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# Editor's Word

Dear reader, we are delivering the fourth issue of the year 2020. This year was difficult for many people and, in this sense, it would be unfair to list only the challenges that we, accounting professors and researchers, have faced. It was also a year of resilience, faith and belief in the victory of science though. This science that is sometimes used as a weapon due to its ability to elucidate truths with coherent methods, but which, when misused, can be a danger to all humanity. Thus, I highlight the relevance of this issue and congratulate you, reader, for your appreciation of the articles published here.

The editorial was written by Professor Fábio Frezatti, a great manager, scientist and friend, who has granted us with a magnificent presentation on the pentagon of quality in academic publication. I believe that it will serve as a script for beginners and seniors to pursue the much dreamed quality in their scientific publications.

Turning the focus to our articles, the first was written by Mikaéli Giordani, Justine Maria Neto, and Paulo Roberto da Cunha and aims to analyze the influence of the auditor's litigation risk on audit and non-audit fees. In its results, the article assesses that in the face of a high risk of litigation, auditors are inclined to spend more effort and time on the application of tests and, consequently, to charge higher fees.

The second article was written by Ramon Dos Santos and Joséte dos Santos. The authors sought to identify the influence of financial slack on earnings management in credit unions as a pre-loss financing strategy. The results highlighted a positive influence of financial slack on earnings management in Brazilian credit unions. Hence, the greater (or smaller) the financial slack the managers have at their disposal, the greater (or smaller) the proneness towards earnings management.

The next article was written by Márcia Figueredo D'Souza and aims to analyze the relationship between the Machiavellian personality trait and Corporate Social Responsibility (CSR) and earnings management in the light of the Upper Echelon theory. With regard to the results, professionals with greater influence of the Machiavellian are less prone to legal and ethical corporate responsibility and accept earnings management more. In addition, against expectations, the moderation of CSR did not reduce the positive relationship between Machiavellianism and earnings management.

The fourth article, still in the behavioral area, was written by Ronan Marçal and Luiz Alberton. This article aimed to analyze the influence of dark personality traits on the professional skepticism of independent auditors in Brazil. The results indicate that narcissism can positively influence the attribute of professional skepticism by leveraging auditors' self-esteem and ability to question. Machiavellianism and psychopathy, then, in view of the dataset analyzed, seem to have no positive influence on professional skepticism, and an inverse relationship may even exist in the aspects of autonomy and self-esteem, respectively.

The fifth article, in the field of education, written by Gleison Pontes, Kellma Fonseca, Ariane Fernandes, and Patrícia de Souza Costa, aims to identify which competencies are developed in the application of teaching cases using different teaching techniques in the light of Framework-Based Teaching and Bloom's taxonomy. In the results, the authors conclude that, according to the students, the use of these techniques developed distinct skills and competencies. Thus, the choice of the method for the application of cases should be aligned with the educational objectives the teacher has established.

Finally, the article in the management area, written by researchers and professors Thiago Silva, Cristian Dal Magro, Luciana de Souza, and Januário José Monteiro, aimed to analyze the influence of the coercive and enabling characteristics of the budget on the empowerment and creativity of managers. As a result, it demonstrates that the company budgets can be perceived in two distinct ways, which can contribute to the sense of empowerment and creativity of employees, facilitating sustainable and innovative resource consumption through employees' creative initiatives.

I also want to emphasize that REPeC is not only linked to education, but to several areas, as shown in its objectives: Financial, Management, Public, Audit, Tax, among others.

Without further ado, I thank all the researchers who have submitted their articles to REPeC. Congratulations to those who have had the articles approved, as the demand is quite high and the path to the final publication quite hard.

Acknowledgements, once again, to the readers! I hope you will enjoy this new issue. Merry Christmas and a new year full of peace and health for all.

Academic greetings.

**Gerlando Lima, PhD.**
**Editor-in-chief**

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# The pentagon of quality in academic publication

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## Motivation for the theme

An academic journal editor has to decide on what strategy to adopt for dealing with the available articles: (s)he chooses what he thinks is promising and discards the other articles or does the opposite, that is, (s)he looks at what really has no chance of having relevant knowledge and spends time on the rest. It seems to be a tactical decision, but it is not. Nor is it simple to implement. Nor should it be an opportunistic short-term strategy because there is inertia in the community between receiving a signal, adjusting and reacting. From this decision, presented at its ends of application, the workload of the entire editorial ecosystem is defined.

When we editors make mistakes in the desk stage, betting on the article that has no chance of being perfected, we increase the workload of reviewers, authors and editors and this, although not captured objectively, generates unnecessary wear and tear: professionals that we respect and with whom we want to have long-term relationships pay the price. Assessments of Type 1 and type 2 errors are in our mind all the time. Somehow, academic productivism affects the entire ecosystem by pressing for quantity of publications(Miranda, Carvalho, & Ramos, 2016), and quality needs to be translated in a very practical way.

In some cases, the reviewers note the strange suggestion of an additional round when they recommended that the article be rejected. On the editor's side, by looking at a feasible list of adjustments, (s)he can understand that providing that additional round has a cost-benefit in which the community wins. No editor wants to miss out on a good article, and authors can collaborate by reflecting more on when the article is ripe for submission for the sake of communication. Depending on the attitude of the community, having a good quality article can be increasingly difficult to publish (Trzesniak, Plata-caviedes & Córdoba-Salgado, 2012), also due to the prematurity of the submission.

I do not want to discuss what quality would be in terms of journals and association with citations, but in structuring and offering the articles to the community so that they are useful. In fact, somehow, the generation of knowledge should improve the quality of life of human beings (Sabadini, Sampaio, & Koeller, 2009). This is true in any area of knowledge, whether in areas related to people's health, or in the health of organizations, for example. Ensuring that this knowledge reaches the community is something fundamental for everyone.

I have seen many promising articles in RC & F whose promises have not come true. Some possible answers: "I made a mistake in betting", "the authors did not engage", "the communication of what to do was not efficient", etc. After going through an endless list of "etc.", I want to stimulate the actions that I consider relevant, where to start?

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Perfecting communication is a work of art, something unique for each article. A technique should exist to perfect the article that is at the same time flexible and guiding. I do not believe in a magic formula, but there should be something that could relate someone's experience and knowledge to an approach that would enhance efficiency, indicating what should be prioritized in the process. In any dimension of human activity, we think, at first, of rupturing innovation, something very different, but in some cases, looking at what already exists and perfecting it can be a way to provide effective and rapid innovation. Who knows, with this, we could stimulate new, even more innovative and disruptive contributions?

## Given the problem, would there be anything any of us could do?

It was thinking about the above question that the look at the set of five elements came about, which countless journals use totally or partially by numerous journals as something that is considered in the analyses, but absolutely independently among the various elements. The set of five elements, which I will call a pentagon, are: **innovation, relevance, gap, contribution and impact**. All this subordinated to a **problem**, which is based on a **construct** for the development of research in a given **field**.

They exist but, in many cases, they are offered by the authors in a bureaucratic way and not as the brain of research developed in a creative, serious and robust way and that has to be communicated in the same way. Often, the logic of communication is based on the take for granted approach, as if its understanding were obvious, without a vision of facilitation and prioritization of the fundamental user, the reader.

The definitions of each element go through specifics of each area and even of the journals, and the set provides the figure of the pentagon, which can be a supporting structure for something. The triggering question would be: *would there be an opportunity to use this set of elements more efficiently?*

To answer the question, some reflections are needed:

## 1. What are the possible configurations of the pentagon?

Understanding that the anchor of any analysis is the problem and that, in some areas, a research question is offered, the pentagon can be used as a balancing abstraction of elements that can provide the **intrinsic quality of a research** when dealing with the theoretical construct, field, and methodology.

Several possibilities are presented and Figure 1 contains, at the center, the editors' consumption dream, that is, a pentagon with emphasis on all elements. In other words, a research communication that has a clear gap, a noticeable innovation dealing with a relevant topic that offers an enlightened contribution, impacting society in some dimension. Easy to succeed, right? It seems that it is not so easy, and the shapes of the pentagons on the four sides of Figure 1 illustrate the alternatives.

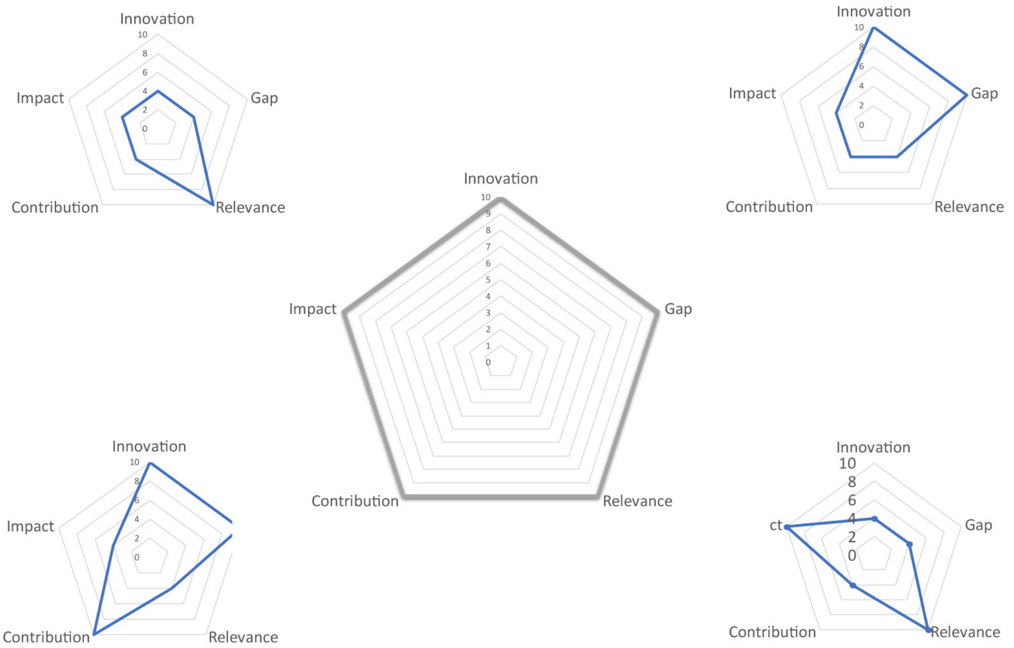


**Figure 1.** Various ways to find the quality pentagon in academic communication.

Try to recall an article on an extremely relevant topic, but without any innovation. Or, then, another article in which the gap was clear, but of low relevance and, consequently, low impact. How about research with potentially high relevance and a high impact, but which, due to lack of deepening, reveals an inexpressive gap and, thus, little relevant innovation?

The article may present weaknesses in these same elements and, instead of simply being rejected, it can be improved at different moments in the knowledge construction, provided that the authors understand where and how to adjust their research communication.

I believe you have realized that the opportunity is linked to the pentagon's disclosure. The elements may even exist quite appropriately, but you, the author, should worry about showing them to the agents who provide academic communication.

## 2. How could the pentagon be used?

Two strands with great potential benefit: a) relationship between the elements and b) dynamism of the process.

The first strand means to say that reviewing the **gap**, for example, does not correspond to simply saying that nothing has been written in Brazil on the subject. On the contrary, by evidencing what has been communicated on the topic, making clear what has not been researched, what is not known, as well as specifying the gap and proposing to reduce or eliminate it, **innovation** is evidenced. This innovation is the way we can highlight the **contribution**, which may not eliminate the entire gap, but is relevant including for other researchers to rest on and offer their contributions. In the end, understanding the contribution, we can perceive the **impact** that the new knowledge generates in society, in some kind of dimension, be it economic, social or cultural, or even in all dimensions. This relationship requires some level of abstraction and approximation with the field, strengthening the evaluation of the article.

The strand of dynamism, in turn, is linked to the commitment to improve the work, going through the elements several times and identifying new opportunities for improvement in changing them. As an example of this, by improving the expression of the gap, additional conceptual and empirical points of innovation, new contributions can be identified and, thus, research can exert even greater impact.

If the individual is not satisfied with the improvement of the work, (s)he should try again, perhaps one or two weeks later, if the circumstances permit so. The dynamism of improvement is something noticeable if the author is willing to improve the work and perhaps more than one round provides very significant benefits.

## 3. When to use the pentagon

Looking at the studies that I have the opportunity to analyze, the use of the pentagon reasoning in the design and implementation of the projects would be very useful. Taking these elements into intense consideration would greatly benefit the whole community, as some changes may be unworkable if they occur after the fieldwork.

Looking at a ready article and analyzing its strengths and weaknesses regarding communication meets my main motivational demand from the editorial perspective though.

## Final comments

The aim of this editorial was to instigate reflection and critical analysis of the community, supporting and/or questioning the proposal. If the approach makes sense, try to use it your way. Research can be done to validate that proposal or not. Understanding what conditions can be offered to delimit, challenge or extend the approach is also fundamental. Try it out and reach your own conclusion.

I am dissatisfied with the *status quo* and the loss of efficiency of studies that could be more valued if properly hammered out. It is not just about having articles accepted in academic journals, but about their longevity. After all, communication is not the end, but the beginning of the impact of research someone will use. Think about it, because long-term utility makes the crucial difference. In your life and in the community. The author's commitment to the article should be long-term, and intrinsic quality can be an important factor for your article, in addition to being accepted and published in a disputed journal, to have a long useful life: long life to the article!

The responsibility for this work should start with the authors, although supported by the reviewers and editors. More careful work by the authors would benefit the entire ecosystem, including themselves; these, at the very least, with a significant reduction in the publication time. We will not need two, three, four or five revisions, if the studies arrive more mature. This has always been said, but a possible approach is proposed here on how to do it.

Some people believe that models can answer any question and eliminate problems like magic. Bad news: they don't. They can enhance efficiency and eventually increase the chance of success of research that would otherwise not be successful. In the end, what happens is that we continue depending on the talent, motivation and commitment of the main ingredient in the editorial process: the human being. The technique exists to make life easier and more efficient and, broadening the expectation, to make people happier. That's all.

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# The influence of auditors' litigation risk on audit and non-audit fees

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## Abstract
Objective: To analyze the influence of the auditor's litigation risk on audit and non-audit fees.
Method: Descriptive and documentary study with a quantitative approach. The population was composed of the listed companies in the United States of America, and the sample comprised 1,298 firms for each year of analysis, from 2013 to 2017. Data were collected from the Thomson Reuters Eikon® database and analyzed using descriptive statistics, correlation, and regression.
Results: Litigation risk and control variables influence audit fees. That is, auditors are inclined to spend more time and greater effort in implementing tests when facing a high litigation risk, which results in higher fees. A high litigation risk also influences non-audit fees because auditors feel the need to perform a more specialized service, resulting in higher fees.
Contributions: This study presents empirical evidence of the economic influence of the auditor's litigation risk, which is based on the client's characteristics, on audit and non-audit fees, corresponding to 18% and 1.3%, respectively.
**Keywords:** Risk of Litigation; Audit Fees; Non-Audit Fees.

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## 1. Introduction

The purpose of auditing is to ensure that records are accurate and to give credibility to accounting information. Given the growing complexity of business transactions and accounting standards, an audit increases the potential of adding value to customers (DeFond & Zang, 2014). There are increasing demands of external users in a competitive market, especially banks and financial institutions, for more comprehensive audits (Jaramillo, Benau & Grima, 2012). Hence, it becomes essential that auditors assess the audited company's characteristics, such as technologies and business complexity, to become aware of the risks involved.

In this sense, litigation risks are a constant concern of auditors (Sun & Liu, 2011) because they are responsible for emitting an opinion regarding financial statements based on evidence and their judgment. In this process, auditors inevitably face different types of risks, such as the risks of litigation and blemishing their reputation. A litigation risk exposes auditors to financial sanctions, while the risk of reputation exposes auditors to difficulties in retaining and attracting new customers. While litigation risks create a liability, reputation risk affects an asset, the auditor's reputation. These are not independent risks because litigations and financial sanctions also harm an auditor's reputation (DeFond & Zang, 2014).

Litigation risks represent a threat to auditors, so they regularly assess their exposure to risk, the planning of the service provided, and the services' cost. In this sense, concerning costs, audit fees change according to litigation risk (Seetharaman, Gul & Lynn, 2002). Audit fees refer to the amount charged by auditors to review financial statements. Additionally, auditors provide non-audit services according to their clients' needs, which include due diligence, special audit, tax verification, and mergers and acquisitions, among others (Hoitash, Markelevich & Barragato, 2007).

Different studies listing the determinant of audit fees (Jaramillo, Benau & Grima, 2012; Hoitash, Markelevich & Barragato, 2007; Mayoral & Segura, 2007; Joshi & Bastaki, 2000). Hay, Knechel & Wong (2006) highlight that audit fees depend on the size, complexity, risk, and other characteristics of the audited company in addition to the auditor's qualifications and characteristics of the audit job. Therefore, the amount charged by auditors concerning audit fees shall consider the costs of performing the job, the consequences of the job, and litigation and reputation risks (Mayoral & Segura, 2007). In summary, litigation risks indicate that auditors should consider the effect of these risks on their work when issuing an audit opinion and establishing audit and non-audit fees (Kaplan & Willians, 2013).

