



REVISTA AMBIENTE CONTÁBIL

Universidade Federal do Rio Grande do Norte

ISSN 2176-9036

Vol. 17, n. 1, Jan./Jun., 2025

Sítios: <https://periodicos.ufrn.br/index.php/ambiente>

<http://www.atena.org.br/revista/ojs-2.2.3-06/index.php/Ambiente>

Article received in: March, 06th, 2024. Reviewed by pairs in:

May, 01th, 2024. Reformulated in: May, 08th, 2024. Evaluated by

the system double blind review.

DOI: 10.21680/2176-9036.2025v17n1ID38660

Reporting of key audit matters: an analysis based on income smoothing in the Brazilian electric power sector

Informe de los asuntos clave de auditoría: un análisis basado en la suavización de resultados en el sector eléctrico brasileño

Reporting dos principais assuntos de auditoria: uma análise a partir da suavização de resultados no setor elétrico brasileiro

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(Article presented at the IV UFU Accounting Congress)

Abstract

Purpose: This research aims to verify the impact of Key Audit Matters (KAMs) on income smoothing practices in Brazilian companies in the electric power sector. The final sample covers 33 companies in this sector, with the study period from 2016 to 2019, as KAMs became mandatory for financial statements issued on or after December 31, 2016.

Methodology: To measure intentional income smoothing, two measures were used by capturing different dimensions of income smoothing, namely, general smoothing and accrual-based smoothing, as presented by Lang, Lins, and Maffet (2012). To study KAMs, three distinct proxies were used: the quantity of KAMs reported by company per year, the FLESCH Reading Ease, and the number of words (LENGTH).

Results: The results indicate that KAMs do not have a significant impact on the practice of intentional income smoothing in the financial results of the analyzed companies.

Contributions of the Study: This work contributes to the literature by advancing previous research carried out in Brazil and by cooperating with regulators and standard setters by suggesting improvements in audit reports.

Keywords: Audit quality; Income smoothing; KAMs.

Resumen

Objetivo: Esta investigación tiene como objetivo verificar el impacto de los Principales Asuntos de Auditoría (PAA) en la práctica de suavización de resultados en empresas del sector eléctrico brasileño. La muestra final cubre 33 empresas del sector eléctrico, el periodo de estudio abarca los años 2016 a 2019, dado que los PAA pasaron a ser obligatorios para los estados financieros emitidos a partir del 31 de diciembre de 2016.

Metodología: Para medir la gestión intencional de resultados, se utilizaron dos medidas que capturan diferentes dimensiones del suavizamiento de resultados, es decir, suavizamiento general y suavizamiento basado en devengos, como se presenta en el trabajo de Lang, Lins y Maffet (2012). Para estudiar los PAAs, se utilizaron tres proxies distintas: la cantidad de PAAs informados por empresa y por año, el índice de legibilidad de FLESCH y la cantidad de palabras (LENGHT).

Resultados: Los resultados indican que los PAA no tienen un impacto significativo en la práctica de suavización intencional en los resultados financieros de las empresas analizadas.

Contribuciones del Estudio: Este estudio contribuye a la literatura, ya que avanza sobre investigaciones anteriores realizadas en Brasil y colabora con los organismos reguladores y normalizadores al sugerir mejoras en los informes de auditoría.

Palabras clave: Calidad de auditoría; Suavización de resultados; PAAs.

Resumo

Objetivo: Esta pesquisa objetiva verificar o impacto dos Principais Assuntos de Auditoria (PAAs) na prática de suavização de resultados nas empresas do setor elétrico brasileiro. A amostra final abrange 33 companhias do setor de energia elétrica, o período de estudo compreende os anos de 2016 a 2019, haja vista que os PAAs se tornaram obrigatórios para as demonstrações financeiras emitidas em ou após 31 de dezembro de 2016.

Metodologia: Para medir a suavização intencional de resultados, foram utilizadas duas medidas que capturam dimensões distintas da suavização, isto é, suavização geral e por *accruals*, apresentadas no trabalho de Lang, Lins e Maffet (2012). Para estudar os PAAs utilizou-se de três *proxies* distintas, a quantidade de PAAs reportados por empresa e por ano, o índice de legibilidade de FLESCH e a quantidade de palavras (LENGHT).

Resultados: Os resultados indicam que os PAAs não exercem um impacto significativo na prática de suavização intencional nos resultados financeiros das empresas analisadas.

Contribuições do Estudo: Este trabalho contribui com a literatura, dado que avança sobre pesquisas anteriores realizadas no Brasil e coopera com reguladores e normatizadores ao sugerir a melhoria nos relatórios de auditoria.

Palavras-Chave: Qualidade da auditoria; Suavização de resultados; PAAs.

1 Introduction

With the goal of providing better information quality that is presented to the accounting users, the *International Auditing and Assurance Standards Board* (IAASB) issued new requirements on the audit report in January 2015. In June 2016, the norms were translated and regulated by the Conselho Federal de Contabilidade (CFC) (Federal Accounting Council) and they became effective for the statements that were closed in or after December 2016.

According to Ting (2023), the main novelty in the audit reports is the mandatory inclusion of the Key Audit Matters (KAMs). The KAMs, as they are presented in the Norma Brasileira de Contabilidade (Brazilian Accounting Norm) (NBC) – Audit Technique (NBC TA 701), are basically matters that the auditors consider as important ones, taking the performed audit work into account. The KAMs may address complex matters to be assessed by the management or by the audit (Hegazy & Kamareldawla, 2021), such as the significant transactions or events that affected the client financial statements, critical areas of the accounting estimate (Lau, 2021) and matters that required expert advice or that were considered, above all, as challenging ones for the auditor (Nguyen & Kend, 2021).

