others.

Table 8 summarizes the results in relation to the research hypotheses.

Table 8
Explanatory variables

Hypothesis	Expected signal	Signal found	Sig.	Decision
H_1: companies with a higher concentration of ownership have a greater income smoothing.	-	+	no	rejects
H_2: companies with government participation in the ownership structure have greater income smoothing.	-	+	no	rejects
H_3: companies with international investors in the ownership structure have less income smoothing.	+	+	yes	accepts
H_4: companies with institutional investors in the ownership structure have less income smoothing.	+	+	yes	accepts
H_5: companies with a greater presence of individual stockholders in the ownership structure have less income smoothing.	+	-	no	rejects

Source: Developed by the authors.

Therefore, as explained in Table 8, only the presence of international investors and institutional investors in the ownership structure of the investigated companies, which operate in the Brazilian stock market, has influence on the practices of income smoothing, reducing them.

5 CONCLUSIONS

The study analyzed the influence of ownership structure on income smoothing practices in publicly traded companies listed on B3, based on a descriptive, archival and quantitative approach. Using 203 observations from companies listed on B3, with data for the periods 2016-2021, and the model of Leuz et al. (2003) to calculate the income smoothing using multiple linear regression for data analysis.

The results showed that the concentration of ownership does not impact the practice of income smoothing, but some characteristics of the ownership structure were significant. Companies with a greater presence of international and institutional investors are less prone to income smoothing practices, which demonstrates that institutional and international investors, because they are more sophisticated, with a long-term vision and more adept at producing higher quality accounting information, have a monitoring role that mitigates the opportunistic behavior of managers.

Based on this evidence, this study contributes to the theme of income smoothing in Brazil, indicating that characteristics of the ownership structure impact the way managers smooth profits. In addition, an original contribution of the study is the test of the influence of growth on the number of individual stockholders in the Brazilian stock market in the production of accounting information. The result suggests that this has not become a relevant factor to incentive income smoothing. In addition, the study contributes to external users of companies, who can pay attention to the characteristics of ownership structure to evaluate the quality of accounting information of these companies.

The study presented contributions, but it is not free of limitations. A first limitation is the fact that using only one metric to calculate the income smoothing, other measures could have generated complementary results. Thus, later studies may consider other models with other metrics, such as Eckel (1981), and the adoption of tests considering the individual variables of the ownership structure construct.

Another suggestion refers to the analysis period, in which events of economic and political turbulence occurred in the country and may have significantly interfered with the operating policies of companies, not only the behavior on the smoothing of accounting results by use of *accruals.* For future research, it is suggested to add other explanatory factors, such as the operating cycle, indebtedness and market performance.

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