In the scope of audit and non-audit fees, studies address the effect of corporate social responsibility (Kim & Park, 2013), the potential influence of the quality of corporate governance on the auditor's remuneration (Zaman, Hudaib & Haniffa, 2011), the client's characteristics in determining fees (Jaramillo, Benau & Grima, 2012; Hay, Knechel & Wong, 2006), and the relationship established between client and auditor (Whisenant, Sankaraguruswamy & Raghunandan, 2003). In the case of the auditor's litigation risk, studies have addressed the auditor's litigation risk linked to the audited client's market. These studies specifically focus on publicly traded and closed-capital companies, or in some market sectors, and assume these factors expose auditors to a greater litigation risk (Badertscher, Jorgensen, Katz & Kinney, 2014; Choi, Kim & Liu, 2009; Venkataram, Weber & Willenborg, 2008; Seethraman, Gul & Lynn, 2002; Simunic & Stein, 1996).

Estimating the auditor's litigation risk based on the client's characteristics, Sun & Liu (2011) and Krishnan & Zhang (2005) advanced in the topic mainly using the model developed by Shu (2000). Sun & Liu (2011) contributed to the literature by examining the effect of auditor's litigation risk on the auditing quality between Big Four and non-Big Four auditors. Krishnan & Zhang (2005) report that the disclosure of review reports by audited companies decreases auditor's litigation risks. Therefore, as highlighted by Sun & Liu (2011), most studies addressing litigation risks focused on the country level when analyzing the market to which clients belong. Hence, there is the possibility of performing studies to address auditor's litigation risks, considering the clients' characteristics to audit firms.

Given the previous discussion, this study is intended to contribute to the discussion regarding litigation risk. The focus, however, is on risks inherent to clients and applying and testing the model proposed by Shu (2000) by relating audit and non-audit fees. Therefore, the following question was asked to guide this study: **What is the influence of auditor's litigation risk on audit and non-audit fees?** The objective is to analyze the influence of auditor's litigation risk on audit and non-audit fees among publicly traded companies in the United States of America.

In this sense, measuring an auditor's litigation risk based on the client's characteristics is important because it more explicitly affects the legal responsibility of auditors than litigation risk at a country's level (Sun & Liu, 2011). According to DeFond & Zhang (2014), the literature in the audit field addressing auditor's litigation risks is predominantly theoretical, suggesting the need for empirical studies to provide insights regarding litigation risk and auditing (Abbott, Gunny & Pollard, 2017), specifically verifying the relationship between litigation risks and audit and non-audit fees.

Additionally, many studies have focused on the antecedents of the auditor's litigation risk (Schmidt, 2012; Cahan & Zhang 2006; Heninger 2001; Lys & Watts 1994). Differently from those studies, this study is intended to analyze the potential consequences of auditor's litigation risk. Specifically, to verify whether auditor's litigation risk reflects on increased audit and non-audit fees. This context was chosen because the method developed by Shu (2000) to measure an auditor's litigation risk refers to the American context and because this is a broad market that permits a greater number of observations.

An important contribution of this study is that it provides evidence regarding the relationship between auditor's litigation risk and audit and non-audit fees. Hence, this study shows the factors that determine audit fees, an important issue for Brazilian and international regulators seeking to identify the basis on which audit fees should be determined, the costs that shall be covered, and the factors that need to be considered when establishing audit fees (Kikhia, 2015).

Finally, this study's contribution includes evidence regarding the consequences of litigation risks arising from clients and how auditors respond to it. This study suggests that a threat of litigation requires auditors to respond, and this response reflects on audit and non-audit fees.

## 2. Litigation Risk and Audit and Non-Audit Fees

Auditing involves the characteristics of the client been audited, such as corporate governance and financial aspects, in which improper management or client-related fraud may lead to lawsuits that impact an auditor's responsibility, performance, and job functions (Sterzeck, 2017). In this context, auditing imposes different risks on auditors. An auditor's litigation risk is defined as the risk of auditors to become involved in a legal process. In this study, this risk is based on the client's characteristics. Audit risk is defined as the risk of auditors' expressing an inappropriate opinion when financial statements present significant distortions (Ghosh & Tang, 2015).

Therefore, as part of the planning and job of auditing financial statements, auditors are required to make judgments related to a client's risk. Judgments concerning risks permeate the auditing process as a whole, determining whether to accept a customer or not, how extensive audit tests will be, the nature of auditors' opinions, and fees. Thus, auditors play a crucial role in verifying the quality of a client's financial statements (Simunic & Stein, 1996).

In this sense, an auditor's opinion communicates his/her conclusion to stakeholders, and it is the role of auditors to warn the users of financial statements about imminent problems in an organization's financial reports or internal controls, which may include operational continuity issues (Hope & Langli, 2009) and risks, such as the business of the audited company. According to Shu (2000), auditors hold confidential information regarding their clients, and an auditor's resignation may indicate a high auditor's litigation risk, affecting the audited company, such as causing share prices to fall and negatively impact organizational growth.

The literature shows that auditors may respond in many ways when they perceive litigation risk to be high. In this context, the results of the studies by Krishnan & Krishnan (1997) and Shu (2000) provide evidence that auditors tend to leave commitments associated with high litigation risk. According to Krishnan & Krishnan (1997), there is a higher likelihood of litigious events when auditors resign than when a client dismisses its auditors.

An auditor's litigation risk is associated with engagement; thus, it is associated with the client's characteristics (Stice, 1991). Therefore, the concerns of auditors regarding litigations are related to the characteristics of the audited client. The empirical measure developed by Shu (2000) is intended to capture the auditor's litigation risk considering the client's characteristics because, according to Krishnan & Zhang (2005), the auditor's litigation risk is correlated to the client's litigation risk.

Based on studies addressing litigation, Shu (2000) developed a model to determine the auditor's litigation risk using the clients' characteristics. The variables that compose the model developed by Shu (2000) to measure the auditor's litigation risk are related to factors that increase clients' incentives in lawsuits. The company's size, market to book ratio, the proportion of shares traded, liquidity, and financial difficulties over the year, are the clients' characteristics that may increase the auditor's litigation risk. In the model, return on assets is positively related to the auditor's litigation risk. An explanation is that high accounting returns, together with low stock returns, correspond to earnings management evidence, which may lead to litigation against auditors.

Stice (1991) considers that the level of a client's accounts receivable and stock increase the auditor's litigation risk. Additionally, a modified audit opinion, participation in a high technology sector, and sales growth also increase an auditor's legal exposure.

Krishnan & Krishnan (1997) state that there are some ways in which auditors can control litigation risk, distancing themselves from situations with high litigation risk, by being more careful when selecting clients and paying greater attention to and improving audit quality. According to the authors, a client's financial situation is directly related to the auditor's litigation risk, while financial statements and auditors' opinions are ways one can monitor contracts.

According to Simunic & Stein (1996), an audit's quality is associated with litigation risk. The authors argue that an increase in a client's business risk may lead them to change their demand from high-quality auditors to low-quality auditors. According to Shu (2000), an increase in the audited company's risks decreases the audit quality. The author explains that a high auditor's litigation risk, accruing from the client's characteristics, leads to the auditor's dismissal and successor auditors are not Big Four firms, suggesting there is a negative relationship between litigation risk and the quality of auditing.

According to DeFond and Zhang (2014), high litigation costs may make high-quality auditors avoid risky clients more frequently than low-quality auditors, though high-quality auditors are more capable of minimizing litigation risks and improving the quality of the audit.

In this sense, we infer that larger audit firms, the so-called Big Four, are of higher quality and consequently have more capacity to diversity client risk than smaller, non-Big Four audit firms (Elder Zhang, Zhou & Zhou, 2009; Krishnan, Sun, Wang & Yang, 2013). In this context, Big Four audit firms may find it profitable to keep clients, even if they represent high auditor litigation risks. Therefore, high-quality audit or Big Four firms may accept high-risk clients and compensate for the risk with higher fees.

An auditor's responsibility is related to the risk involved in the process; thus, the higher the audit job's risk, the greater the responsibility, which demands higher fees to compensate for the risks (Kikhia, 2015). The study by Sun & Liu (2011) reports that high-risk clients force auditors to implement more efficacious audit procedures so that risks shall be incorporated into the audit job to determine the tasks and efforts required. Additionally, a high-risk company requires greater attention and a larger number of audit tests, resulting in higher audit fees (Simunic, 1980).

Auditors aware of a client's litigation risk may perform a more conservative audit and charge higher audit fees. Elder et al. (2009) states that a client's litigation risk results in a response on the part of auditors, which is reflected in adjusted fees, modified opinions, or even may cause an auditor to resign.

Regarding the relationship between these topics, auditor's litigation risk from a client and audit fees suggests that high-risk companies will demand more work and effort from auditors, consequently increasing audit fees (Simunic & Stein, 1996). In this sense, higher audit fees probably include temporary increases in audit work (Abbott, Gunny & Pollard, 2017), which may be a consequence of the auditor's litigation risk arising from the audited client.

Based on the previous discussion, this study's first hypothesis was established to relate audit fees and auditor's litigation risk:

- **$H_1$: Audit companies charge higher audit fees from clients presenting higher auditor's litigation risk.**

Regarding non-audit fees, the question raised by regulators is that the provision of these services hinders auditors' independence (Lim & Tan, 2007). Previous studies addressing non-audit services show that these services establish economic connections that weaken an auditor's independence and, consequently, audit quality (Simunuc, 1984; DeAngelo, 1981). Concerns with reputation and potential litigations (Watts e Zimmerman, 1983) may motivate auditors to be more independent when performing non-audit jobs though (Lim, Ding, and Charoenwong, 2013). In this sense, the greater the auditor's litigation risk, the more work, and attention auditors will pay when performing non-audit jobs, resulting in higher non-audit fees.

Services other than auditing should not impair the level of independence and quality of the audit job. Therefore, a balance is needed between independence and audit quality, and the economic factor resulting from the service provided (Lim& Tan, 2007). DeFond, Raghunandan & Subramanyam (2002) reports that the auditors' concerns with blemished reputation and litigation costs outweigh the expected benefits of compromising their independence.

Hence, auditors need to maintain their independence and preserve audit quality even when performing non-audit services. Concerns with blemished reputation and exposure to litigation should be sufficient for providing quality non-audit services. Additionally, due to concerns over reputation and potential exposure to litigations, auditors are likely to provide high-quality audit services when also providing non-audit services to their clients (Lim, Ding & Charoenwong, 2013).

Hay, Knechel & Ling (2008) suggest that the demand for audit services is a function of the set of risks faced by stakeholders (creditors, managers, shareholders, etc.) and the set of control mechanisms to mitigate these risks. Therefore, the risks posed by an audited client are also related to the demand for non-audit fees, the objective of which is to minimize risks. Thus, auditors have to perform a detailed job to mitigate risks, which increases efforts (Kikhia, 2015) and may also increase non-audit fees.

According to Antle, Gordon, Narayanamoorthy & Zhou (2006), non-audit fees are related to many factors, such as accounts receivable and inventories, past performance, and the client's characteristics (Ashbaugh, LaFond & Mayhew, 2003; Firth, 1997). In this sense, the client's characteristics include its risk factors and are related to the auditor's litigation risk, which may influence non-audit fees.

The previous discussion resulted in the second hypothesis intended to test the influence of non-audit fees on auditor's litigation risk:

- **$H_2$: Audit firms charge higher non-audit fees from clients with a higher auditor's litigation risk.**

## 3. Methodological Procedures

This descriptive, documentary, and quantitative study identified a population of 11,505 publicly traded companies located in the United States of America, with data available in the Thomson Reuters Eikon® database. Those companies that did not have data available regarding the study's variables were excluded, and a final sample of 1,298 listed public companies was obtained, totaling 6,490 observations—the study period comprised from 2013 to 2017. Data concerning the independent, dependent, and control variables are described based on the studies that support them, as shown in Table 1.

Table 1
**Variables addressed in this study**

| Variables | Description | Metric | Author(s) |
|---|---|---|---|
| | | **Dependent Variables** | |
| HAUD | Audit fees | Logarithm of the total amount paid for audit fees. | Kikhia (2015); Jaramillo, Benau and Grima (2012); Venkataraman, Weber and Willenborg (2008); Abbott et al. (2003); Joshi and Hasan (2000). |
| HNAUD | Non-audit fees | Logarithm of the total amount paid for non-audit fees. | Jaramillo, Benau and Grima (2012); Abbott et al. (2003). |
| | | **Independent Variables** | |
| RLIT | Litigation risk | Equation 1 | Sun and Liu (2011); Krishnan and Zhang (2005); Shu (2000). |
| | | **Control Variables** | |
| ALAV | Leverage | (Noncurrent liabilities)/( Total Assets) | Venkataraman, Weber and Willenborg (2008); Abbott et al. (2003). |
| LUCR | Profitability | (Net Profit )/(Net Sales) | Jaramillo, Benau and Grima (2012); Joshi and Hasan (2000). |
| BigN | Audit firms | Dummy: 1 if the company is a Big Four audit firm and 0 otherwise. | Kikhia (2015); Jaramillo, Benau and Grima (2012); Sun and Liu (2011); Venkataraman, Weber and Willenborg (2008); Mayoral and Segura (2007); Carson, et al. (2004). |

Source: study's data.

In the model proposed here, the choice of the determinants potentially explaining the amount of audit and non-audit fees was based on the variables used by previous studies. Considering that auditors' litigation risks are associated with various factors (Shu, 2000; Carcello & Palmrose, 1994; Lys& Watts, 1994; Stice, 1991), a comprehensive measure needs to be used. Shu (2000) explains auditor's litigation risk using 14 characteristics of the audited firm.

A proxy developed by Shu (2000), also adopted by Sun & Liu (2011) and Krishnan & Zhang (2005) was used to measure the auditor's litigation risk, as shown in Equation 1.

$$RLIT = 0{,}276{*}TAM + 1{,}153{*}EST + 2{,}075{*}REC + 1{,}251{*}ROA + 1{,}501{*}LG + 0{,}301{*}CV - 0{,}371{*}RET + 0{,}235{*}MB + 1{,}464{*}PA + 1{,}060{*}DIF + 0{,}928{*}SET + 0{,}463{*}OP - 10{,}049 \quad \text{Equation (1)}$$

Where:

- *RLIT*: litigation risk.
- *TAM* (Size): natural logarithm of total assets.
- *EST* (Inventory): inventory divided by total assets.
- *REC* (Revenue): customers divided by total assets.
- *ROA* (Return on Assets): net income divided by total assets.
- *LG* (General liquidity): total assets divided by total liabilities at the end of the year.
- *CV* (Sales Growth): sales from the previous year minus sales from the current year divided by sales from the previous year.

- *RET* (Return on Equity): dividend distribution on the last day of the fiscal year.
- *MB* (*Market to Book*): market price of the shares divided by book value of the shares on the last day of the fiscal year.
- *PA* (Share Ratio): proportion of shares that were traded during the fiscal year.
- *DIF* (Financial difficulties): 1 if the firm had negative equity in the previous year and 0 otherwise.
- *SET* (Sector): 1 if the firm is in the sectors coded 2830, 3570, 7370, 8730, and between 3825 and 3839 (health, information technology, and telecommunications), and 0 otherwise.
- *OP* (Audit Opinion): 1 if the firm received a modified audit opinion in the previous year, and 0 otherwise.

Equation 2 is used to test $H_1$ and Equation 3 is used to test $H_{2.}$

$$\text{HAUD} = \beta_0+\beta_1\,\text{RLIT} + \beta_2\,\text{ALAV} + \beta_3\,\text{LUCR} + \beta_4\text{BigN} + \Sigma \textit{sector\_fixed\_effect}_{it} + \Sigma \textit{eyear\_fixed\_effect}_{it} + \boldsymbol{\varepsilon} \qquad \text{Equation (2)}$$

$$\text{HNAUD} = \beta_0+\beta_1\,\text{RLIT} + \beta_2\,\text{ALAV} +\beta_3\,\text{LUCR} + + \beta_4\,\text{BigN} + \beta\ \Sigma \textit{sector\_fixed\_effect}_{it} + \Sigma \textit{year\_fixed\_effect}_{it} + \boldsymbol{\varepsilon} \qquad \text{Equation (3)}$$

Initially, the Shapiro-Wilk normality test was performed to verify whether auditor's litigation risks influence audit and non-audit fees in the United States of America firms. The test shows that data were not normally distributed (Z=14.134;z<0.000); however, normality was assumed according to the Central Limit Theorem due to the sample's size. Later, Spearman's Correlation was performed and, to analyze the model, Equations 2 and 3 were operationalized using Ordinary Least Squares (OLS) with robust standard errors, controlling for sector and year fixed effect.

Robust regression is justified because the White test was significant (P=214.07; p<0.000), indicating the presence of heteroscedasticity. Regarding the control of sector and year fixed effects; these prevent the results from being influenced by particular characteristics such as the sector. According to Mayoral & Segura (2007), controlling for year fixed effects is intended to control potential temporary effects and macroeconomic effects. All the tests were performed with *STATA14*®.