By taking these aspects into consideration, the KAMs not only promote the information transparency for the stakeholders, but also influence positively the managers' behavior in the process of preparing the financial reports, and consequently they contribute to the improvement of the report quality and they act in reducing the earnings management (Gold *et al.*, 2018; Cassell *et al.*, 2015).

In view of the above, several studies that associate the KAMs and the earnings management were carried out. For example, Reid *et al.* (2019) used a sample of companies from the United Kingdom, and they found that the KAM disclosure reduces the abnormal *accruals*, indicating that the KAM communication increases the information value. Xiao *et al.* (2020) explored if the KAM disclosure affects the degree of the real and accrual-based management and their mechanisms. The outcomes indicated that the KAM disclosure reduced significantly the accrual-based outcome management and increased the real activities management.

Furthermore, in Brazil, Santos, K. *et al.* (2020) analyzed the metrics of the information quality and KAMs, which relates to the audit quality, as this information is found in the auditor report. The study shows that there is a positive and significant association among the KAM quantity and the *accruals* and discretionary revenues and a negative and significant association between the quantity of reported KAMs and the *proxy* of earnings management by the operations via discretionary expenditures.

One of the most frequent earnings management practices is to use the income smoothing (Ronen & Sadan, 1981; Mckee, 2005). The income smoothing aims at minimizing possible variabilities of profit to stabilize it over time (Castro & Martinez, 2009). Eckel (1981) affirms that there are two categories of income smoothing: natural and intentional smoothing. The first one is influenced by the input and output flows of resources in an entity. The second one is from the manager's actions who seeks deliberately to adjust these flows in order to suit a particular objective.

The previous literature (Reid *et al.*, 2019; Xiao *et al.*, 2020; Santos, K. *et al.*, 2020) indicates that the KAM disclosure has implications in the earnings management. However, there is not any research that establishes a relation with the income intentional smoothing, which is the predominant management method. Thus, this study complements the scientific knowledge by establishing the KAM association with the income intentional smoothing. Moreover, this study differentiates from the others by using three distinct *proxies* for the KAMs: readability, number of words and quantity of KAMs.

Hence, the research question is as follows: **What is the impact of the KAM disclosure on the income intentional smoothing in Brazilian companies of the electric power sector?** The general objective of this study is to verify the impact of KAMs on the income intentional smoothing practice in the companies of the Brazilian electric power sector. The option was to investigate the electric power sector due to the requirements for the earnings quality disclosure according to the guidelines of corporate accounting, established by the International Financial Reporting Standards (IFRS), and the regulatory accounting according to the Normative Resolution n°. 396/2010, issued by the Agência Nacional de Energia Elétrica (ANEEL) (National Electric Power Regulatory Agency) (Ferreira *et al.*, 2021). Thus, these companies can be perceived as more risky ones by the investors, as they have higher propensity to smooth the outcomes.

This study contributes to the existing literature enlargement in two fundamental aspects. First, it advances regarding the previous research carried out in Brazil by presenting new evidence related to the KAMs and to the earnings management practice via the intentional smoothing. Secondly, the research cooperates with the regulators and standard setters by suggesting the need for improved audit reports, considering that the KAM *reporting* does not indicate any improvement in the information transparency.

2 Literature Review

2.1 Income smoothing and its implications

The general-purpose financial reports are prepared with the primary goal of reporting information that is useful for the decision-making of the accounting users, mainly the investors, creditors and other existing and potential creditors (CPC, 2019) (Accounting Pronouncements). It is by means of the financial reports that the companies succeed in briefly showing their business strategies, the risks and the return that they can yield to the market (Healy & Wahlen, 1999).

Sousa *et al.*, (2020) emphasize that, regarding the range of information presented in the financial reports, the profit is considered as the most popular one. Even by facing criticisms, in comparison to the cash flow, which involves the managers' subjectivity, the profit nonetheless constitutes itself as one of the most important types of information and it is widely used by the investors and creditors as a standard for the decision-making (Ge, 2009). According to Dechow *et al.* (2014), the profit is the main event by which the companies provide updates to their investors.

It should be highlighted that the profit works as a benchmark of the external user decisions, it is used as a metric of internal performance, in addition to compensating managers and employees in an organization (Sousa *et al.*, 2020). Thus, one can notice that the profit is important for both the external user and the internal one; in this sense, the managers can exert discretion on the report financial aspects (El Diri, 2018), that is, they can manage information by aiming to suit particular objectives. The intentional manipulation of the financial information, according to Healy (1985) and Jones (1991), causes losses to its quality and contributes to the transaction cost increase for the market and informational asymmetry.

The income smoothing is one of the most recurring modalities of the earnings management (Ronen & Sadan, 1981; Mckee, 2005). It is used by the managers to decrease their gain volatility, by aiming to keep outcomes in a certain threshold and thus avoid its excessive fluctuation (Martinez, 2001). According to Graham *et al.* (2005), it is likely that the managers feel attracted by the profit smoothing, as it enables to present a stable business that is considered as a less risky one by the stakeholders.

For Martinez (2006), the income smoothing is a temporal manipulation process of the profits, so that these are reported sequentially with less variability; hence, the smoothing is configured as an intentional effort to reduce the fluctuations in the reported profits. According to Mulford and Comiskey (2002), the income smoothing occurs from the intentional realignment of the oscillations on the profit level that is currently considered as normal for the company. Under such perspective, the accounting choices help the managers in the variability reduction of the received compensations and in the identification of the excessive fluctuations in the company outcomes over time (Ribeiro & Colauto, 2016).