## 4. Results Analysis

This section presents a description and analysis of the results. It initiates by presenting a descriptive analysis of the variables and Spearman's Correlation between variables, and finally, the regressions to verify whether there is a relationship between litigation risk and audit and non-audit fees. Table 2 presents the descriptive statistics of the variables used in this study.

Table 2
**Descriptive analysis of variables**

| Variables | Minimum | Maximum | Mean | Standard deviation |
|---|---|---|---|---|
| Audit fees* | 7.5 | 485,991.00 | 3,251.00 | 13,635.00 |
| Non-audit fees* | 0.00 | 36,400.00 | 244.00 | 1,225.00 |
| Litigation risk | -13.203 | 13.650 | 3.377 | 2.189 |
| Leverage | -2.601 | 8.561 | 0.352 | 0.350 |
| Profitability | 3.903 | 10.512 | 7.799 | 0.851 |
| Audit firm | 0 | 1 | 0.781 | 0.413 |

*Thousand dollars.

Source: study's data.

As shown in Table 2, the audit and non-audit fees of the companies included in the sample are discrepant. Note that some firms do not present any expenses with non-audit fees. Regarding the independent litigation risk variable, the firms impose a risk of 3.377 on average to the auditors, while some firms impose a risk of 13.650.

The remaining variables also present considerable differences. For instance, leverage and profitability present discrepant values, which may be related to the firms' economic sector. Regarding the audit firm, note that Big Four firms audit most of the firms; the mean (0.781) is closer to 1.

Afterward, the intensity and direction of the relationship between the variables were measured using Spearman's correlation coefficient to identify potential multicollinearity problems in the data. According to Fávero (2015), the presence of multicollinearity does not mean the model has problems, but high collinearity generates an increase in error. In this sense, correlation does not necessarily suggest a cause and effect relationship, but rather, an association between the study's variables. Table 3 presents Spearman's correlation results.

Table 3
**Spearman's correlation between the variables**

| | HAUD | HNAUD | RLIT | ALAV | LUCR | BigN |
|---|---|---|---|---|---|---|
| HAUD | 1 | 1.000** | 0.766** | 0.387** | 0.709** | 0.540** |
| HNAUD | | 1 | 0.766** | 0.387** | 0.709** | 0.540** |
| RLIT | | | 1 | 0.444** | 0.772** | 0.454** |
| ALAV | | | | 1 | 0.364** | 0.194** |
| LUCR | | | | | 1 | 0.438** |
| BigN | | | | | | 1 |

**Correlation is significant at the level of 1%. HAUD= Audit fees; HNAUD= Non-audit fees; RLIT= Litigation risk; ALAV=Leverage; LUCR=Profitability; BigN= audit firms

Source: study's data.

Table 3 shows that Spearman's correlation matrix of the study's variables provides preliminary evidence that the independent variable litigation risk is positively related to audit and non-audit fees. Additionally, a relationship was found between the dependent variables audit and non-audit fees and the remaining control variables, leverage, profitability, and audit firm.

Regarding audit fees, the variables litigation risk (0.766), leverage (0.387), profitability (0.709), and audit firm (0.540) presented a significant and positive correlation at a 1% level. Regarding non-audit fees, the variables litigation risk (0.766), leverage (0.387), profitability (0.709), and audit firm (0.540) also presented a significant and positive correlation at 1%.

A high correlation was found between the study's explanatory variables. Note that there is a 77% correlation between litigation risk and profitability among the analyzed firms. Additionally, litigation risk was strongly correlated with leverage and audit firms, 44% and 45%, respectively. Moreover, leverage presented a 36% correlation with profitability, while profitability presented a correlation of approximately 44% with audit firms (BigN).

Regarding these findings, we assume that audit and non-audit fees are positively associated with the litigation risk of the firms analyzed. However, Spearman's correlation only presents the association between variables. Therefore, to test the hypotheses concerning litigation risk and the remaining control variables concerning audit and non-audit fees, an OLS regression was performed, and the results are presented in Table 4.

Table 4

**Results of the Multiple Linear Regression model**

| Variable | | Audit fees (Equation 2) | Non-audit fees (Equation 3) |
|---|---|---|---|
| Constant | Coefficient | 3.834 | 0.448 |
| | Sig. | 0.000*** | 0.000*** |
| Litigation risk | Coefficient | 0.085 | 0.006 |
| | Sig. | 0.000*** | 0.000*** |
| Leverage | Coefficient | -0.021 | -0.001 |
| | Sig. | 0.192 | 0.143 |
| Profitability | Coefficient | 0.228 | 0.015 |
| | Sig. | 0.000*** | 0.000*** |
| Audit firm | Coefficient | 0.275 | 0.021 |
| | Sig. | 0.000*** | 0.000*** |
| Sector and Year Fixed Effects | | Yes | Yes |
| Model's Sig. | | 0.000*** | 0.000*** |
| $R^2$ | | 65.11 | 65.90 |
| Adjusted $R^2$ | | 65.02 | 65.81 |
| Durbin-Watson | | 2.058 | 2.048 |
| VIF | | 1.16 – 2.20 | 1.16 – 2.20 |
| Number of observations | | 6.490 | 6.490 |

***Significant at 1%; **5%; *10%. OLS regression with robust standard errors controlling for sector and year fixed effects. VIF=Variance Inflator Factor; Sig.=significance.

Source: study's data.

As shown in Table 4, the models were significant at 1%. The VIF test of multicollinearity among variables presented values below 10 for both models, showing acceptability of data regarding this assumption. The Durbin-Watson test also showed acceptability of data regarding the assumption of serial autocorrelation in the residues, as it presents values close to 2.

The explanatory power of the econometric models, observed with $R^2$, concerning the audit fees was 65.11%, while the explanatory power was 65.90% for non-audit fees. Regarding adjusted $R^2$, which indicates the extent to which the model generalizes the results, the closer the value to $R^2$, the higher the model's explanatory power. Note that the adjusted $R^2$ of the audit fees is 65.02%, and for non-audit fees, it is 65.81%, showing that the models' explanatory power is significant.

Previous studies addressing the determinants of audit and non-audit fees report models with explanatory power ($R^2$) varying from 17.4% and 80.1% (Kikhia, 2015; Jaramillo, Benau & Grima, 2012; Venkataraman, Weber & Willenborg, 2008; Abbott et al., 2003; Joshi & Hasan, 2000). In this sense, according to the studies presented in the literature, both models in this study show robust explanatory power because when compared with other studies, the models are among those of the most significant explanatory power.

Regarding Equation 2, as shown in Table 4, litigation risks have a significant and positive impact on audit fees; that is, the higher (lower) the litigation risk, the higher (lower) is the audit fees. In economic terms, the coefficient of 0.085 (Table 4) indicates that the variation of one standard deviation in the litigation risk represents a change of approximately 18% (0.085*2.189 (Table 2) in audit fees.

Given the evidence found for this variable in the model, H1 was accepted, and audit firms charge higher audit fees from clients presenting a higher auditor's litigation risk. This result corroborates the study by Venkataraman, Weber, and Willenborg (2008), which reports that exposure to auditors' litigation risk reflects higher audit fees.

This finding indicates that when auditors identify a high litigation risk, they are encouraged to spend more time and effort in audit work, such for example, performing more tests (Bronson, Ghosh & Hogan, 2017; Simunic & Stein, 1996), a fact that may lead audit firms to charge a premium for the work and risk assumed (Bronson, Ghosh & Hogan, 2017). It is impossible though to identify the number of hours auditors spent due to increased work (DeFond & Zhang, 2014) accruing from increased litigation risk. This fact constitutes a limitation because the amount paid to the audit firm does not specify the amount paid for additional work arising from litigation risks.

The results of Equation 3 show that litigation risks had a significant and positive impact on audit fees. This result suggests that the higher (lower) the litigation risk, the higher (lower) is the amount paid to non-audit fees. Regarding the economic analysis, the coefficient of 0.006 (Table 4) indicates that the variation of one standard deviation in litigation risk represents an increase of 1.3% (0.006*2.189 (Table 2)) in non-audit fees. This finding supports $H_2$, that is, audit firms charge higher non-audit fees from clients presenting higher auditor's litigation risk. In this context, Sun & Liu (2011) state that auditors are encouraged to exert more effort and perform more specialized work, such as special demand audit and tax verification, given a high litigation risk.

Regarding the other explanatory (control) variables, leverage did not present a significant relationship in any of the two models. Despite not finding a significant relationship, a fact that diverges from the study by Abbott et al. (2003), which reports a negative and significant relationship of leverage with both fees, the negative sign is consistent with the results reported by the previously mentioned study.

Profitability had a significant and positive influence on audit fees but not on non-audit fees, suggesting that profitable companies pay more for audit fees but not for non-audit fees, considering that higher profits may demand more rigorous audit tests of control and substantive tests, which also require more audit time. This finding reinforces the study by Joshi & Hasan (2000), which reports this result when analyzing the relationship between profitability and audit fees and non-audit fees. As opposed, Jaramillo, Benau & Grima (2012) do not confirm that profitability influences fees. This divergence may be related to the country where the study was conducted. The study was conducted in Mexico and addressed a sample of 59 firms.

A significant and positive association was found between audit and non-audit fees regarding the variable audit firm. In this sense, large audit firms are believed to have a greater incentive to protect their reputation and provide high-quality services (Sun & Liu, 2011), which implies higher audit and non-audit fees. This result is in line with the studies by Kikhia (2015), Jaramillo, Benau & Grima (2012), Venkataraman, Weber & Willenborg (2008), Mayoral & Segura (2007) and Carson, et al. (2004), which report that Big Four audit firms charge comparatively higher fees.

In general, this study shows that auditor's litigation risk arising from the client's characteristics is one of the factors considered when fees are established. According to Sun & Liu (2011), a higher auditor's litigation risk demands more supervision and specialization from auditors, and an auditor's willingness to provide the service is supported by charging higher audit and non-audit fees. Additionally, other factors reported in the literature were reinforced in this study as determinants of audit and non-audit fees, namely leverage, profitability, and audit firm.

Finally, the empirical application of the model of litigation risk developed by Shu (2000) in the American context enabled verifying auditor's litigation risk, which is associated with the client's characteristics, and its influence on audit and non-audit fees. Note that the number of observations and the model's explanatory power rendered the results more robust than those reported by studies seeking to verify the determinants of audit fees. Additionally, the American context is a strong and well-developed financial market, so that this study's findings can support audit firms in the market's other environments when dealing with audit and non-audit fees and auditor's litigation risk.

## 5. Conclusions

This study's objective was to analyze the influence of the auditor's litigation risks on audit and non-audit fees among listed companies in the United States of America. This descriptive, quantitative, and documentary study addressed data concerning the period between 2013 and 2017.

Two hypotheses were tested. The first was that audit firms charge higher fees from clients with higher auditor's litigation risk. Even though this relationship may seem evident, no study had investigated it by segregating firms with litigation risks from those with no litigation risks. The litigation risk model developed by Shu (2000) was tested in this study using data from the American market. The influence of litigation's risk on audit fees was identified along with the influence of other control variables. The results revealed a significant and positive relationship at 1%.

In practice, this result suggests that when auditors realize that the audited firm imposes a high litigation risk, they are more likely to spend more time and effort in implementing audit tests (Bronson, Ghosh & Hogan, 2017; Simunic & Stein, 1996). More time and efforts imply increased fees due to the added work and risk assumed. In addition to the litigation risk, the variables control, profitability, and audit firm also appeared related to audit fees, contributing to identifying factors explaining the amount of fees.

Hypothesis 2 refers to audit firms charging higher non-audit fees of clients presenting higher auditor's litigation risk. In the same way, as with audit fees, auditor's litigation risk also presented a significant and positive association with non-audit fees at 1%.

Hence, auditors are encouraged to work harder and provide more specialized services when they perceive high litigation risks, for instance, special audits, tax verification, mergers, and acquisitions (Sun & Liu, 2011). In turn, having to perform more tasks also influences non-audit fees. The control variables profitability and audit firm were significant at 1%; that is, they also influenced non-audit fees.

This study provides evidence concerning the test verifying the relationship between auditor's litigation risk and audit and non-audit fees. It also focuses on the auditor's litigation risk based on the client's characteristics. Moreover, this study's results show the impact of auditor's litigation risk on audit and non-audit fees, 18% and 1.3%, respectively.

One of this study's limitations is the fact that the litigation risk model was used, which is specific for the American context, thus, its results cannot be generalized. Future studies can analyze whether the relationship between audit and non-audit fees and auditor's litigation risks differ between publicly traded and private companies, and also address other periods and other stock markets such as in developing countries, for instance. Future research is suggested to also verify differences in economic and cultural terms as well as the legal system and macroeconomic factors in different countries, and verify associations between auditor's litigation fees and audit and non-audit fees.

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# Influence of financial slack on earnings management among Brazilian credit unions

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## Abstract

Objective: To identify the influence of financial slack in Earnings Management in Brazilian consumer credit unions as a pre-loss financial strategy.
Method: The sample comprises 626 Brazilian consumer credit unions between 2000 and 2019 (20 years). The dependent variable is dichotomous, seeking to analyze Earnings Management as a "fact" per se, inspired in the operationalization proposed by Dantas, Borges, and Fernandes (2018). Afterward, a proxy was added to reflect financial slack among Brazilian credit cooperatives based on the PEARLS system's liquidity indicator, "L2". Additionally, variables related to the profile of credit operations and the characteristics of the credit union were added for control purposes, such as size, whether they have cash deposits, the proportion of overdue operations (from B to H level), spread, and whether the cooperative is classified as a credit union that freely admits members.
Results: The results highlight that financial slack positively influences Earnings Management among Brazilian credit unions. Thus, the higher (or smaller) the financial slack available to managers, the greater (or lower) their tendency to perform Earnings Management. Hence, financial slack would cushion the interaction between uncertainty and risk aversion as a financial buffer.
Contributions: The results indicate that having financial slack favors the report of results, mitigating risk perception among the cooperates and regulatory agents, intensified due to the specific characteristics and economic, political, and social pressures on the part of stakeholders.
**Keywords:** Financial Slack; Earning Management; Credit Unions; Financial Unions.

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## 1. Introduction

Cooperativism, as a movement of human association, has its landmark associated with the city of Rochdale, district of Manchester, England (Menezes, 2018). One of the fields showing the most expressive advancement is credit unions, or financial cooperativism, as it is more recently called. Through Law Nº. 4,565 (Brasil, 1964), credit unions were assimilated to other financial institutions, with the Central Bank of Brazil (Bacen) being the supervisor and inspector of these institutions. Unlike the so-called "traditional" banking institutions, however, credit unions' focus is not purely on obtaining results but mainly on the social role (Maia & Bressan, 2020).

This role implies a trade-off in this relationship considering that, as practical action, the cooperative movement may not base itself on ideas or doctrines per se, but rather on the conscious actions of its managers, with specific policies and purposes intended to maximize their value, efficiency and to ensure their market position. Even though these are non-profit organizations because the remuneration from financial products they offer are higher than the costs of these products and expenses with the maintenance of the cooperative's activities, they do generate profits, or in the case of cooperatives, surpluses, which are considered a spread on the part of the institution with its associates.

In this context, surpluses are increasingly recurrent among credit unions. Surpluses are perceived as an attractive instrument for both its members and a strategy to attract new members. Hence, at the same time as its members see it favorably, managers adopt strategies, and the fact that managers have privileged information regarding the cooperative's current performance leads to information asymmetry and earnings management.

The credit unions' management strategy is based on the premise that the members see these results' dispersion as a risky measure. Hence, less variability tends to preserve the distribution of surpluses to the members and mitigate perceptions of risk, since the disclosure of negative results or with significant variability would denote a situation of inefficiency or even the entity's economic-financial insecurity, in the extreme, leading to demutualization (Maia, Bressan, Lamounier & Braga, 2013; Silva, Niyama, Rodrigues & Lourenço, 2018).

This is mitigated by the fact that credit unions do not have access to fundraising through the stock market. Coupled with the minimum capital adequacy ratio demanded by regulators, these institutions would be required to establish and keep some financial slack using resources not invested by singular cooperatives in credit operations to minimize excess or retraction of its economic performance. Therefore, this study examines the company's risk retention determined by the existence of financial slack as a passive function (Rafailov, 2017), rather than only an active source of investments or innovation. Note that in the case of credit unions, there are no motivations from the perspective of the stock market as funding comes from deposits and/or shared capital composed of its members' shares. Hence, other aspects of these institutions that possibly influence earnings management, such as cash and cash equivalents, need to be assessed.

Data from the last report of the National Cooperative Credit System (SNCC) from 2019 highlight that resources not invested by singular cooperatives in credit operations are directed to liquidity applications in the financial market by the singular cooperatives themselves or through the centralized application of resources, or financial centralization, a possibility offered by cooperative systems to their affiliates. The stock of these resources in the period above was distributed in fixed income securities, marketable securities, repo operations, and investment fund quotas, corresponding to a 33.1% share of total assets (Bacen, 2020a), which allows us to glimpse the relevance of these resources in addition to activities with these institutions' credit operations.

In this context, considering that earnings management affects a company's economic position, the decision to mitigate risks using cash and cash equivalents would precede an assessment of the ability to retain these risks as a financial buffer, leaving it in a position better (or not) than a company stuck in a single course of action. That said, we seek to verify whether having a financial slack is a motivation for these institutions to use this mechanism through earnings management and its influence, to identify evidence regarding potential positive or negative effects of this financial buffer on the performance of Brazilian credit unions. Identifying this relationship may provide simple means for managers to envision clear means to achieve their objectives and academics to conduct studies beyond this strategy.

## 2. Theoretical Framework

### 2.1 Agency Problems and Earnings Management among Credit Cooperatives

Agency problems refer to an attempt to solve two fundamental problems: the problem that emerges when a company's objectives are different from those of the agent's and situations in which it is difficult or costly for a company to verify an agent's activities (Eisenhardt, 1989). The notion that those managing other people's money cannot protect it with the same zeal as if the money was their own has proven to be correct over the years. However, the agency's theory advances when it highlights that stakeholders' relationships should reflect an efficient distribution of risk costs among the parties. Note that this statement ignores two main aspects: the first is that modern agency theorists assume that, after proper dissemination of information and allocation of risk costs, the conflict disappears. Second, they assume that the designated agent can always manage commercial concerns to create wealth perpetually, or at least, the return required by a company (Kirika, 2017).

The most crucial difference between a cooperative and a typical company may be related to its members' motivations; they commit to creating a cooperative because they seek to be provided with goods or services at cost price. Unfortunately, this may also impair its performance, considering it only functions to maximize its members' utility function (Mercer, Póvoa & Piccoli, 2019). Hence, the first idea raised in this paper arises from adverse selection. Because it is not possible for the principal (the cooperative member) to thoroughly verify the competencies or skills of managers while they are working, or when, in most cases, the members do not have sufficient commercial experience. The problems arising from these conflicts are considered a risk factor for these institutions' long-term sustainability (Menezes, 2018).

Additionally, the double function of credit unions (that of savings intermediary and that of "loan" agency) enables their members to be both creditors and debtors at the same time. Since these institutions are owned and governed by their members, their manager members are susceptible to agency conflicts between associates (directors) and managers (agents), as well as between creditor and debtor members, which reinforces the importance of observing the influence of member groups in these entities because this context is peculiar to credit unions and not found among traditional financial institutions (Fama & Jensen, 1983a; 1983b; Mercer, Póvoa & Piccoli, 2019).

Using flexible legal and accounting standards, credit unions perform earnings management, believing that investors will keep their investments and potential investors may be interested in investing in the cooperative (Li & Richie, 2016). Additionally, this strategy may also reflect the reverse moral risk of the need to respond to "powerful" clients: creditors prefer to protect themselves against the possibility of financially weak borrowers being led to financial difficulties; and large investors with concentration risk, due to high exposure to the company, favor a reduction in the volatility of their earnings.

In this context, the constitution of surpluses has been increasingly recurrent on the part of credit unions, as they perceive it to be an attractive instrument both for the members within the organization and as a strategy to attract new members. If the balance at the end of the year is positive (surplus), the distribution of surpluses is not made in the form of remuneration or proportionally to each partner's share capital. Instead, it is based on the members' participation in this result, returning it proportionally, consolidating the principle of distributive justice within cooperatives. Thus, the existence of a positive or negative result and information asymmetry between stakeholders may encourage dysfunctional behavior, such as maximizing or minimizing earnings, to show the associates the ability to generate surpluses and maintain the cooperative's stable conditions.

Previous studies' main results indicate that the managers of cooperative financial institutions (which include credit unions and cooperative banks) become involved in earnings management due to factors intrinsic to the organizations, such as to avoid disclosing losses (Bressan, Bressan & Silva Júnior, 2015; Santos & Guerra, 2018), due to variation in the loan portfolio or overdue loans (Bressan, Bressan & Silva Júnior, 2016; Kar, 2017; Naaman, 2018) because it is affected by external benchmarks, such as the sector's performance, Gross Domestic Product (GDP) or business procyclicality (Skala, 2015; Henselmann, Ditter & Lupp, 2016; Olszak, Pipień & Kowalska, 2017; Hessou & Lai, 2018; Olszak, Roszkowska & Kowalska, 2018; Dantas, Borges & Fernandes, 2018; Meriläinen, 2019), and the relationship with other attributes such as persistence of surpluses (Diniz & Girão, 2019), conservatism (Santos & Santos, 2020) or the credit cooperative's size (Diniz, 2020).

Additionally, the findings also show that the financial system regulators depend only on the quantitative interpretation of financial statements. The downside is that the principal's wishes are usually not considered in this equity equation. Furthermore, the agent's ability to create wealth for him/herself is not reflected on the financial statements, nor is his/her integrity because, an entity may protect clean audited accounts without committing any fraud, however, operating super or suboptimally from the director's perspective (Kirika, 2017).

One of the main challenges of effective management is to invest a company's available resources to minimize the impact of exogenous threats on the organization while trying to capture opportunities. In addition to considering the relative attractiveness of the financial instruments available, corporative decision-making needs to balance between the need for (future) adaptability and current and future performance. As a result, different configurations of financial resources emerge, and empirical studies verify that companies use cash issues (of cash equivalents), debt, or equity available internally in a way that can vary widely within specific sectors (Gruener & Raastad, 2018).

## 2.2 Financial Slack among Credit Union's Earnings Management

Financial slack has many key functions, such as shielding companies from internal and external variations, reducing organizational conflicts by providing resources for a wide variety of projects, and allowing companies to experience organizational changes and innovations, as well as negative results, considering that high levels of financial slack have been associated with ineffective management by investing in projects that do not increase shareholder value, lack of ambition, or strategic mismatch with the environment (Bradley, Wiklund& Shepherd, 2011; Dai & Kittilaksanawong, 2014; Silva, Rohenkohl & Bizatto, 2018).

Additionally, the amount of financial slack can demonstrate the board's characteristics, features, and corporative governance levels, in addition to its risk management, which includes earnings management (John, Li & Pang, 2017). From a specifically financial point of view, in the same way as excessive financial slack makes companies implement inappropriate strategic actions, scarce financial slack would also lead to negative consequences, reducing the managers' choices and leading to earnings management. It is worth mentioning that this practice will not happen if expected profit is not very different from real profit; however, in doing so, managers manage it based on the assumption that this is stable in generating profits, which, consequently, makes the disclosure of earnings information misleading, hindering decision-making on the part of the stakeholders, such as partners and creditors (Li & Richie, 2016).

Thus, this financial slack would allow a "margin of error". When resources are scarce, an organization's members spend time forming coalitions to negotiate or to justify their share of limited resources. If resources are abundant –, i.e., there is some slack – it is assumed that the need for such a practice will decrease. Researchers state that having financial slack "mitigate" conflicts, as different parties can follow their agendas (Gruener & Raastad, 2018). In both cases, possible results such as having financial slack would minimize the perception of risk on the part of those interested in information (cooperative members) and the regulatory agent (Bacen).

Limited understanding of financial slack associates the financial slack available or unabsorbed, represented by the most liquid assets and not invested in any organizational activity, in two ways: current indices and quick indices. Current indexes assume the relationship between all current assets and liabilities, while quick indexes provide a more accurate measure of liquidity, removing inventories from current assets as the less liquid element of current assets (Dai & Kittilaksanawong, 2014; Gruener & Raastad, 2018; Wieczorek-Kosmala & Błach, 2019). Liquidity can also be understood as short-term financial slack, different from the slack as "lending power", classified as long-term financial slack (Campos & Nakamura, 2015).

In this context, the idea proposed here is that the immediate ability to retain risk would be determined by the existence (or not) of linked cash reserves (high share of liquid assets in current assets), which correspond to the financial slack available. It would cushion the interaction between environmental uncertainty and risk aversion, and its absence would be a warning sign that the company may not be able to prevent a small setback from becoming a severe threat. This would show that the higher (or lower) the financial slack available to managers, the lower (or higher) the propensity to earnings management. Thus, the following hypothesis is proposed.

- **H1: Financial slack positively influences earnings management among Brazilian credit unions.**

The idea proposed in the case of Brazilian credit unions is that, in times when there are higher earnings, credit unions tend to increase their provisions, discretely creating some (economic and non-financial) reserve for times in which performance is compromised, smoothing their results "from top to bottom" and keeping a higher level of financial slack. In an opposite scenario, at times when there are lower earnings, credit unions tend to decrease the potential use of earnings management through provisions, creating, in this case, a smaller financial reserve, maintaining, in the extreme, only what is determined by the regulator (Bacen).

## 3. Methodological Procedures

The study sample is composed of 626 (six hundred and twenty-six) Brazilian singular credit unions with accounting information available, and which did not present negative equity between 2000 and 2019, which corresponds, at the time, to 71.7% of the total of active companies (873) in 2019 (Bacen, 2020b), totaling 12,520 observations. Two notes are necessary:

a. this project's initial period corresponds to when Resolution No. 2,682 (Bacen, 1999) began producing effects. This resolution provides for the classification criteria of credit operations and rules for the constitution of Loan Loss Provision (PCLD), used to calculate the dependent variable in this study;
b. confederations, federations, and central credit unions were excluded, assuming that all business operations with members are in charge of singular cooperatives, configuring central and confederations the function of operational support in providing services and access to financial market products (Dantas, Borges & Fernandes, 2018).

Secondary data collected from Bacen's databases were used in this study. Bacen consolidates financial information of Brazilian credit unions, namely "IF.Data – *Dados Selecionados de Entidades Supervisionadas*" [Selected Data from Supervised Entities] (Bacen, 2020b), and the analytical files of balance sheets and balance sheets (Codes 4010 and 4016) (Bacen, 2020c), categorized according to the Accounting Plan for National Financial System [Plano Cosif (Bacen, 1987)], referred only as "Cosif". It is worth noting that the data used in this study already disregard cooperatives in incorporation processes, the data of which were consolidated in the respective Extraordinary General Meetings.

Note that data concerning December of the respective period were used for the credit unions' financial information. For the information regarding results, considering Law No. 4,595 (Brasil, 1964), which requires closing these accounts in June and December, the balances of the credit and debtor accounts presented in the respective months were added to have the total balances of these accounts in the respective year.

Afterward, the dependent variable proposed here is dichotomous, called "GRCoop" and based on the operationalization proposed by Dantas, Borges, and Fernandes (2018), which used the discretionary portion of expenses with PCLD. The following procedures were performed to arrive at this variable:

a. *a priori*, we identify the book value recorded under Cosif item 1.6.9.00.00-8 (Provision for Credit Operations), rectifying account of the title "Credit Operations" (Cosif 1.6.0.00.00-1), and which in theory represent the amounts provisioned resulting from the classification of loans and financing operations at different risk levels, as established in Resolution No. 2.682 (Brasil, 1999). This first identification represents the total accruals of cooperative i in period t ($PCLD_{t,it}$);
b. afterward, we measure the PCLD portion based on weighing the amount recorded in each accounting item that reflects each of the risk levels regulated by Bacen (AA to H level) by the minimum percentage of provision regulated by Resolution No. 2.682 (Brasil, 1999). This calculation sensitizes the non-discretionary portion of PCLD, which is effectively provided by cooperative i at time t considering the aforementioned document. The levels of risk, accounting items, and respective percentages are highlighted in Table 1.

Table 1
**Risk Levels and Minimum PCLD Provision**

| Risk Levels | Delay in Days | % Minimum Regulatory Provision | Account Item (Cosif Account) |
|---|---|---|---|
| AA | - | 0.0% | 3.1.1.00.00-3 |
| A | - | 0.5% | 3.1.2.00.00-6 |
| B | 15 to 30 | 1.0% | 3.1.3.00.00-9 |
| C | 31 to 60 | 3.0% | 3.1.4.00.00-2 |
| D | 61 to 90 | 10.0% | 3.1.5.00.00-5 |
| E | 91 to 120 | 30.0% | 3.1.6.00.00-8 |
| F | 121 to 150 | 50.0% | 3.1.7.00.00-1 |
| G | 151 to 180 | 70.0% | 3.1.8.00.00-4 |
| H | Above 180 | 100.0% | 3.1.9.00.00-7 |

Once the non-discretionary portion is identified, the difference between the two balances previously found, namely $PCLD_{it}$ and $PCLD_{nd}$, to find the discretionary portion of PCLD, called $PCLD_{d}$, would reflect surplus (or not) in recognizing losses according to the related criteria, in addition to what is regulated by the supervisory body (Bacen), and which, would lead cooperative i at time t to perform earnings management. In other words, this balance $PCLD_{d}$ is consonant with Equation 2.

$$PCLD_{d,it} = PCLD_{t,it} - PCLD_{nd,it} \quad (2)$$

Subsequently, in addition to the authors' operationalization, we sought to improve this metric by assigning the dichotomous variable ("GRCoop"). Note that earnings management on the part of credit unions has been recently operationalized by Brazilian institutions based on at least three metrics, besides the one previously presented, namely: (a) through expenses with PCLD, considering discretionary and non-discretionary portions (Maia *et al.*, 2013; Bressan, Bressan & Silva Júnior, 2016; Bressan, Souza & Bressan, 2017); (b) frequency analysis through histograms (Bressan, Bressan & Silva Júnior, 2015; Santos & Guerra, 2018); and (c) the ratio of the cooperatives' net profits to total or operational revenues, for smoothing their income using Eckel's index (IE) (Santos & Santos, 2020).

In this sense, in a heterogeneous set, such as that of Brazilian credit unions, studies usually seek new ways to operationalize this phenomenon, considering that, in addition to occasional and intrinsic differences in financial or non-financial institutions such as size, more recent laws related to the study's object, new classifications were added to the cooperatives concerning their risk profile and different fundraising strategies (Brasil, 2015, 2017). Hence, measurements such as expenses with PCLD, as well as the reporting of financial information, are also influenced by these segmentations, which, when analyzed together, may present econometric issues, mostly related to heteroscedasticity.

Therefore, the objective is to analyze earnings management as a "fact" *per se*, that is, whether this mechanism is used or not, instead of quantifying it, even if weighting it according to the credit unions' size in a given period, as suggested in previous studies, whether based on total assets or the balance of the credit operations, which, we emphasize, would also "carry" in this weighting, the effect of these institutions potentially use earnings management or not.

Therefore, by identifying a discretionary portion based on expenditure with PCLD, we propose to assign 1 (one) to variable "GRCoop" and 0 (zero) otherwise, that is, in the absence of this discretionary portion. Hence, seeking a more objective interpretation of facts, we expect the "GRCoop" variable to be a good *proxy* to reflect earnings management practice in these institutions.

Consequently, limited understanding of financial slack associates it with available or unabsorbed slack, represented by the most liquid assets not invested in any organizational activity (Wieczorek-Kosmala & Błach, 2019). Therefore, a variable (called "FF") was added to the base model, as a *proxy*, to reflect the financial slack of Brazilian credit unions, based on one of the PEARLS[i] liquidity indicators system, "L2", which shows whether the institution is effectively managing its cash to meet deposit withdrawal requests and liquidity reserve requirements, as presented in Equation 3.

$$L2 = FF = \frac{\begin{array}{c}(\text{Cosif } 1.1.0.00.00 - 6_{it} + \text{Cosif } 1.2.0.00.00 - 5_{it} + \\ \text{Cosif } 1.3.0.00.00 - 4_{it} + 1.4.5.00.00 - 8_{it})\end{array}}{\text{Cosif } 4.1.0.00.00 - 7_{it}} \tag{3}$$

- Where: Cosif 1.1.0.00.00 – $6_{it}$: Available funds; Cosif 1.2.0.00.00 – $5_{it}$: Interbank investments w/ immediate liquidity; Cosif 1.3.0.00.00 – $4_{it}$: Marketable Securities and Derivative Financial Instruments; : 1.4.5.00.00 – $8_{it}$: Financial Centralization – Cooperatives; and Cosif 4.1.0.00.00 – $7_{it}$: Total Deposits.

In addition to what cooperatives invest in bonds and securities, the difference between traditional liquidity indicators and the indicator proposed here is related to the transfer of resources from surplus cash to central cooperatives, resulting from the cooperative act called "financial centralization". Thus, the indicator considers the relationship between these short-term assets not invested in the credit union's operations and its total deposits (whether in cash or installments), as a *proxy* for the current liquidity of these institutions (Bressan, Braga, Bressan & Resende Filho, 2010).

i "PEARLS" is the acronym for a group of accounting-financial indicators deriving from the evaluation of the following key operational areas of the credit unions: Protection, Effective Financial Structure, Assets Quality, Rates of Return and Costs, Liquidity, and Signs of Growth. It is a system of the World Council of Credit Unions – WOCCU, an international agency that promotes credit cooperativism and that created the PEARLS system at the end of the 1980's, based on an adaptation of the U.S. CAMEL to the credit union environment (Bressan, Braga, Bressan & Rezende Filho, 2010).