Eckel (1981) affirms that there are two types of income smoothing: natural and intentional ones. The natural smoothing is the result of actions taken by the administration to the detriment of the profit generation process (Belkaoui, 2003). The intentional smoothing is derived from the manager's action by aiming to obtain an aligned result with his/her interest (Castro & Martinez, 2009). The occurrence of the income smoothing process can be used both in the accounting profit situation, that is, to reduce the disclosed outcome, and in the accounting loss condition, that is, the disclosed outcome increase (Castro, 2008).

By considering that the objective of the intentional smoothing is to conceal the real company performance by aiming to reach the manager's private goals (Gordon, 1966), the bias is that this type of manipulation contributes negatively to the financial information quality. In face of that, when there are considerable impacts from the income intentional smoothing, there is loss in the financial report quality (Lang *et al.*, 2012).

It should be highlighted that the profit intentional smoothing can be accomplished in two ways: via the entity operational activities and via the *accruals*, from the accrual basis adjustments. These strategies may be applied in a complementary or substitute manner, depending on the manager's interest (Zang, 2012). Sousa *et al.* (2020) argued that the relations among manipulation strategies demonstrated in the research by Zang make sense (2012), as the smoothing goal is to achieve a specific objective and when the manager uses more of a method, the other should be used at a lower level, because the profit consists of the cash flow and the *accruals*.

There is a wide range of studies that discuss the profit smoothing in the financial report quality, Schipper and Vincent (2003); Lang *et al.* (2012) and Kolozsvari and Macedo (2016) who found negative effects of income smoothing on the financial report quality are among them. On the other hand, Gaio (2010) addresses the smoothing as a desirable attribute, considering that financial analysts and investors comprehend that the constant changes in the profits are indicatives of profit low quality.

Domestic research that relates the income smoothing to other thematic was also carried out, such as the study by Ribeiro and Colauto (2016) who studied the relation between *board interlocking* and the income smoothing practices, whereas Ribeiro *et al.* (2018) carried out their study on the lifecycle and the income smoothing in the Brazilian market. In another perspective, Bianchet *et al.* (2019) directed their study to the determinants of the accounting income smoothing in publicly traded companies listed on the Brazilian stock exchange. Sousa *et al.*, (2020) carried out research on the intentional smoothing influence on the comparability of the financial reports in publicly traded companies of the Brazilian market. At last, De Sousa Santos *et al.* (2024) carried out a study that investigates the effect of the Covid-19 pandemic period on the practice of the income intentional smoothing on the market value (MV) of the companies listed on [B]3.

Regarding the research that involves income smoothing and auditing, few pieces of research were carried out in this sense; however, research that involves banking companies can be presented. Thus, Utami *et al.* (2020) studied the influence of the auditing opinion and the managerial property on the income smoothing in banking companies from Indonesia and Ozili (2017) studied the banking profit smoothing, audit quality and procyclicality in Africa: the case of loan-loss provisions.

In view of the above, the smoothing may be studied in several contexts, as it can interfere in the information quality presented to the external users, inclusive in the independent audit reports, as, according to Alves Júnior and Galdi (2020), the main mechanism used to establish the communication of the independent auditors with the market agents is the audit opinion disclosed with the financial statements of the company.

2.2 Changes in the auditor report: the Key Audit Matters

By aiming to improve the regulation, the NBC TA 701 arises, following the international accounting standards. Matos *et al.* (2018) affirm that such norm originated from the *International Standards Auditing 700 - ISA*, in which the auditors are instructed on the disclosure of the auditor opinion concerning which matters were more relevant during the verification work of the financial statements.

By considering that the information was previously more restricted, Santos, E. *et al.* (2020) explain that the benefit of the KAM disclosure is the access to information, as it provides clarifications regarding the balance sheet that had more attention from the auditor and promote further elucidation in the financial statements of the organization, including a more informative report for the decision-making. Some studies about the effects on the market are connected to earnings quality and management system (Cordos & Fülöp, 2015), to the effects on the auditor report and the pieces of evidence both for the investment professionals and for the non-professional ones (Köhler *et al.*, 2020), to the interference in the attention of the financial statements users (Sirois *et al.*, 2018).

The matters mentioned in the audit reports affect the search for information, increasing the attention to the disclosures of the accounting statements (Sirois *et al.*, 2013). In compliance with NBC TA 701, the key matters are the ones that the auditor consider as relevant ones in his/her reports according to the demand and the work efforts. In this sense, it is required that the auditors, in a specific area in the audit report, show which ones were the KAMs, that is, which matters required more attention during the audit and it should be available in a specific paragraph.

Furthermore, Marques and Souza (2017) argue that it is indispensable that the motivation to include them is mentioned, as well as the explanation of how such items were treated in the financial statements. Also, according to the NBC TA 701, the key matters can be impacted by the organization size, nature of its businesses, as well as by the facts and circumstances of the audit work. Thus, the KAMs have potential usefulness for the several users, as they can provide information that enables a higher risk assessment from the investors and stakeholders, including the auditors (Marques & Souza, 2017).

Santos, K. *et al.* (2020) express that this standard (NBC TA 701) has the purpose of making the audit report more transparent for the concerned parties, communicating possible risk factors to the *stakeholders*. Hence, for Bédard *et al.* (2014), the auditors, under the expressed disclosures, contribute to the discussion on the informational content of the accounting reports and they proceed concerning the improvement of the transparency and the accountability both for the managers and for the audited companies.

According to Velte (2020), in order to measure the external audit effects of the financial statements for several groups of concerned parties, it is required to ensure the readability of the KAM disclosure. The KAMs, due to containing more critical matters for the performed auditing, incorporate an accounting language that can hamper the detailed comprehension by the users (Hussin *et al.*, 2023). This complexity is stressed by Smith (2021), who emphasizes that the vocabulary used to explain the KAMs can be of difficult comprehension, especially for the less experienced users. Considering that a higher readability implies in clearer, more transparent explanation with lower use of specific terminology, it can be deduced that an increase in the readability is related negatively to the income smoothing. From this perspective, the following research Hypothesis I is raised.

H1: there is a negative and significant relation between the level of readability of the Key Audit Matters (KAMs) and the income intentional smoothing.

The disclosure of the KAMs depends strongly on the auditor professional judgement to report the more critical matters that are subject to risks in the audit and to increase the informational content (Li, 2020). In addition, Sierra-García *et al.* (2022) argue that the audit process quality is influenced not only by the auditor report style and by the used technique but also by the nature and complexity of the disclosed KAMs. Then, so that the auditor report is useful in the decision-making, the facts should be presented in a direct and concise manner (IAASB, 2018). Thus, it is deduced that the higher the number of words of the audit reports,

the higher its complexity will be, which can relate to higher income smoothing. Grounded on this point of view, this study Hypothesis 2 was designed.

H2: there is a positive and significant relation between the number of words in the Key Audit Matters (KAMs) and the income intentional smoothing.

Sirois *et al.* (2018) affirm that the disclosure of several KAMs will add complexity and will weaken the message from the external auditor, indicating that each KAM signal becomes less prominent as the number of KAMs increases. This occurs because the users would have less available cognitive resources in order to process them, thus decreasing the signaling impact. The more the KAMs are disclosed, the more evident the indications that there are significant points that should be improved by the companies are and this can indicate the presence of discretionary actions of earnings manipulation by the managers. By considering the above, this research Hypothesis 3 is raised.

H3: there is a positive and significant relation between the quantity of the Key Audit Matters (KAMs) reported by the company and the income intentional smoothing.

3 Methodological Procedures

The universe of the current study included the 59 companies listed on Brazil, Bolsa, Balcão (B3) electric power sector; nonetheless, the research final sample covered 33 companies. The electric power sector choice was motivated by the existing obligation of reporting the accounting information both by using the financial accounting and the regulatory accounting. The IFRS norms, adopted in Brazil in 2010, governing financial accounting and its application, prevent the accounting of regulatory elements. On the other hand, the regulatory accounting was established by the ANEEL Normative Resolution n°. 396/2010. As a result, some divergences occur in the conciliation of certain account groups and it is confusing to some investors (Guia & Dantas, 2020), increasing these company risks. Thus, companies in the electric power sector are more prone to adopt income smoothing strategies by aiming to reduce the risk perception by the investors.

The studied period was from 2016 to 2019 and it is worth recalling that the normatives with the obligation of the KAM disclosure in the audit report were in force in 2016 and 2019 is the year prior to the Covid-19 pandemic. Two econometric models with the purpose of analyzing this study dependent variable were developed, which are the two smoothing measures presented by Lang *et al.* (2012), the SMTH1, which corresponds to the general intentional smoothing of the outcomes, which includes the smoothing by operational activities and the ones related to the accrual basis use, and the SMTH2 that is the income intentional smoothing exclusively *accrual-based*. These two measures were adapted according to Sousa *et al.* (2020).

When considering the research by Lang *et al.* (2012) and the logic by Zang (2012), these two measures are complementary ones. The KAMs issued to the companies in the electric power sector are this research variable of interest; for this purpose, three distinct *proxies* were constructed. The first one regards the quantity of KAMs reported by company in each analyzed year (Santos, K. *et al.*, 2020). The other two *proxies* involve text analysis; therefore, the Flesch Reading Ease (FRE) (Flesch, 1948 was used; Velte, 2020; Hussin *et al.*, 2023), which aims at classifying the text on a scale ranging from 0 to 100 points; the result categorizes the text according to the reading difficulty. Hence, the lower the FRE, the higher the text complexity; the text length was also used (LENGTH); texts with higher number of words require a higher processing cost; then, they tend to present a higher complexity (Li, 2008).

As to the control variables, they are the most used ones in this type of research and the ones that make model adjustments. In Table 1, the dependent and independent variables as well as the control ones are included.