To control the behavior between the aforementioned metrics, five variables were included to control for the relationship proposed here, namely: cooperatives are classified as "large" or "small" ("Tam"); whether the cooperative does not collect cash deposits ("CapEmp"); proportion of overdue operations ("OpVenc"); the cooperative's spread ("Spread"); and finally, whether the cooperative allows the free admission of members ("LA") or not, the description of each are presented in Table 2.

Table 2
**Proposed Control Variables**

| Variables | Description |
|---|---|
| Tam (Size) | An administrative structure integrated by a board of directors and executive board subordinated to it is considered to be large to reflect the fact that full credit unions or with total assets above R$50 million must adopt Resolution No. 4.434 (Bacen, 2015). Diniz and Girão (2019) adopted this same classification. A dichotomous variable was added, 1 (one) was assigned when the cooperative met these criteria in the respective period and 0 (zero) otherwise. |
| CapEmp | It indicates the cooperatives whose funding is limited to the members' paid-in capital, without raising funds or deposits or transactions in foreign currency, based on the classification established by Resolution No. 4.434 (Bacen, 2015). The objective is to verify whether the absence of these funds influence earnings management in these institutions, with a dichotomous variable, assigning 1(one) when the cooperative does not present total deposits in the period (Cosif item 4.10.00.00-7), and 0 (zero) otherwise. |
| *OpVenc* (Overdue operations) | The National Cooperative Credit System Overview (Cooperative Guarantee Fund [FGCoop], 2020) highlighted that the portfolio of singular credit unions is mainly classified at AA, A, and B risk levels (71.3% of a total portfolio of R$145,526,063 billion). However, there was a slight deterioration between 2015 and 2019 in the portfolio's risk rating, with a drop in the proportion of operations at risk level (from 51.5% in 2015 to 38,9% in 2019), with a concomitant increase B, C, and D risk levels (from 40.4% in 2015 to 51.4% in 2019), which consequently, would lead to more frequent earnings management (or not). In this context, according to Bressan, Braga, Bressan & Resende Filho, 2011), the indicator "overdue credit operations (from level B to H) divided by the total classified portfolio" is relevant in determining the probability of insolvency of Brazilian credit unions and, in this study, in determining its influence on the dependent variable. |
| Spread | It is calculated by the difference between loan fees charged from borrowers and the funding fee paid to customers (Maia, Colares, Cruz & Bressan, 2019), which is interpreted as "the larger, the better".<br><br>Spread= "GerOR" – "CustoCap", em que: GerOR= (Cosif 7.1.0.00.00-8 t / Cosif 1.6.0.00.00-1 t); e CustoCap = [(Cosif 8.1.0.00.00-5 - ((Cosif 8.1.8.30.30-9) + (Cosif 7.1.9.90.30-7))/ (Cosif 1.6.0.00.00-1)<br><br>However, these institutions seek a balance between their economic and social performance, considering that "profits" in credit cooperatives are surpluses determined by the result of the products and services produced to the same members. Hence, the management challenge becomes to identify which rates are advantageous to the members and sufficient for the cooperative not to compromise its operational efficiency (Canassa & Costa, 2018) and, at the same time, not allowing this trade-off to compromise its earnings at the end of the period. |
| LA (Free admission) | In 2019, according to National Cooperative Credit System Overview (Bacen, 2020a), the sector of cooperatives accentuated the process of changing membership criteria, which increased the number of singular free admission cooperatives, a total of 413, representing an increase of approximately 10% over the previous period. On the other hand, rural producer cooperatives and mutual credit decreased by 45% and 11%, respectively. Hence, by the end of 2019, free admission cooperatives represented 47% of the singular cooperatives active in Brazil (40% in December 2018), with the participation of approximately 83% of the sector's total assets. Based on the importance of these cooperatives within the SNCC, a dichotomous variable is proposed where 1 (one) is assigned when a cooperative is classified as free admission cooperative and 0 (zero) otherwise, as proposed by Maia et al. (2013), Bressan, Bressan and Silva Júnior (2016) and Bressan, Souza and Bressan (2017). |

Binary logistic regression will be used to estimate the model. It is based on maximum likelihood estimation and can be defined by a vector of explanatory variables (Fávero & Belfiore, 2017). Based on the operationalization presented, logit ($Z$), the parameters of which we want to estimate, is defined in Equation 1.

$$Z_{it} = \alpha + \beta_1 FF_{it} + \beta_2 TAM_{it} + \beta_3 CapEmp_{it} + \beta_4 OpVenc_{it} + \beta_5 Spread_{it} + \beta_6 LA_{it} \quad (1)$$

The estimated likelihood that a credit union will perform earnings management using discretionary expenditures with PCLD is described as follows:

$$p_i = \frac{1}{1 + e^{-(\alpha + \beta_1 FF_{it} + \beta_2 TAM_{it} + \beta_3 CapEmp_{it} + \beta_4 OpVenc_{it} + \beta_5 Spread_{it} + \beta_6 LA_{it})}} \quad (2)$$

Note that logit does not represent the dependent variable, called Y. Rather, it represents the expression of probability $p_i$ that the event of interest will occur for each observation, according to the logit $Z_i$, that is, according to the parameters estimated for each explanatory variable.

## 4. Results

Table 3 presents information concerning the estimation proposed for this study, considering the primary interest variable (FF), measured by the indicator "L2" of the PEARLS system. The results indicate that the interest variable presented a positive and significant sign at 1% (0.004), indicating that financial slack positively influences the earnings management practice among credit unions, confirming hypothesis H1. This finding suggests that the greater (or smaller) the financial slack available to managers, the greater (or smaller) their propensity to perform earnings management, showing that the Brazilian credit unions can use financial slack as a strategy to mitigate the perception of risk among its members.

Table 3
**Study results**

| Variables | Coefficient | Standard error | *Statistic t* | *p-value* |
|---|---|---|---|---|
| Constant | −0.456 | 0.041 | −11.09 | 0.000 *** |
| FF | 0.005 | 0.000 | 1.676 | 0.004 *** |
| Tam | 0.912 | 0.052 | 17.44 | 0.000 *** |
| CapEmp | −0.659 | 0.051 | −12.77 | 0.000 *** |
| OpVenc | −0.157 | 0.086 | −1.820 | 0.069 * |
| *Spread* | 0.009 | 0.012 | 0.732 | 0.463 |
| LA | 1.173 | 0.059 | 19.75 | 0.000 *** |
| Dependent variable mean | 0.466949 | | S.D. dependent var. | 0.498926 |
| McFadden's R squared | 0.139228 | | Adjusted R- squared | 0.138418 |

**Note:** Likelihood ratio test: Chi-square (6) = 2407.15 (0.0000). Legend: FF: Financial Slack ("L2" PEARLS System); Tam: cooperative's size; CapEmp: Capital and loan cooperative; OpVenc: Overdue operations; Spread: Difference between loan rates (GerOR) and funding raising (CustoCap); and LA: Free admission cooperative.S.D.: Standard Deviation. Significance: ***: 1%, **: 5% *: 10%.

Defenders of financial slack identify four primary functions, among which, that a slack works as a buffer between organizations and external contingencies, which facilitates the company's adaptation to environmental changes and thus, improve the companies' long term performance (Wieczorek-Kosmala & Błach, 2019). Bradley, Shepherd, and Wiklund (2011) present positive biases stating that financial slack plays several key functions, such as shielding companies from internal and external variations, decreasing organizational conflicts by providing resources for a large variety of projects, and enabling companies to experience organizational changes and innovations. Note, however, that in the presence of higher slack levels, the behavior acknowledged by the agency theory prevails.

Lack of clarity, particularly regarding the role of credit cooperatives, lack of commitment to strategic drivers (vision, mission, and values), the low dominance of their doctrinal differentials, and dazzle with the market seriously compromise the preservation of a cooperative's identity, leading to severe demutualization risks (Meinen, 2016). Hence, the notion of self-sufficient coverage of financial resources of Brazilian credit cooperatives (here represented by a set of funds available, cash equivalents, and financial centralization) is considered a method of risk financing used by these institutions towards their members and supervisory bodies.

In addition to analyzing the study's primary interest variable, the control variables were also tested along with their respective relationship with earnings management ("GRCoop"). The first analysis, concerning the size variable, showed that when a credit cooperative is classified as "large", as adopted by Diniz and Girão (2019) and Diniz (2020), the largest Brazilian credit cooperatives tend to perform earnings management, which is considered a common effect of credit operations proportionally raised by these institutions.

Thus, it is essential to note that, specifically in credit cooperatives, there is no specific incentive for their partners to invest. Hence, the primary sources of capital derive from four aspects: from the deposits made by the partners, whether in current accounts (cash); savings accounts or investments (installments); from compulsory payment of quota shares, a process that cooperatives establish in the "contract" with members at the time of their admission; fundraising through central cooperatives, when so subordinated; or from reinvestments from surpluses.

Carvalho, Diaz, Bialoskorski Neto, and Kalatzis (2015) consider that funding and investments are positively related to the survival of Brazilian credit cooperatives, and the nature (type) of the credit cooperative is relevant as an explanatory factor. Thus, in the case of institutions that do not raise funds through deposits ("CapEmp"), and consequently cannot be financed by these means, this study's findings (negative and significant sign) show that these tend to perform earnings management based on discretionary criteria and therefore, do not smooth them in periods of greater volatility.

Additionally, earnings management appears reversed to a larger proportion in the Brazilian credit unions' overdue operations ("OpVenc"). Hence, cooperatives with most of their credit operations in a higher risk range because they are exposed to smaller earnings, are less prone to perform earnings management, and therefore, their members are less likely to perceive risk. This is also reinforced by the fact that smoother credit cooperatives would be less conservative than non-smoothers (Santos & Santos, 2020). Note that setbacks may occur due to a cooperative performing earnings management in a given period given extraordinary gains (non-operational revenues, for instance, called uncooperative acts) or not necessarily due to a conservative component, but by a requirement of the regulatory body in provisioning and reversing the result in the previous period to the subsequent period, according to Resolution No. 2.682 (Brasil, 1999).

Even though there is little competitive "aggressiveness" in the management of credit cooperatives, which includes spread, this characteristic's intensity could be positively related to performance. However, this study's findings do not sign that by having an "excess" between funding rate (through deposits or equity) and which was generated by operational revenues, there would be a practice (or not) of earnings management, for this "excess" to be greater or smaller.

Finally, the members of credit cooperatives can play two roles: creditors (savers) and debtors. As members can be both simultaneously, these institutions need to minimize moral risk issues (Mercer, Póvoa & Piccoli, 2019). The fact that a cooperative is classified as free admission intensifies these relationships due to the interests and priorities of a heterogeneous group of associates: while the first wants financial products at a competitive price, the second expects the greatest possible return on capital invested (Mckillop& Wilson, 2011), and this information asymmetry increases the risk of operations within these entities. Hence, the more homogeneous the members' concerns, and within this sphere, the smoother this relationship is, the lower the agency costs and democratic vote will express the majority's desire than of just of a specific group. In this context, a cooperative that freely admits members tends to perform earnings management.

## 5. Final Considerations

The retention of risks in an organization requires the analysis of a broad spectrum of its consequences for maintaining its financial balance, liquidity, and efficiency. These decisions can be supported by the initial assessment of a company to retain risks, defined in this paper by the existence of financial slack in its buffer role, as a pre-loss financing approach. Thus, this study's objective was to analyze the influence of financial slack in the Brazilian credit cooperatives' practice of earnings management between 2000 and 2019 (20 periods), with a total of 12,520 observations.

For that, the dependent variable proposed in this paper was dichotomous, called "GRCoop", based on the operationalization proposed by Dantas, Borges, and Fernandes (2018), which uses the discretionary portion of expenditure with PCLD, seeking to analyze earnings management as a "fact" *per se*, that is, considering whether this mechanism is adopted or not, instead of quantifying it. Consequently, a variable (called "FF") was added to the base model, as a *proxy*, to reflect the financial slack of Brazilian credit cooperatives, based on one of the PEARLS System's liquidity indicators, "L2", together with other variables related to the profile of credit operations and the characteristics of credit cooperatives, such as size, whether they collect deposits, the proportion of overdue operations (from B to H level), spread, and whether it freely admits members.

Given the trade-off presented, the results show that financial slack positively influences earnings management among Brazilian credit cooperatives, confirming the hypothesis raised here. Thus, the idea is that in times of earnings management through discretionary portions with PCLD, these institutions maintain a level of liquidity above the expected. On the other hand, in the case of not performing earnings management, the cooperatives would keep stable liquidity or below the expected, keeping in the extreme, what is determined by the regulatory body. The hypothesis confirmed would reflect a trade-off between financial slack and surpluses or losses, that is, a speech that could, among other things, reflect a "sacrifice" in profitability in the name of growth and vice-versa. This specifically happens in these situations based on the cooperatives' inherent characteristics. Two aspects pressure a cooperative society: political and social on the part of its members and economic, also on the part of its members but, more intensively on the part of regulatory bodies.

Even though the definition of slack is well established in the literature, empirical evidence shows its relevance for financial performance; however, researchers have not reached a consensus in this study's scope. A plausible explanation is that financial slack is a multi-theoretical approach and the effect of having financial slack within an organization depends on how the different theories foresee that managers will use such slack. From the point of view of corporate finance management, the activity of a company is related to the constant transformation of funds (cash) into assets by the generation of fixed assets (investments) or current assets (operating activity), followed by the transformation of assets into funds (money). For this reason, another caveat is related to the collection of an adequate amount of cash reserve and equivalents, which is time-consuming depending on the organization. Thus, there is a risk of the company facing a loss before the necessary funds are reserved. Hence, a conscious investment of financial slack would also need other methods or strategies until the necessary level of funds can be accounted for in the cooperative and safeguarded.

To pursue this line of research, we suggest that future studies analyze other planned retention strategies related to the remaining types of slack, such as remuneration or contingent financing, related to recoverable and potential slack, respectively, and analyze available slack by other metrics of liquidity or debt capacity, adapted to the context of Brazilian credit units.

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# Does Corporate Social Responsibility moderate the relationship between the Machiavellian trait and earnings management?

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## Abstract

Objective: to analyze the relationship between the Machiavellian personality trait and Corporate Social Responsibility (CSR) and earnings management, in the light of the Upper Echelons theory.
Method: theoretical empirical study, using a survey as the data collection procedure, applied to 208 business professionals. Descriptive statistics, hypothesis testing and regression were applied.
Results: The professionals who care about compliance with policies that refer to legal responsibility do not agree with the earnings management practice, while those who focus on economic responsibility displayed willingness towards this management. As for the Machiavellian influence, those more endowed with these traits tend less towards legal and ethical corporate responsibility and display greater acceptance towards earnings management. In addition, against expectations, the moderation of CSR did not reduce the positive relationship between Machiavellianism and earnings management.
Contributions: The results permit a broader discussion on interdisciplinary practice in behavioral accounting and provide insights on how Machiavellianism can influence corporate decisions and social conduct. Economic and social implications of the findings are of interest to accounting professionals, investors and auditors in order to understand the impact or damage earnings management causes to accounting information.
Keywords: Corporate Social Responsibility; Earnings Management; Machiavellianism.

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## 1. Introduction

Accounting scandals such as the famous cases of Petrobras, General Motors, Toshiba, Lehman Brothers, Shell, WorldCom and Enron incite the discussion about the importance of CSR in the business context. The lack of transparency of accounting information and manipulations of earnings by managers were attributed, at the time, to the decline of morality in business, translated by the lack of CSR (Chih, Shen, & Kang, 2008).

CSR corresponds to the specific actions and policies carried out in the organizational context, which take into account the tripod of economic, social and environmental performance and stakeholders' expectations. Companies engaged in CSR are likely to improve their reputation, customer loyalty and product evaluations (Aguinis, 2011), given that the internal policies influence the attitudes and behaviors of managers and employees (Leal, 2013). CSR covers economic, legal, ethical and discretionary aspects (Carrol, 1979).

This theme has been the subject of studies investigating corporate financial performance (Leal, 2013; Callan & Thomas, 2009; Orlitzky, Schmidt, & Rynes, 2003). Some studies have focused on discussing whether CSR inhibits earnings management, as individual and business performance can be masked when managers are willing to manage earnings in order to reflect a performance that is superior to that truly achieved. Shafer and Lucianetti (2018) and Shafer (2015) emphasize that corporate ethics and social responsibility are indicators of lesser profit manipulation. Chih *et al.*(2008) argue that CSR increases the transparency of accounting information and reduces the number of opportunities for earnings management.

Earnings management is observed from two perspectives: informational and opportunistic. The informational perspective focuses on the choice of accounting policies, especially on changing accounting criteria due to the flexibility of accounting standards. It is difficult to see whether such changes represent manipulation or just a discretionary accounting choice. The purpose of the opportunistic perspective is to use accounting information to deceive the key stakeholders regarding the operational earnings. Information is intentionally distorted, causing earnings fraud (Mohanram, 2003).

Studies in the behavioral field suggest that the practice of earnings management is motivated by the personality of individuals (Silva, 2019; D'Souza, Lima, Jones, & Carre, 2019; Góis, 2017; D'Souza, 2016; D'Souza & Lima, 2015) because, as stated by the Upper Echelons theory (Hambrick, 2007; Hambrick & Mason, 1984), the interpretations and choices of executives are related to personal characteristics, values and personality.