Table 1
Dependent, independent and control variables

| Variable | Description | Operationalization | References |
|------------------------------|---|---|---|
| Dependent variables | | | |
| SMTH1 | Income general intentional smoothing | $SMTH1_{it} = \alpha_i + \beta_1 Sz_{it} + \beta_2 Debt_{it} + \beta_3 MBit + \beta_4 SDIncome_{it} + \beta_5 \%Loss_{it} + \beta_6 Cycle_{it} + \beta_7 Grit + \beta_8 Imobit + \beta_9 Flow_{it} + \beta_{10} Year_{it} + \beta_{11} Sector_{it} + \epsilon_{it}$ | Lang et al. (2012) |
| SMTH2 | Accrual-based income intentional smoothing | $SMTH2_{it} = \alpha_i + \beta_1 Sz_{it} + \beta_2 Debt_{it} + \beta_3 MBit + \beta_4 DPIncome_{it} + \beta_5 \%Loss_{it} + \beta_6 Cycle_{it} + \beta_7 Grit + \beta_8 Imobit + \beta_9 Flow_{it} + \beta_{10} Year_{it} + \beta_{11} Sector_{it} + \epsilon_{it}$ | Lang et al. (2012) |
| Independent variables | | | |
| FLESCH | KAM readability | Obtained from Word software, 2010 version, in Portuguese (Brazil) | Flesch (1948), Velte (2018, 2020), Hussin et al. (2023) |
| LENGTH | Quantity of words in the KAMs | Nl of number of words in the KAMs by company and per year | Li (2008), Nogueira et al. (2020), Suttipun (2020), Algam et al. (2021) |
| KAM | KAM quantity reported by company | KAMs reported by company and per year | Santos, K. et al. (2020), Hussin et al. (2022) |
| Control Variables | | | |
| Company Size (SZ) | Nl (total assets) | It represents the natural logarithm of the company total assets | Chiang et al. (2023), Ribeiro et al. (2018), Sousa et al. (2020) |
| Performance (ROA) | It is expressed by the ratio between the company net profit and its total assets. | $ROA = \frac{\text{Net Profit}}{\text{Total Assets}}$ | Ribeiro and Colauto (2016), Ribeiro et al. (2018), Algam et al. (2021) |
| Indebtedness (IND) | It represents the liability amount divided by the organization total assets. | $IND = \frac{\text{Liability Amount}}{\text{Total Assets}}$ | Castro and Martinez (2009), Ribeiro et al. (2018) |
| BIG4 | Studied company audit | Dummy variable that assumes value 1 if the company is audited by a Big4 audit firm (KPMG, DTT, EY, PWC); and 0 in the other situations | Marques and Cunha (2017), Marques and Souza (2017) |
| CGL | Corporate Governance Level | Dummy variable, 1 for companies with differentiated levels of corporate governance and 0 for the others. | Marques and Souza (2017), Bianchet et al. (2019) |

Source: research data.

By aiming to respond the research question, the quantile regression based on this study dependent variables was used. The quantile regression is most appropriate when the distribution is heterogeneous as it is the case of this research sample, that is, when the impacts tend to be differentiated in the dependent variables from the quantiles; moreover, there is no need for *outlier* correction. The information was collected both from the Economática® database, and from the Reference Forms disclosed on B3 website. Subsequently, the econometric models used in this study are presented.

$$SMTH1 = \beta_1 + Flesch_{it}\beta_2 + Length_{it}\beta_3 + KAM_{it}\beta_4 + SZ_{it}\beta_5 + ROA_{it}\beta_6 + Ind_{it}\beta_7 + Big4_{it}\beta_8 + CGL_{it}\beta_9 + \varepsilon_{it} \quad (1)$$

$$SMTH2 = \beta_1 + Flesch_{it}\beta_2 + Length_{it}\beta_3 + KAM_{it}\beta_4 + Sz_{it}\beta_5 + ROA_{it}\beta_6 + Ind_{it}\beta_7 + Big4_{it}\beta_8 + CGL_{it}\beta_9 + \varepsilon_{it} \quad (2)$$

In which,

SMTH1 and SMTH2 are, respectively, the model metrics by Lang, Lins and Maffett (2012),

FLESCH represents the KAM readability variable,

LENGTH represents the NI of the number of words in the KAMs,

KAM is the KAM quantity reported by the companies annually,

SZ is the company size,

ROA is the return of the company per year,

IND represents the indebtedness,

BIG4 is the *dummy* of the audit company,

CGL is the *dummy* level according to the B3 segment and

ε is the regression error term.

4 Results and Analysis

4.1 Descriptive statistics

By aiming to achieve the research objective, the data were submitted to the descriptive analysis for the identification of their behavior. In Table 2, the information related to the descriptive analysis of the variables used in this study is exposed.

Table 2

Data descriptive analysis

| Variable | Average | Median | Standard deviation | Minimum | Maximum | Obs. |
|----------|---------|---------|--------------------|---------|---------|------|
| SMTH1 | 0.4497 | 0.3194 | 0.4457 | 0.0021 | 2.4803 | 119 |
| SMTH2 | 0.1548 | 0.1177 | 0.1347 | 0.0000 | 0.6602 | 119 |
| FLESCH | 10.8235 | 12 | 7.0418 | 0 | 30 | 119 |
| LENGTH | 6.9872 | 7.0273 | 0.3736 | 5.5759 | 7.6221 | 119 |
| KAM | 3.0840 | 3 | 1.2183 | 1 | 6 | 119 |
| SZ | 16.1548 | 16.1535 | 1.2020 | 10.9112 | 19.0151 | 119 |
| ROA | 0.0357 | 0.0411 | 0.0788 | -0.3890 | 0.3273 | 119 |
| IND | 0.6567 | 0.6818 | 0.2023 | 0.0506 | 1.5636 | 119 |

Source: research data.

The descriptive results show that both the SMTH1 and the SMTH2 have a standard deviation below 1, that is, the elements that comprise these variables are concentrated. Concerning the average, one can observe that the SMTH1 (0.4497) has a higher average than

the SMTH2 (0.1548); this aspect shows that the values of the general intentional income smoothing occur in higher quantity.

Regarding the FLESCH index, the achieved average is of 10.8235; such outcome explains that the text is difficult to comprehend, because, as the text approximates to zero, more comprehension complexity it has; in addition, one can notice the data dispersion of this variable when observing its standard deviation (7.0418). The LENGTH variable has approximate minimum and maximum values, its average is of 6.9872; in this case, it is observed that the length of the texts is similar. The average quantity of KAMs reported by the companies is of 3; this means that the companies did not issue many KAMs annually.