Individuals with dark, non-pathological personality traits, such as Machiavellianism, manifest low ethical and moral standards, strategy focused on long-term gains and absence of principles in the business environment. Machiavellianism "is a personality trait marked by a calculating attitude towards human relationships and a belief that ends justify means, albeit inhumane." Machiavellian individuals see others more or less as objects to be manipulated in the pursuit of goals, even if they commit deliberate fraud for this purpose (Vander Bos, 2010, p.574). They are prone to earnings manipulation in order to maximize personal and business gains (D'Souza, 2016).

Regarding the Machiavellian perspective on CSR, Burton and Hegarty (1999) observed that managers grant greater importance to economic liabilities and little attention to ethical and legal liability. If, on the one hand, Machiavellian individuals care about reputation, on the other, callousness, manipulation and dishonesty are striking features of this personality trait.

In this context, this study aims to clarify the following research problem: What is the relationship between the Machiavellian personality trait and Corporate Social Responsibility and earnings management? Therefore, the intention is to analyze the relationship between the Machiavellian personality trait and Corporate Social Responsibility and earnings management. Therefore, 208 business professionals were surveyed and the results of this research indicate that the greater the proneness towards legal accountability, the lesser the willingness to manage earnings. An opposite effect was evident when the economic liability was analyzed. Under the Machiavellian influence, the stronger the trait, the lesser the individuals' motivation for legal and ethical corporate responsibility, and the greater the acceptance of earnings management practices. In addition, against expectations, the moderation of CSR did not reduce the relationship between Machiavellianism and earnings management.

The results evidence the theoretical and practical relevance of this study. It is theoretically relevant because it broadens the debate of the interdisciplinary study that discusses business and psychological themes, still little explored in the business area in Brazil, besides contributing with the theoretical foundation on the approach of the Upper Echelons theory, which is strongly related with the themes CSR, earnings management and Machiavellian personality traits. Also regarding this aspect, it is worth considering the methodological contribution of an empirical study involving business professionals who work or have already worked in the management area and are able to interpret the decision-making process in organizations, permits the critical analysis of the results obtained.

In addition to the separate analysis of the theme, the intention is to complete a theoretical gap in the knowledge on the moderating effect of CSR in the relationship between Machiavellianism and earnings management, as previous studies have focused on a separate discussion of the pair relationship between the themes Machiavellianism and SCR (Shafer & Lucianetti, 2018; Burton & Hegarty, 1999) and Machiavellianism and earnings management (Hartmann & Maas, 2010; Murphy, 2012; Byngton & Johnson, 2011), or the analysis of other dark personality traits: narcissism, CSR and management (Lin, Sui, Ma, Wang, & Zeng, 2018; Petrenko, Aime, Ridge, & Hill, 2016; Tang, Mack, & Chen, 2018), *Dark Tetrad* (Narcissism, Machiavellianism, Psychopathy and Sadism), corporate governance mechanisms and earnings management (Silva, 2019); and the *Dark Tetrad,* corporate reputation and accounting information quality (Góis, 2017).

The practical contribution derives from the economic and social implications of the relevant findings for accounting professionals, such as: auditors, regulators and those responsible for corporate governance, as well as business managers who formulate internal policies about the impact or damage caused by earnings management, which refers to operational manipulations that do not violate the laws, and accounting manipulations that violate the laws (Merchant, 1989). It also develops an understanding of how Machiavellianism can influence the social conduct of leaders, inside and outside companies, especially in reporting on the social and financial performance of companies to society. As organizations are managed and led by individuals with diverse characteristics, the results provide an opportunity for discussion that business decisions reflect these managers' values and interests.

This article is divided into five sections. The first is this, the introduction, which presents the problem, the justification, the objective and a summary of the main results of the study. The second contains the theoretical framework explored and the construction of the hypotheses, which presents the discussion on Corporate Social Responsibility, earnings management, Machiavellianism and previous studies. The third section contains the method and information on the study subject; the fourth the analysis of the results; and the fifth and final section the conclusions.

## 2. Corporate Social Responsibility

The theme CSR has gained importance in academic research. One of the first articles to shed light on the subject was that of Carroll (1979) – a conceptual model on the essential aspects of corporate social performance. The several related studies brought different concepts and definitions of CSR. Maignan, Ferrell and Hult (1999) highlighted the importance of stakeholders and the social performance of companies for CSR and defined it as "the extent to which companies meet the economic, legal, ethical and discretionary responsibilities identified by their various stakeholders" (p. 457). In addition, Aguinis (2011) defined CSR as "specific actions and policies carried out in the organizational context, which take into account the stakeholders' expectations and the tripod of economic, social and environmental performance". In common, it is noticed that these definitions of CSR always present a comprehensive concept, which involves economic, legal and social actions.

This breadth of concepts refers us to the conceptual model of Carroll (1979), who stressed that CSR should cover economic, legal, ethical and discretionary aspects. The economic aspect the author described informs that companies' main objective is to be economic agents producing goods and services that are demanded by society and sold to it for profit. According to the same author, the legal aspect indicates that society expects companies to perform their activities in compliance with legal requirements. The ethical aspect is related to the legal aspects, but Carroll (1979) describes it as a level beyond compliance with the law, so that companies should seek ethics in their actions. Finally, there is companies' discretionary aspect, that is, additional, voluntary actions, not required by law, but aimed at the social good, such as philanthropic contributions.

Considering that companies in general aim to maximize their profits and, consequently, shareholder wealth, one cannot dissociate CSR from this goal. Drucker (1984) pointed out that CSR would be a business opportunity the companies envisaged. Beyond a genuinely social and philanthropic behavior, as some definitions reveal, CSR has come to be pursued for satisfying the shareholders' desire. Hong and Andersen (2011) called this phenomenon "strategic philanthropy" – CSR, beyond a benevolent attitude of companies, would be actions aimed at generating positive results for the shareholders.

CSR actions would be aimed at seeking better results. It is not by chance that much of the academic literature on CSR sought to relate it to companies' financial performance, given that greater investment in CSR would lead to better performance. Studies such as Callan and Thomas (2009) and Orlitzky*et al.*(2003) investigated the relationship between CSR and financial performance in the American market and identified a positive relationship between the constructs. In a study on CSR, psychological aspects and individual performance involving Portuguese employees, Leal (2013) observed that CSR indirectly affects individual performance.

In this context, the Upper Echelons theory (Hambrick & Mason, 1984; Hambrick, 2007) grounds the manager's behavior on the choices and interests resulting from individuals' values, characteristics and personality, which influence the corporations' economic and social decisions. Thus, this study rests on the principles of the Upper Echelons theory when evaluating the personal characteristics of managers and their relationship with CSR, through potential earnings management actions.

## 3. Earnings Management

According to Merchant (1989), earnings management can be defined as any action, by management, that affects the declared result, does not provide true economic advantage for the organization and can, in the long run, be quite harmful to the various accounting information users. The procedure is intended to mislead stakeholders as to the company's economic situation and performance, and to influence the contractual results that depend on the reported accounting figures. To this end, the manager exercises discretion over the accounting figures, with or without constraint. The criteria adopted reflect the maximization of company value or an opportunistic stance (Healy & Wahlen, 1999).

Three forms of earnings management are investigated in the literature: accrual-based management, real management and classification change. Accrual-based management takes place when, using discretionary accumulations, the managers "borrow" the earnings from future periods to increase the earnings of the current period or, in the opposite sense, push the earnings from the current period to the future. Consequently, the costs incurred to increase current gains are added to the detection costs and then deducted from the future gains. The earnings from future periods are mechanically reduced as results of net profit that is accelerated to the current period (Albernathy, Beyer, & Rapley, 2014).

Real earnings management occurs when managers deviate from optimal business decisions to real management activities such as, for example, overproduction to reduce the cost of products sold (CPS), by cutting discretionary expenses, such as in research and development, to meet profit targets (Albernathy *et al.*, 2014).

Another management practice is the change of classification of equity and income accounts. McVay (2006) showed that, opportunistically, managers shift essential expenses, such as the cost of goods sold and general and administrative sales expenses, to special items (income or expenses of which no short repetition is expected, such as, for example, extraordinary expenses, restructuring charges and results of discontinued operations), with a special focus on the investors' analysis of company figures. This vertical movement of expenses does not alter the final result (profit or loss), but highlights an exaggeration of essential/operating gains, and figuratively favors the achievement of the forecasted earnings benchmark projected by analysts.

In this context, Merchant (1989) developed a research instrument with scenarios that refer to earnings management categorized by accounting manipulations, which violate accounting principles and operational manipulations, characterized by the modification of earnings through decisions that do not involve violations of accounting regulations, such as intentionally delaying the registration of expenses for repairs and maintenance, in order to reduce expenses for the current year, or the execution of sales promotions near the end of the year to inflate reported sales and revenues. In this particular case, some of the proposed scenarios can be exemplified in Table 1:

Table 1
**Earnings management scenarios**

| Operational Management |
|---|
| **Scenario 1**: In September 2018, the General Manager of a large division of a multinational company realized that he would need a strong performance in the fourth quarter to meet his budget goals. He decided to implement a sales program that would offer flexible payment terms, with the purpose of anticipating some sales that would normally occur next year, to the current year. Customers would accept delivery in the fourth quarter and have a 120-day grace period to pay the invoice. |
| **ACTION**: The company's General Manager implemented the sales program, and as a result, the division was able to meet its budget goals. |
| **Scenario 2**: The General Manager of a small industry has experienced financial difficulties and would not reach the annual budget targets. Therefore, he ordered employees to postpone discretionary expenses (for example, maintenance, advertising and hiring) to the next accounting period. |
| **ACTION**: The General Manager's plan was implemented, and as a result, the company was able to meet its budget goals. |
| **Accounting Management** |
| **Scenario 3**: The General Manager was struggling to meet his profit forecasts during the end of 2018. He decided to call a partner from a consulting partner company who was working for the division and asked him to file the invoice for the services provided e in 2019, although the consulting fee had already been incurred in 2018. The consulting partner agreed. |
| **ACTION**: The General Manager did not record the consulting fee expenses in the current year and, thus, the division met its profit forecasts for 2018. |
| **Scenario 4**: The General Manager of a large division of a retail company realized near the end of 2018 that his division would significantly exceed his budgeted profit targets for the year. As a result, he ordered his Controller to develop a logic to increase the provision for inventory obsolescence. Assuming an overly pessimistic view of the future market perspectives, the controller was able to identify a significant quantity of finished products to be fully provisioned or downgraded from a sales perspective at a value below the cost of those inventories; even though he was confident that the inventory in question would still be sold in the following financial year at a value close to the market price. |
| **ACTION**: The General Manager implemented his strategy of recognizing the excess inventory provision. The division further noted that the 2018 profit targets contained some excess inventory provisions that could be used to increase reported profits in the future. |

Source: adapted from Shafer (2015) and Merchant (1989).

Bruns and Merchant (1990) used the tool and applied the research to 649 U.S. managers. They found that operational manipulations were perceived more favorably than accounting manipulations. Then, Merchant and Rockness (1994) applied the survey to general and personnel managers, controllers of operational units and internal auditors of the United States and identified that the participants judged accounting manipulations more harshly than operational manipulations.

In this same perspective, Shafer (2015) used the four earnings management scenarios of Merchant's instrument (1989) to investigate Hong Kong accountants' perception of Corporate Social Responsibility and ethics and decision making for earnings management. The findings pointed to the importance of ethics and social responsibility for the behavioral intentions of accountants and suggest that these professionals rationalize management decisions based on ethics and corporate responsibility. In this same perspective, Chih *et al.* (2008) found that companies with greater social commitment reduced some earnings management practices.

Thus, based on the literature review presented on CSR and earnings management, the following research hypothesis is highlighted:

- **H1: The greater the Corporate Social Responsibility, the lesser the proneness to earnings management.**

## 4. Machiavellianism

Christie and Geis (1970) characterize individuals endowed with tactics, human vision and morality, besides dexterity, manipulation, strategy, cynical and unprincipled attitudes as Machiavellian individuals, manipulating others according to their point of view and interests. The concept of Machiavellianism was named based on the philosophy of Niccolò Machiavelli, a political adviser to the Medici family, who was in power in the sixteenth century, in Florence, Italy. The essence of Machiavelli's advice was that "the ends justify the means." Jones (2016) points out that Machiavelli's philosophy and the dispositional trends it aligns with facilitate the antisocial methods of individuals endowed with these traits to achieve goals, associated with greed and selfishness.

Machiavellian individuals are prone to manipulation in the long and short term, renouncing short-term benefits for the attainment of long-term benefits, and pay greater attention to reputation (Jones & Paulhus, 2009). Jones and Paulhus (2011), after a review of the writings by Machiavelli and the military strategist Sun Tzu, showed characteristics that refer to manipulative leadership, preparation, planning, premeditation, convenience, rationality, cynicism, logic, opportunism, the cultivation of reputation and the tendency towards decision making dissociated from prejudices and personal sympathies of Machiavellian individuals.

Jones (2016) highlights that Machiavellian individuals may be useful, in some circumstances, due to the distinguished ability to perform work that interests them personally, despite being open to unethical behavior. Therefore, one cannot expect fidelity from the Machiavellian individual for being a risky trade-off.

D'Souza (2016) presents the main characteristics evidenced in studies on Machiavellianism and reflected in the business environment, according to Table 2.

Table 2
**Main features of Machiavellianism**

| **General Characteristics** | |
|---|---|
| Amorality | Flexibility |
| Absence of principles | Insensitivity |
| Absence of affability | Interpersonal manipulation |
| Low ethical and moral standards | Lying/Deception |
| Strategic calculation | Opportunism |
| Ability to make allies | Future orientation – long term |
| Ability to influence | Strategy |
| Cynicism | Reputation |
| Dishonesty | Tactics |
| **Key empirical findings in the business environment** | |
| Rational decision-making style | Financial fraud |
| Management strategy | Manipulation of budget lines |
| Earnings Management | Management tactics |
| Focus on personal power | Unethical decision making |

Source: Table 14. D'Souza (2016). Financial maneuvers and the *Dark Triad*: the dark side of management.

The subsequent section presents the results of previous studies organized according to the elaboration of the next research hypotheses.

# 5. Previous Studies

## 5.1 Machiavellianism and Corporate Social Responsibility

Dark personality traits have been the subject of study for the analysis of Corporate Social Responsibility. Burton and Hegarty (1999) developed a study involving 219 American business undergraduate students to examine, among other variables, the effect of the Machiavellian orientation in relation to corporate social responsibility. The authors noticed that the respondents with a higher level of Machiavellianism demonstrated that economic liabilities were more important. The levels of social responsibility decreased to the extent that the level of Machiavellianism increased though, mainly due to the low importance the respondents attributed to legal and ethical liabilities. Shafer and Lucianetti (2018) found that the stronger the Machiavellian trait, the lesser the proneness to CSR and orientation to stakeholders. The latter, in turn, showed to be positively correlated with CSR.

Lin *et al.* (2018) examined how personal psychological traits affect the corporate social responsibility practices of top managers of Chinese organizations, who participate in megaprojects. They elected narcissism, another dark personality trait, as a particular focus, and realized that the higher the degree of narcissism of CEOs, the lesser the degree of social responsibility in the megaproject.

On the other hand, Petrenko *et al.*(2016) developed a study with a sample of *Fortune 500* CEOs to verify the effect of corporate social responsibility practices on narcissism in CEOs. The authors confirmed that the desire for attention and reinforcement to the image of CEO's with a dark personality entail positive effects for the levels and profiles of Corporate Social Responsibility. Tang *et al.* (2015) also studied the influence of narcissism and corporate social responsibility in 1500 S&P companies in the period from 2003 to 2010 and found that the most narcissistic CEOs care more about corporate social responsibility.

Based on the literature review presented, the following research hypotheses are listed.

- **H2: The stronger the Machiavellian personality trait, the lesser the corporate social responsibility.**

## 5.2 Machiavellianism and Earnings Management

Hartmann and Maas (2010) developed an experiment with 136 management accountants and found that the Machiavellian personality trait favors earnings management, given that these individuals are more likely to give in to management pressure to create budget slack when they are involved in decision making. Shafer and Wang (2011) observed that Chinese accountants in Machiavellian traits are more tolerant of earnings management practices.

Murphy (2012) found that individuals endowed with Machiavellianism are more likely to present incorrect reports. Byington and Johnson (2011) realized that Machiavellian individuals tend to manipulate budget lines. Vladu (2013) showed that individuals with Machiavellian traits consider earnings management an acceptable practice.

In a study involving 263 managers, D'Souza (2016) verified that managers rich in Machiavellianism and the other traits of the *Dark Triad* cluster, Narcissism and Psychopathy*, are more prone to earnings management.* In the same sense, D'Souza *et al.*(2019) realized that the three moderate traits of the *Dark Triad* can reveal desirable behaviors in the business environment, even when encouraged to manipulate earnings to maximize gains.