As to the company SZ, the obtained average is of 16.1548; one can notice that the minimum and maximum values do not have a significant discrepancy. Concerning the ROA, the average is of 0.0357; this indicates that, in general, the companies did not obtain a significant return. However, according to the Table, some companies, in fact, had negative returns (-0.3890). The IND variable reached the average of 0.6567. This proves that the companies are not highly indebted.

4.2 Correlation

Although the correlation is not an indispensable assumption for the quantile regression (Greene, 2000), *Spearman* correlation was performed to verify the association among the variables. Table 3 shows this association results.

Table 3
Spearman correlation

| | SMTH1 | SMTH2 | FLESCH | LENGTH | KAM | SZ | ROA | IND |
|--------|---------|---------|-----------------------|----------------------|----------------------|---------------------|-----------------------|-----|
| SMTH1 | 1 | | | | | | | |
| SMTH2 | 0.0943 | 1 | | | | | | |
| FLESCH | -0.0667 | -0.1165 | 1 | | | | | |
| LENGTH | -0.1440 | 0.0852 | 0.0619 | 1 | | | | |
| KAM | -0.0875 | 0.0412 | 0.1654 * | 0.7507 *** | 1 | | | |
| SZ | -0.0897 | 0.2225 | -0.5011 *** | 0.3037 ** | 0.1008 | 1 | | |
| ROA | -0.1326 | -0.1042 | 0.1997 ** | -0.1054 | -0.2117 ** | -0.0789 | 1 | |
| IND | 0.0395 | -0.0038 | -0.3229 ** | 0.1341 | 0.1195 | 0.2389 ** | -0.5280 *** | 1 |

* indicates significance at 10%, ** indicate significance at 5% and *** indicate significance at 1%.

Source: research data.

The readability, measured by the FLESCH variable, suggests a negative relation both with SMTH1 and with SMTH2; nonetheless, such correlation does not achieve any statistical significance. Likewise, the LENGTH and KAM variables do not demonstrate a statistically significant relation with any of the dependent variables (SMTH1 and SMTH2). In addition, LENGTH and KAM show an indicative of a negative relation with the SMTH1 and a positive one with the SMTH2.

As to the quantity of issued KAMs, one can observe a positive and significant relation, at a 10% level, with the readability (FLESCH). Likewise, the KAM and LENGTH variables present a correlation of 0.7507, with statistical significance of 1%, indicating the presence of multicollinearity. In face of such scenario, the data were estimated separately to examine the

relation of the three independent *proxies* (FLESCH, LENGTH and KAM) with the income intentional smoothing. As to the other independent variables, the results suggest the multicollinearity absence, considering that the coefficients are significantly inferior to 0.70, according to Fávero and Belfiore (2017).

4.3 Multivariate Analysis

Finally, to verify the KAM impact on the general intentional income smoothing and accrual-based income intentional smoothing, quantile regressions at the quantiles 0.25, 0.50 and 0.75 were estimated. The results are presented in Table 4 in panels A (General intentional income smoothing) and B (Accrual-based income intentional smoothing).

Table 4

SMTH1 and SMTH2 multivariate analysis

Panel A: SMTH1 – General intentional income smoothing

| Variables | MODEL 1 | | | MODEL 2 | | | MODEL 3 | | |
|----------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| | Smoothing and FLESCH | | | Smoothing and LENGTH | | | Smoothing and KAM | | |
| | 0.25 Coef. (T-stat) | 0.50 Coef. (T-stat) | 0.75 Coef. (T-stat) | 0.25 Coef. (T-stat) | 0.50 Coef. (T-stat) | 0.75 Coef. (T-stat) | 0.25 Coef. (T-stat) | 0.50 Coef. (T-stat) | 0.75 Coef. (T-stat) |
| FLESCH | -0.0036 (-0.65) | -0.0014 (-0.19) | -0.0029 (-0.34) | | | | | | |
| LENGTH | | | | 0.0133 (0.14) | -0.0270 (-0.20) | -0.1162 (-0.79) | | | |
| KAM | | | | | | | 0.0008 (0.03) | -0.0283 (-0.71) | -0.0361 (-0.74) |
| SZ | -0.0234 (-0.76) | -0.0069 (-0.17) | -0.0059 (-0.12) | -0.0252 (-0.83) | -0.0002 (-0.01) | 0.0100 (0.22) | -0.0211 (-0.75) | -0.0048 (-0.13) | 0.0058 (0.13) |
| ROA | -1.2906 (-2.51**) | -1.6375 (-2.37**) | -2.2098 (-2.76*) | -1.3352 (-2.66*) | -1.5613 (-2.25**) | -2.1720 (-2.88**) | -1.3916 (-2.78*) | -1.3627 (-2.03**) | -2.1207 (-2.58) |
| IND | -0.3069 (-1.53) | -0.3780 (-1.40) | -0.5505 (-1.76*) | -0.2754 (-1.36) | -0.3100 (-1.11) | -0.4917 (-1.62) | -0.3112 (-1.53) | -0.1858 (-0.68) | -0.4915 (-1.47) |
| BIG4 | 0.0136 (0.12) | -0.0021 (-0.01) | -0.0323 (-0.19) | 0.0622 (0.63) | -0.0192 (-0.14) | -0.0214 (-0.14) | 0.0489 (0.44) | -0.0232 (-0.16) | -0.0614 (-0.34) |
| CGL | 0.0580 (0.90) | 0.0156 (0.18) | -0.0647 (-0.64) | 0.0645 (1.01) | 0.0027 (0.03) | -0.0664 (-0.69) | 0.0609 (0.94) | 0.0082 (0.10) | -0.0924 (-0.87) |
| Year | Yes | | | | | | | | |
| Obs. | 119 | | | | | | | | |
| R ² | 0.0616 | 0.0929 | 0.1667 | 0.0568 | 0.0921 | 0.1689 | 0.0565 | 0.0942 | 0.1752 |

Panel B: SMTH2 – Accrual-based income intentional smoothing

| Variables | MODEL 4 | | | MODEL 5 | | | MODEL 6 | | |
|-----------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| | Smoothing and FLESCH | | | Smoothing and LENGTH | | | Smoothing and KAM | | |
| | 0.25 Coef. (T-stat) | 0.50 Coef. (T-stat) | 0.75 Coef. (T-stat) | 0.25 Coef. (T-stat) | 0.50 Coef. (T-stat) | 0.75 Coef. (T-stat) | 0.25 Coef. (T-stat) | 0.50 Coef. (T-stat) | 0.75 Coef. (T-stat) |
| FLESCH | -0.0002 (-0.17) | 0.0010 (0.40) | -0.0019 (-0.62) | | | | | | |
| LENGTH | | | | 0.0111 (0.39) | -0.0011 (0.03) | -0.0123 (-0.21) | | | |
| KAM | | | | | | | 0.0051 (0.60) | -0.0020 (-0.15) | -0.0066 (-0.36) |
| SZ | 0.0166 (1.87*) | 0.0363 (2.56**) | 0.0488 (2.73**) | 0.0162 (1.82*) | 0.0347 (2.48**) | 0.0587 (3.25**) | 0.0167 (2.03**) | 0.0375 (2.89**) | 0.0591 (3.39***) |
| ROA | -0.0257 (-1.75*) | -0.2710 (-1.15) | -0.2645 (-0.89) | -0.2985 (-2.04**) | -0.2397 (-1.04) | -0.1664 (-0.56) | -0.2904 (-1.99**) | -0.2360 (-1.03) | -0.2393 (-0.77) |

| | | | | | | | | | |
|----------------|----------------------|--------------------|--------------------|----------------------|--------------------|--------------------|----------------------|--------------------|--------------------|
| IND | -0.0470 (-0.82) | -0.1059 (-1.15) | -0.1619 (-1.39) | -0.0650 (-1.10) | -0.0917 (-0.99) | -0.1145 (-0.96) | -0.0560 (-0.95) | -0.0861 (-0.92) | -0.1380 (-1.10) |
| BIG4 | 0.0042 (0.13) | -0.0235 (-0.46) | 0.0264 (0.41) | 0.0119 (0.41) | -0.0193 (-0.43) | 0.0467 (0.80) | 0.0115 (0.36) | -0.0271 (-0.53) | 0.0476 (0.69) |
| CGL | -0.0430 (-2.33**) | -0.0347 (-1.17) | -0.0190 (-0.51) | -0.0438 (-2.35**) | -0.0280 (-0.96) | -0.0383 (-1.02) | -0.0381 (-2.02**) | -0.0421 (-1.41) | -0.0446 (-1.12) |
| Year | Yes | | | | | | | | |
| Obs. | 119 | | | | | | | | |
| R ² | 0.0885 | 0.1317 | 0.1585 | 0.0888 | 0.1314 | 0.1554 | 0.0925 | 0.1316 | 0.1549 |

* indicates significance at 10%, ** indicate significance at 5% and *** indicate significance at 1%.

Source: research data.

As to the KAM readability (FLESCH), as it is shown in Table 4, a significant relation is not observed at any of the quantiles with the SMTH1 and the SMTH2. In this sense, the text complexity does not seem to influence the practice of income intentional smoothing. Likewise, Köhler et al. (2020), based on an additional analysis, found that the KAMs do not present a communicative value for non-professional investors. The outcomes indicate that the KAM readability does not have any potential to affect the income intentional smoothing.

A feasible explanation for such result lies in the fact that the text does not have any power to communicate the information clearly in view of its high complexity; therefore, it is unable to interfere in the company procedures or in the managers' discretionary choices. Hence, this research H1 - negative and significant relation between the readability level of the Key Audit Matters (KAMs) and the income intentional smoothing - is rejected.

The LENGTH variable presents signs of a positive relation only at the quantile 0.25 with SMTH1 and SMTH2, although without any statistical significance. By contrast, at the 0.50 and 0.75 percentiles, the indication suggests a negative relation, without any statistical significance. Consequently, this research H2 – the existence of a positive and significant relation between the number of words in the Key Audit Matters (KAMs) and the practice of income intentional smoothing – is rejected.

There is a natural bias to consider longer texts as more complex ones. However, Li (2006) highlights that the reports with higher number of words are not necessarily the most complex ones. Hence, the LENGTH variable may both contribute to a higher text complexity and provide more comprehensive explanations. The outcomes obtained in this study show that the text size does not have a significant impact on the practice of income intentional smoothing by the sample companies.

Regarding the KAM variable, there is not a significant association with the income smoothing; however, there is some indication of a positive relation at the quantile 0.25 and a negative one at the quantiles 0.50 and 0.75 with the SMTH1 and SMTH2. Regarding the indicative sign of a positive relation, it is observed that as the companies issue more KAMs, they increase the possibility of influencing the outcomes by using the intentional smoothing practice, but this occurs only with companies that practice low smoothing. Concerning the indication of a positive relation, it is observed that companies that practice more smoothing can disclose a higher number of KAMs because they aim to construct credibility in order to continue to adopt smoothing practices as they present more stable and more predictable financial outcomes. Thus, the H3 adopted in this research – there is a positive and significant relation between the quantity of Key Audit Matters (KAMs) reported by the company and the income intentional smoothing - is rejected.