In view of the literature review presented, the following research hypothesis is highlighted:

- **H3: The stronger the Machiavellian personality trait, the greater the proneness to earnings management.**

Finally, the fourth research hypothesis is elaborated to test whether CSR moderates the strength of the dark personality trait in the relationship with earnings management, given the conception of Shafer (2015) and Chih *et al.*(2008), who argue that CSR can reduce the motivation for earnings management.

- **H4: the stronger the personality trait of Machiavellianism, the greater the proneness to earnings management, and this relationship decreases in the presence of Corporate Social Responsibility.**

The study by Góis (2017) applied moderation to verify the strength of the relationship between the dark personality traits – *Dark Tetrad* –, in the relationship with management and fraud. The author moderated the corporate reputation variable based on the assumption that formal or informal values, structures and rules built in companies with strong reputations could reduce the involvement of CEOs with strong traits of shady personalities with earnings management and fraud. The results pointed out that only the highly Machiavellian CEOs decreased the achievement of fraud due to the strong reputation.

Similarly, Silva (2019) moderated the corporate governance variable to verify the relationship between the *Dark Tetrad* traits and earnings management. Regarding management by real decisions, the interference of the high level of narcissism decreased the efficiency of the board of directors, demonstrating influence to increase this type of management. The high traits of psychopathy and sadism, by moderating the audit committee, decreased its efficiency, leading to increased *accruals*-based earnings management.

## 6. Methods

### 6.1 Approach, Data Collection Technique and Research Sample

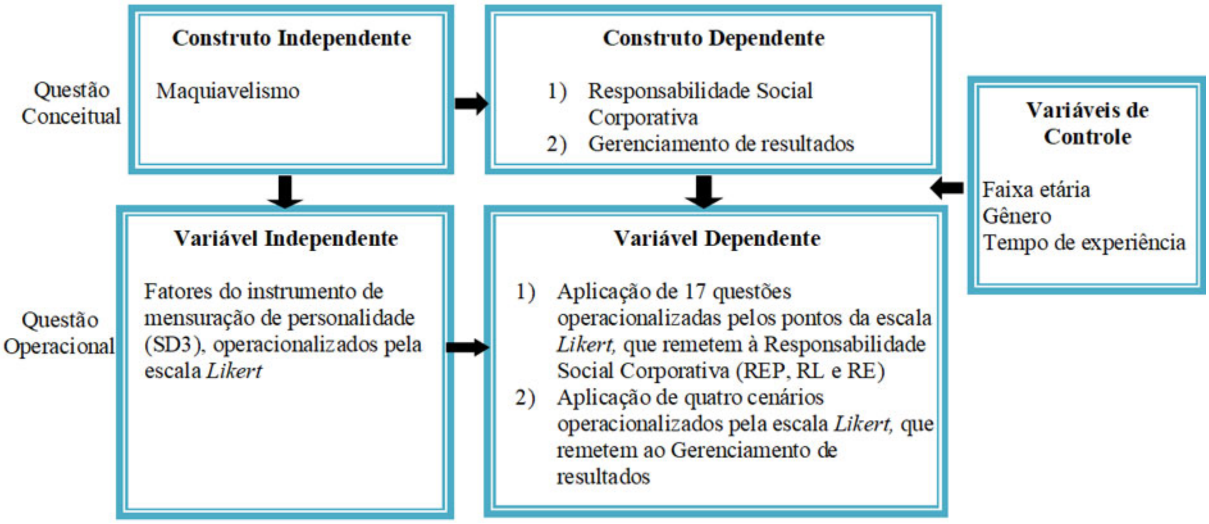
The theoretical-empirical approach was adopted, and the survey was used as a data collection strategy, through a self-reporting questionnaire, composed of five parts: I - informed consent form (TCLE); II - sociodemographic profile; III - corporate social responsibility, with five questions relating to the dimension of economic liability oriented to owners (REP), six to the legal liability dimension (RL) and six to the ethical liability dimension (re), adapted from the study by Shafer (2015), Maignan *et al.*(1999) and Leal (2013), which validated and expanded the instrument; IV - four earnings management (EM) scenarios illustrated through cases that refer to accounting and operational manipulation, adapted from the studies by Shafer (2015) and Merchant (1999); and v - nine specific assertions that measure the trait of Machiavellianism deriving from the *Short Dark Triad* (SD3) (Jones & Paulhus, 2014), an instrument validated in Brazil by D'Souza (2016).

The research sample involved business professionals who assume or have already assumed management positions in organizations and who participated in the 2018 edition of the *International Conference in Accounting*. The invitation to participate was forwarded by e-mail in October of this year, to 550 participants who fit the profile required for this survey and who offered valid contact information. Answers were obtained from 208 participants, being 54% male, mostly between 26 and 35 years of age (48.1%) and between 1 and 5 years (54.8%) of management experience.

A non-probabilistic sample was chosen based on accessibility, which does not permit the generalization of results, but merely the observation of the phenomenon that refers to the research problem. The questionnaire was reliable with a Cronbach's Alpha amounting to 0.765.

## 6.2 Research Variables, Parameters and Statistical Approach

According to the research problem, the Machiavellian trait is the independent variable to explain Corporate Social Responsibility and earnings management, considered in this study as dependent variables for testing the hypotheses H1, H2, and H3. The research design has been illustrated in Figure 1:




**Translation**: Conceptual question ; independent construct: Machiavellianism; Dependent Construct: Corporate Social Responsibility – earnings management; Operational Question; independent variable: factors of the personality measuring tool, operated on the Likert scale; Dependent variable: application of 17 questions operated on a Likert scale, related to Corporate Social Responsibility (REP, RL and RE); application of four scenarios on a Likert scale, related to earnings management; Control variables: age range, gender, length of experience.

**Figure 1.** Research design.

To test hypothesis H4, corporate social responsibility is considered a moderator of the relationship between Machiavellianism and earnings management. According to Baron and Kenny (1986), a moderating variable affects the sense (-/+) and/or strength of the relationship between an independent variable and a dependent variable. In this particular study, the interaction between the variables (Machiavellianism*REP), (Machiavellianism*RE) and (Machiavellianism*RL) was analyzed.

To operate the research variables, the instrument (SD3) by Jones and Paulhus (2014) was applied to measure the personality trait of Machiavellianism. This consists of seven self-reported assertions on a *Likert* scale (1 to 7 points), such as: *"Most people can be manipulated"*; *"Whatever it takes, you must get the important people on your side"*: *"It's wise to keep track of information that you can use against people later"*. Individual and group means were calculated.

For the corporate responsibility variable, operated on a *Likert* scale (1 to 7 points), the mean score was calculated for the assertions referring to each of the three liability dimensions: REP, RL and RE. These dimensions were selected because they are better related to the research problem, mainly due to the interface with the earnings management scenarios and the characteristics of the Machiavellian trait, for example: the economic dimension was intended to discover the agreement with: "*The company seeks to permanently increase its profits*"; "*The company is concerned with being increasingly profitable*". The legal dimension sought to know the agreement with: "*The company acts promptly in accordance with legal regulations*"; "*In the company, all of our products and services comply with the legal standards*". And, finally, the ethical dimension sought to know the agreement with: *"In general, the company complies with ethical and professional standards and norms*"; "*The company cares about doing what is ethically correct*".

For the earnings management variable, the average of the four scenarios applied was calculated, operated on the *Likert* scale (1 to 7 points).

With regard to the statistical approach, descriptive statistics (frequencies, means and standard deviation, maximum and minimum) were adopted to know the respondents' profile, the mean acceptance of the earnings management and social responsibility practices and the mean acceptance of the Machiavellian traits.

The hypothesis test was used to verify whether the business professionals' profile influences the personality and choices, in accordance with the Upper Echelons theory. Therefore, the Mann-Whitney and Kruskal-Wallis tests were selected, due to the nature of the research variables: qualitative (Gender: 0-female;1-male; Age range: 1: from 18 to 25 years; 2: from 26 to 35 years; 3: from 36 to 45 years and 4: Over 46 years and Length of experience: 1: from 1 to 5 years; 2: from 6 to 10 years; 3: from 11 to 15 years; 4: from 16 to 20 years; 5 from 21 to 25 years, and 6: over 26 years) and quantitative variables (mean EM; REP; RL and RE).

Correlation and regression were techniques adopted to analyze the relationship, signal and the strength between the variables: Earnings Management, Corporate Social Responsibility and Machiavellianism. To get to know the statistical significance of the variables that demonstrate greater relevance for the model and eliminate possible effects of multicollinearity (Fávero, Befiore, Silva, & Chan, 2009), the stepwise method was adopted for the regression test. Prior to the analysis of the regression results, we applied the test of homoscedasticity, self-correlation of residues and linearity of parameters to verify the need for adjustments. Based on the central limit theorem, the data tend to normality.

## 7. Results and Discussion

The statistical models for the hypothesis tests that were elaborated present the results. Initially, the descriptive results and hypothesis tests are presented with control variables and independent and dependent variables. Then, Model I discusses CSR and EM; Model II, Machiavellianism and CSR; Model III, Machiavellianism and EM; and Model IV, CSR moderating the relationship between Machiavellianism and EM.

Regarding descriptive statistics, Table 4 shows that the highest mean among the three dimensions of CSR was RE ($\bar{x}$=6.7059), followed by RL ($\bar{x}$=6.6867) and REP($\bar{x}$=6.1365). This result shows high agreement scores with CSR practices, revealing that the respondents respect the legal requirements and ethical conduct in the production of goods and services that society needs with a focus on profit. These results are slightly higher than those obtained by Leal (2013), RL ($\bar{x}$=6.0), REP ($\bar{x}$=5.81) and RE ($\bar{x}$=5.59), but imply a positive influence in business operations and accounting reports.

When analyzing the acceptance of EM practices, such as acceptance of operational management scenarios ($\bar{x}$=4.34) and accounting management ($\bar{x}$=2.73), greater agreement was observed with operational manipulation practices. Although not very expressive, this finding refers to the respondents ' agreement on the modification of earnings through the anticipation of sales registers, non-registration of expenses in the current year and increase of provisions. Similar results were found in the studies by Bruns and Merchant (1990) and Merchant and Rockness (1994). For this study, the mean acceptance ($\bar{x}$=3.5361) of the two scenarios was adopted for the entire analysis, as the objective of the study is to know the willingness to manage earnings in general, a method in accordance with Shafer's study (2015).

Concerning the Machiavellian orientation, the mean of ($\bar{x}$=3.7404) leads to agreement on the attitudes of the dark trait, a result that indicates the respondents' proneness to use strategy, tactics, long-term orientation, and manipulation. This finding is proportionally lower than that found by Silva (2019), ($\bar{x}$=2.55814), and D'Souza (2016), ($\bar{x}$=2.9155), when the authors investigated Brazilian managers, using a five-point *Likert* scale.Góis (2017) also verified a mean score for Machiavellianism of ($\bar{x}$=4.42) for Brazilian MBA students, and ($\bar{x}$=4.6) for North-Americans, on a scale from (1 to10).

Table 3
**Descriptive statistics**

| Variables | No. of Participants | Minimum | Maximum | Mean | Standard deviation |
|---|---|---|---|---|---|
| Economic Liability | 208 | 2.20 | 7.00 | 6.1365 | .86041 |
| Legal Liability | 208 | 4.00 | 7.00 | 6.6867 | .56727 |
| Ethical Liability | 208 | 4.00 | 7.00 | 6.7059 | .48508 |
| Earnings Management | 208 | 1.00 | 7.00 | 3.5361 | 1.29236 |
| Machiavellianism | 208 | 1.00 | 7.00 | 3.7404 | 1.14334 |

Source: research data.

When it comes to the control variables, gender was distinctive in the presence of CSR. Men showed greater REP ($\bar{x}$=6.2754), while women showed greater proneness to RE ($\bar{x}$=6.7606) and RL ($\bar{x}$=6.7872). It is verified here that women are more prone to compliance with the economic mission of the business in compliance with legal requisites, based on ethical conduct.

The age group and the length of experience differed in the presence of Machiavellianism. Respondents between the ages of 18 and 25 were more prone ($\bar{x}$=3.9142) to Machiavellian traits. This result is similar to the study by D'Souza and Lima (2018), which found greater predisposition to manipulation and strategy among students aged 17 to 25 years ($\bar{x}$=3.643364). With regard to the length of experience, participants with between (1 and 5) years of experience presented greater Machiavellian orientation ($\bar{x}$=3.9288). This means that the shorter the length of experience, the greater the proneness to use the strategy for manipulation.

Table 4
**Hypothesis testing**

| Variables | Test | Machiavellianism | EM | REP | RL | RE |
|---|---|---|---|---|---|---|
| | | Sig | Sig | Sig | Sig | Sig |
| Gender | Mann-Whiney | .257 | .268 | .047(*) | .045(*) | .007(*) |
| Age range | Kruskal-Wallis | .000(*) | .076 | .239 | .410 | .580 |
| Length of Experience | Kruskal-Wallis | .009(*) | .403 | .137 | .579 | .964 |

**Obs.**: LengthExper: Length of Experience; EM: Earnings Management; REP: Economic Liability; RL: Legal Liability; RE: Ethical Liability.
(*) p < .05.

Source: research data.

These results are based on the Upper Echelons theory (Hambrick, 2007), considering that characteristics such as age, role in the company, functional experience, education, socioeconomic roots and financial position permit a psychological view of human behavior. Hence, picturing the CEO's characteristics plays a determinant role in the choice of strategies and affects the choice of organizational strategies.

## 7.1 Model I – Corporate Social Responsibility and Earnings Management

The results showed a significant and positive correlation between RE and REP and RL. When analyzing the relationship between CSR and EM, a significant and negative correlation with RL is observed. This result permits the validation of the hypothesis H1 for the RL dimension because, the higher the RL, the lower the inclination towards earnings management.

It also permits inferring that the respondents care about obeying laws and regulations; therefore, the use of EM to improve company performance is not an acceptable act, whether violating the accounting information or not. Nevertheless, against expectations, RE and REP were not related to EM. When confronting previous results, Chih *et al.* (2008) found that the greater the companies' commitment to corporate social responsibility, the lower the willingness to manage earnings. In the study by Shafer (2015) then, involving Italian managers, the rationalization of EM when CSR is present was evidenced.

Table 5
**Correlation between CSR and EM**

| Variables | REP | RL | RE | EM |
|---|---|---|---|---|
| Economic Liability | 1 | | | |
| Legal Liability | .067 | 1 | | |
| Ethical Liability | .175(*) | .573(**) | 1 | |
| Earnings Management | .127 | -.200(**) | -.083 | 1 |

**Obs.**: REP: Economic Liability; RL: Legal Liability; RE: ethical liability; EM: Earnings Management.
(**) p < .01; (*) p < .05.

Source: research data.

To verify the significance of the model, multiple regression was applied including the dependent variable EM, the dimensions that refer to the CSR and the control variables (Length of Experience, Age and Gender). As observed in Table 6, the model is significant and REP was significant and positive, while RL was significant and negative.

Table 6
**Regression CSR and EM**

| DV | Determinants | | Variables | Coefficients | Standard error | T-statistics | Sig |
|---|---|---|---|---|---|---|---|
| EM | R2 | .078 | (Constant) | 5.479 | 1.167 | 4.694 | **.000** |
| | Adjusted R2 | .064 | RL | -.459 | .154 | -2.982 | **.003** |
| | F-statistics | 5.731 | REP | .223 | .101 | 2.198 | **.029** |
| | P-value (F) | **.001** | LengthExper | -.125 | .063 | -1.990 | **.048** |

**Obs.1**: Durbin-Watson Test=1.769; White Test: (p-value =P(Chi-squared(9) > 11.1909)=0.26285; RL: Tolerance Test 0.992; VIF: 1.008; REP: Tolerance Test 0.993; VIF: 1.007; LengthExper: Tolerance Test 0.993; VIF: 1.007.
**Obs. 2**: DV: Dependent Variable; LengthExper: Length of Experience; REP: Economic Liability; RL: Legal Liability; RE: Ethical Liability; EM: Earnings Management.

Source: research data.

The positive significance of REP is highlighted here which, also against expectations, does not inhibit earnings management. This result draws the attention of investors to better analyze companies that position themselves as socially responsible and that practice opportunistic acts to increase profit and profitability. They benefit shareholders and harm other stakeholders in accounting information. The results also demonstrate that the shorter the length of experience, the greater the proneness to earnings management. Younger professionals are more prone to practicing earnings management. It is also observed here that the premises of the Upper Echelons theory on the individual profile influence the decisions.

## 7.2 Model II – Machiavellianism and Corporate Social Responsibility

Regarding the analysis between Machiavellianism and CSR, Table 7 shows a negative and significant correlation between Machiavellianism and RL and RE. It can be inferred that the proneness to Machiavellian features does not motivate participants to obey laws and regulations and respect the standards and values of society.

Table 7
**Correlation Machiavellianism and CSR**

| Variables | REP | RL | RE | Machiavellianism |
|---|---|---|---|---|
| Economic Liability | 1 | | | |
| Legal Liability | .067 | 1 | | |
| Ethical Liability | .175(*) | .573(**) | 1 | |
| Machiavellianism | .022 | -.257(**) | -.227(**) | 1 |

**Obs.**: REP: Economic Liability; RL: Legal Liability; RE: Ethical Liability.
(**) p < .01; (*) p < .05.

Source: research data.