By considering this study control variables, the SZ variable represented by the total assets logarithm has a positive and significant relation only with the SMTH2 at the quantiles 0.25, 0.50 and 0.75. Hence, it is suggested that the larger the audited company is, the higher the probability that, due to the several presented operations and information complexity, there is

bias in managing the earnings by using the smoothing. In this sense, by presenting significance only in the accrual-based smoothing, the bias of a trade-off occurrence between the accrual-based management and the operations management (Zang, 2012) is perceived.

Regarding the ROA, a negative coefficient and statistically significant with SMTH1 and SMTH2 is observed in general. This suggests that the companies are possibly adopting a more conservative approach, aiming at the presentation of more stable outcomes, especially in face of significant operational variations over time. This result is consistent with Reid et al. (2019) who found a ROA negative and significant relation with the accrual-based management.

Concerning the IND variable of the companies, the findings have negative coefficient with the SMTH1 and SMTH2, although without any statistical significance. Therefore, it is suggested that the indebtedness of the companies is low; then, there is the indicative of negative association in the general intentional smoothing and in the accrual-based one. This finding follows the assumption confirmed by Castro and Martinez (2009) who found a positive relation between the indebtedness of the companies and the income smoothing practice, indicating that the companies with high level of payables are more prone to smooth their outcomes.

Concerning the BIG4 variable, the coefficient, in conclusion, is negative for the SMTH1 and positive for the SMTH2; nonetheless, in both analyses there is no statistical significance. The signs about this variable suggest that even the companies audited by a big four do not produce an environment of better earnings quality; therefore, the companies could still use the accounting choices for the information manipulation. Similarly, the results by Ozili (2017) affirm that the smoothing is not reduced due to the company audit by the big four.

Regarding the CGL variable both for the SMTH1 and the SMTH2, the coefficient is negative in general, but it has statistical significance only at the quantile 0.25 of the SMTH2. Therefore, one can notice that a level of differentiated governance according to the B3 does not influence the income smoothing practice of the organizations; such finding is in line with the study result by Bianchet et al. (2019). In this research, it can be verified that the companies that are at a higher corporate governance level do not mitigate the income smoothing practice.

5 Final Considerations

The current research had the general objective to verify the KAM impact on the practice of income intentional smoothing in the companies of the Brazilian electric power sector. The found outcomes suggest that the KAMs, measured from three *proxies*: the reported KAM quantity by company and per year, FLESCH readability index and the number of words measured by the LENGTH apparently do not have a significant impact on the adoption of the income intentional smoothing practice in the financial outcomes of the analyzed companies.

The obtained pieces of evidence indicated that the KAM inclusion in the auditors' report did not have a significant impact on the quality improvement of the audit performed by the auditors and it did not influence the managers' behavior constraint substantially. More precisely, it was observed that the practice of the income intentional smoothing, an accounting strategy used to present a more stable financial image, was not significantly impacted by the implementation of the KAMs. These findings highlight the importance of a deeper analysis of the policies and practices in force, with the purpose of promoting effective and relevant changes in the information disclosure in the audit report.

Although the outcomes do not have any statistical significance, they showed that the FLESCH index presents a difficulty bias while reading the KAMs, indicating that the presented information can be contributing to the income smoothing, which enables the managers to perform the information manipulation subtly. In this sense, the findings raise doubts on the capacity of the KAMs to provide more transparent information to the stakeholders. Such

indication is in line with the affirmation by Köhler *et al.* (2020), who argue that the KAMs lack a communicative value for the non-professional investors.

By examining the text extension (LENGTH), it is seen that the KAMs do not play the role of information distortion inhibitors. Therefore, the additional disclosure of information by the audit firms does not necessarily imply an efficacious control on the data manipulation practice. The absence of a significant relation between the quantity of disclosed KAMs and the income intentional smoothing indicates that other factors may be influencing this dynamics, for example, the adoption of a KAM communication approach can occur without affecting the financial outcome stability directly. Such evidence points to the relation complexity between the disclosure of the KAMs and factors that affect the information transparency and integrity.

This study brings important contributions for the expansion of the existing literature in two crucial fronts. First, it goes beyond the previous research carried out in Brazil, by providing new pieces of evidence on the disclosure of the KAMs and the earnings management practice by the intentional smoothing. Moreover, the KAM measurement approach is innovative, performed by using three *proxies* – readability, text extension and the quantity of issued KAMs per year - and it explored aspects that, to the date, had not been duly explored on the thematic in the Brazilian literature. Secondly, the research not only offers valuable *insights* for the academic community, but it also collaborates with regulators and standard setters by pointing the need for improvements in the audit reports. As, in contrast to the expectation, the disclosure of the KAMs does not result in a higher information transparency, highlighting the importance of reviews and adjustments in the communication of these critical audit aspects to promote a higher effectiveness in the information disclosure to the stakeholders.

As a limitation of this investigation, the impossibility to generalize the outcomes is emphasized. Another limiting aspect is the size of the sample, as well as the use of only one sector to carry out the research. At last, for future studies, aspects such as family and non-family companies should be analyzed, in addition to characteristics of audit firms such as audit fees and auditors' gender. Moreover, other metrics to measure the income smoothing may be used.

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