When the control variables and the three dimensions of CSR were inserted individually as dependent variables, the non-significance for Machiavellianism and REP was observed. This finding goes against Burton and Hegarty (1999), who showed that business students rich in Machiavellianism demonstrated REP. On the other hand, as predicted, Machiavellianism explains, in a significant and negative way, the RL and RE in this study.

Table 8

**Regression RL and RE and the variables of Model II**

| Dependent variable | Determinants | | Variables | Coefficients | Standard error | T-statistics | Sig |
|---|---|---|---|---|---|---|---|
| *RL | R2 | .059 | | | | | |
| | Adjusted R2 | .055 | (Constant) | 7.105 | .0954 | 74.51 | **.000** |
| | F-statistics | 13.109 | Machiavellianism | -.111 | .0306 | -3.621 | **.000** |
| | P-value (F) | **.000** | | | | | |
| *RE | R2 | .076 | | | | | |
| | Adjusted R2 | .067 | (Constant) | 7.119 | .093 | 75.80 | **.000** |
| | F-statistics | 8.470 | Machiavellianism | -.090 | .028 | -3.280 | **.001** |
| | P-value (F) | **.000** | Gender | -.126 | .028 | -2.308 | **.022** |

**Obs. 1**: *Corrected heteroscedasticity: statistics based on weighted data.
**Obs. 2**: REP: Economic Liability; RL: Legal Liability; RE: Ethical Liability; LengthExper: Length of Experience.

Source: research data.

Table 8 shows that as the strength of the Machiavellian trait increases, social responsibility decreases. This result is in line with Burton and Hegarty (1999), who observed the decrease in RE and RL as the Machiavellian traits increase, and with Shafer (2018), who also found a strong negative association between Machiavellianism and corporate social responsibility.

It can also be observed that the gender variable was significant and negative in the presence of ethical liability. It is observed here that the premises of the Upper Echelons theory on the individual profile, such as gender, influence the choices and values. Based on these results, hypothesis H2 can be partially validated.

## 7.3 Model III – Machiavellianism and Earnings Management

Table 9 presents the positive and significant correlation between Machiavellianism and EM. It can be inferred that the absence of principles, strategy and low ethical and moral standards of Machiavellian individuals motivate the use of accounting and operational maneuvers, such as: postponing discretionary expenses, increasing provisions, postponing expenses for the year and anticipating sales to improve business performance.

Table 9
**Correlation Machiavellianism and Earnings Management**

| Variables | EM | Machiavellianism |
|---|---|---|
| EM | 1 | |
| Machiavellianism | .294(**) | 1 |

**Obs. 1**: EM: Earnings Management

Source: research data.

When inserting the control variables, adopting EM as the dependent variable, a significant model is observed and the confirmation that Machiavellianism explains EM in a significant and positive way. The stronger the traits of Machiavellianism, the greater the respondents' proneness to attitudes that imply operational and/or accounting earnings management. In one way or another, accounting and management information will be distorted, which will benefit the shareholder or the company responsible for the information in an opportunistic manner.

Table 10
**Regression Machiavellianism and EM**

| DV | Determinants | | Variables | Coefficients | Standard error | Estatística t | Sig |
|---|---|---|---|---|---|---|---|
| EM | R2 | .078 | | | | | |
| | Adjusted R2 | .064 | (Constant) | 2.292 | .294 | 7.788 | .000 |
| | F-statistics | 5.731 | Machiavellianism | .333 | .075 | 4.418 | .000 |
| | P-value (F) | **.001** | | | | | |

**Obs. 1**: Durbin-Watson Test=1.835; Breusch-Pagan test (p-value =P (Chi-Square (1) > 0.301209) = 0.579398. Tolerance Test 0.999; VIF: 1
**Obs. 2**: DV: Dependent Variable; EM: Earnings Management.

Source: research data.

This result is in line with the findings by D'souza *et al.* (2019), Silva (2019), Góis (2017), Vladu (2013), Murphy (2012), Shafer and Wang (2011), Byington and Johnson (2011) and Hartmann and Maas (2010) and draws attention from the community, especially in accounting, to the possible losses caused by managers with dark personality traits in companies. Based on this result, H3 can be validated.

## 7.4 Model IV – Corporate Social Responsibility Moderating the Relationship between Machiavellianism and Earnings Management

To analyze the moderating effect of the variable CSR in the relationship between Machiavellianism and EM, the interaction between the variables, (*Machi*REP),* (*Machi*RL*), (*Machi*RE*) was applied. There was a significant and positive association of the moderating variables with EM (r=.333, p=.000), (r=.277, p=.000), (r=,231, p=,000), highlighting *Machi*REP* with greater association, followed by *Machi*RE*. Subsequently, multiple regression was applied, as shown in Table 11.

Table 11
**Regression (*Machi*REP*), (*Machi*RL*), (*Machi*RE*) and EM**

| DV | Determinants | | Variables | Coefficients | Standard error | T-statistics | Sig |
|---|---|---|---|---|---|---|---|
| EM | $R^2$ | .111 | | | | | |
| | Adjusted $R^2$ | .107 | (Constant) | 2.305 | .257 | 8.958 | **.000** |
| | F-statistics | 25.675 | Machi*REP | .054 | .011 | 5.067 | **.000** |
| | P-value (F) | **.000** | | | | | |
| | $R^2$ | .054 | | | | | |
| | Adjusted $R^2$ | .049 | (Constant) | 2.538 | .305 | 8.318 | **.000** |
| | F-statistics | 11.648 | Machi*RL | .040 | .012 | 3.413 | **.001** |
| | P-value (F) | **.001** | | | | | |
| | $R^2$ | .076 | | | | | |
| | Adjusted $R^2$ | .072 | (Constant) | 2.355 | .299 | 7.884 | **.000** |
| | F-statistics | 17.060 | Machi*RE | .047 | .011 | 4.130 | **.000** |
| | P-value (F) | **.000** | | | | | |

**Obs. 1**: Machi*RE: Durbin-Watson Test=1.830; Breusch-Pagan Test:(p-value=P(Chi-squared(1)> 0.514631)=0.473141;Tolerance Test:1; VIF: 1.Machi*RL: Durbin-Watson Test=1.862; Breusch-Pagan Test:(p-value=P(Chi-squared(1)> 0.316236)=0.573878;Tolerance Test: 1; VIF: 1.Maqui*RE: Durbin-Watson Test=1.866; Breusch-Pagan Test:(p-value=P(Chi-squared(1)> 0.720008)=0.396141;Tolerance Test:1; VIF: 1.
**Obs. 2**: DV: Dependent Variable; EM: Earnings Management.
(**) p < .01; (*) p < .05.

Source: research data.

Against expectations, the results indicate that the moderation of CSR is significant and positive for the three dimensions, indicating that CSR influences the relationship between Machiavellianism and EM. Another important aspect to highlight is that the moderation of CSR did not have the strength to inhibit, but increased the relationship between Machiavellianism and management.

Therefore, the findings reveal that, even in the presence of CSR, the stronger the Machiavellian traits, the greater the attitudes of modifying gains to generate benefits for the manager or the company, even if the legal, ethical and professional standards are broken for this purpose. This highlights the analysis of the Machiavellian strategy to seek and present better company results to attract investments, credit, even if results are presented for this purpose that do not portray the company's true situation. This finding entails economic and financial implications and serves as a reference for investors who use the results reported in the financial statements to invest in companies. For auditors to observe the Accounting information reported with greater care in order to issue independent and risk-free opinions about companies that use CSR as a background to manage earnings.

This result does not validate the hypothesis H4 and differs from the findings by Góis (2017), who found that corporate reputation moderates and inhibits the relationship between Machiavellianism and fraud. And Silva (2019), who also found that moderation in corporate governance resulted in a negative relationship between Machiavellianism and EM.

In short, the study results are based on the Upper Echelons theory and permit the inference that legal liability reduces the strength of earnings management, which partially validates the hypothesis H1. The Machiavellian trait reduces the proneness to legal and ethical liability, which partially validates the hypothesis H2. The stronger the Machiavellian trait, the stronger the relationship with EM, which validates the hypothesis H3. Finally, the moderation of CSR was unable to inhibit the positive relationship between the dark trait and earnings management, which does not validate the hypothesis H4.

## 8. Conclusion

The study involving 208 business professionals revealed that those who care about observing policies that refer to legal liability do not agree with the practice of earnings management, while those who focus on economic liability were prone to this management. This means that, when professionals are faced with the possibility of improving business and personal performance, to increase profit continuously, practices that violate or do not violate accounting practices are accepted, without concern with the impact or harm the use of earnings management causes to society.

As for the Machiavellian influence, those more endowed with these traits tend less towards legal and ethical corporate responsibility and display greater acceptance of earnings management. Thus, it is inferred that the strategic orientation and low ethical and moral standards of Machiavellian individuals influence the practice of earnings management, especially as the characteristic insensitivity reduces the analysis of future consequences, which can impact the incorrect reporting of accounting information, the corporate image and the future of employees and investors. If, on the one hand, Machiavellian individuals could use CSR as a projection tool to improve their reputation and that of the company before society, on the other hand the strong opportunistic and manipulative characteristics stand out.

The result on the Machiavellian influence on earnings management is not surprising, given the gloomy character of the trait that motivates dishonest behaviors, notably by callousness and cynicism. This finding draws the companies' attention in order to observe and monitor professionals endowed with these traits, so as not to persuade the work team to engage in opportunistic acts that may compromise the continuity of the company in the long term.

When CSR moderation was applied to verify a possible inhibition of the relationship between Machiavellianism and earnings management, it was observed that the three dimensions of CSR showed influence, however, with a positive effect; therefore, the moderation did not reduce the positive relationship between the study variables. In this particular sense, this result surprised but, at the same time, it is understandable, given that economic responsibility has been positively associated with earnings management, and management has also been positively associated with Machiavellianism. Therefore, the dark nature of the trait stands out when compared to the willingness towards CSR, especially regarding the REP, which demonstrated the greatest explanatory power among the three dimensions. This responsibility is aimed at profit and profitability, assets desired by those who manage earnings, disregarding practices that violate or do not violate the law.

It should also be noted that male professionals presented greater economic liability, demonstrating greater focus on profit, cost reduction and business profitability, while women were more sensitive to the principles of ethical and legal liability. In addition, professionals between 18 and 25 years old revealed greater Machiavellian dispositions, which permits inferring that the younger, the greater the orientation towards the future and less concern with possible dishonest acts. Those with less experience seem to be more Machiavellian, a result that aligns with the above.

These results are based on the Upper Echelons theory, considering that the individuals' characteristics, such as profile, values and personality, promote interpretations, choices, attitudes and behaviors.

In this context, this research achieved the proposed objective by presenting the empirical results that provide relevant information for managers, shareholders, regulators, professionals responsible for corporate governance on the influence of personality traits of Machiavellianism as a motivator for engaging in earnings management and less compliance with CSR.

These results are limited to a behavioral analysis, without the diagnostic and clinical claim of the business professionals involved in the study, nor any intent on generalizing the findings. For the sake of future research, a broader sample could be analyzed, and moderating variables could be included that can inhibit the relationship between dark personality traits and earnings management, aiming to get to know the distinctive results of the study phenomenon.

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# Relationship between Dark Triad personality traits and professional skepticism among independent auditors

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## Abstract

**Objective:** To analyze the influence of the Dark Triad personality traits on professional skepticism among independent auditors in Brazil.

**Method:** The sample was composed of 170 independent auditors actively registered in the CNAI (National Register of Independent Auditors). Data were analyzed using descriptive statistics, via regression analysis estimated by Ordinary Least Squares to verify the hypotheses, and regressions estimated by Minimum Absolute Deviation to analyze sensitivity. As proposed by Hurtt (2010),professional skepticism, was the regressand, while the Dark Triad (narcissism, Machiavellianism, and psychopathy) was treated as a set of stimulus variables.

**Results:** The results indicate that narcissism positively influences professional skepticism as it raises the auditors' self-esteem and questioning ability. Machiavellianism and psychopathy, in turn, did not positively influence professional skepticism, while an inverse relationship with autonomy and self-esteem is possible.

**Contributions:** At a theoretical level, this study addresses for the first time the influence of socially undesirable personality traits on auditors' professional skepticism, filling a gap concerning the interdisciplinary connection between accounting and psychology, specifically focusing on the auditing field. In practical terms, this study promotes a better understanding of the relevance of socially undesirable personality traits on the auditors' professional skepticism, which is useful for audit firms when selecting and training their professionals.

**Keywords:** Dark personality traits; DarkTriad; Professional Skepticism; Audit; Independent Auditors.

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## 1. Introduction

According to NBC TA 200 (R1), professional skepticism is one of the basic requirements for an independent auditor to perform his/her job. It is defined as "an attitude that includes a questioning mind and being alert to conditions that may indicate possible misstatement due to error or fraud and a critical assessment of audit evidence." (CFC, 2016, p. 6).

According to Nelson (2009), this definition fits a neutral view in which an auditor would be gathering and assessing evidence without assuming any *ex-ante* bias. However, Bell, Peecher, and Solomon (2005) highlight that devices dealing with fraud – such as NBC TA 240 (R1) – tend to change this perspective, assuming a suspicious presumption, that is, auditors should always consider a certain level of dishonesty from managers, unless there is evidence to the contrary. Therefore, even though, in general, audit standards adopt skepticism as a common interest, its conceptual definition is not precise (Nelson, 2009).

Although different professional skepticism concepts coexist within the audit scope, the central idea is that auditors should not accept information first presented to them. Instead, they need to critically assess evidence to establish an opinion regarding facts (Mubako & O'Donnell, 2018).

The academic literature also contains different definitions of professional skepticism (Nelson, 2009); however, the premise that skepticism must be exercised in levels that favor independent auditors to make their professional assessment and meet the purposes of an adequate audit seems to be consensual (Quadackers; Groot & Wright, 2014; Mubako& O'Donnell, 2018; Mendes; Niyama & Silva, 2018). For instance, Hurtt (2010) highlights that there is no other professional sphere in which skepticism is as relevant as in auditing.

Even though studies and regulatory bodies emphasize the relevance of skepticism to the core of auditing, it is crucial to note that skepticism by itself is a feature difficult to measure (Hurtt; Brown-Liburd; Earley & Krishnamoorthy, 2013; Nolder & Kadous, 2018). In this context, authors such as Nelson (2009), Hurtt *et al.* (2013), and Nolder and Kadous (2018) tried to identify the antecedents of professional skepticism among auditors and an element that appears in all studies is the characteristics of auditors (e.g., motivation, affection, and expertise, among others).

In this sense, some studies, such as Nelson (2009), Quadackers *et al.*(2014), and Cohen, Dalton, and Harp (2017), show that professional skepticism is related to the auditors' personality traits. In general, these studies analyze this relationship based on socially desirable personality traits, such as ethical conduct and self-confidence, among others. A recent example of this tendency is the study conducted by Cunha, Silva, Peyerl, and Haveroth (2019), which analyses the effects of experience, consciousness, extroversion, amiability, and neuroticism on auditor's professional skepticism, reporting distinct signs in the relationships established based on the previously specified personality traits.

There are no empirical reports or evidence of the influence of socially undesirable personality traits on professional skepticism though. This research gap is relevant in the auditing context because psychology suggests that auditors report different social interactions depending on their personalities, which implies a consequent influence on the quality of auditing services (Hobson; Stern & Zimbelman, 2020). These authors exemplify this relationship when they explain that an auditor's social interaction tends to compromise his/her professional skepticism, though some personality traits may decrease this risk.

Therefore, this study's objective is to analyze the influence of "dark" personality traits on the professional skepticism of independent auditors in Brazil.

The "dark" perspective of individuals' personality has been investigated in the accounting field based on the so-called Dark Triad, see Majors (2016), D'Souza and Lima (2018), D'Souza, Lima, Jones and Carré (2019), Hobson et *al.* (2020). The Dark Triad consists of a set composed of three distinct, partially correlated undesirable characteristics: narcissism, Machiavellianism, and psychopathy (Paulhus & Williams, 2002; Jones & Paulhus, 2014).

Note that the three personality traits that compose the Dark Triad are investigated from a non-pathological perspective, as there is no intent to diagnose individuals (D'Souza & Lima, 2018). It is also important to emphasize that, in general, Dark Triad personality traits are harmful to organizations and society, though these personality traits may present some beneficial aspects (Volmer; Koch & Göritz, 2016). D'Souza and Lima (2018), for instance, state that analysis of the "bright side" of the Dark Triad constitutes a literature gap. Thus, this study addresses this gap to identify a greater level of professional skepticism among independent auditors presenting narcissism, Machiavellianism, and psychopathy traits.

**Why is it important to analyze the influence of new elements on the professional skepticism among independent auditors?** The answer to this question may be based on Olsen and Gold (2018), which state that professional skepticism is a proper parameter of auditing services' quality. According to NBC TA 200 (R1), this derives from the greater critical power of professionals with such characteristics.

Therefore, in practical terms, this study is expected to contribute to the audit field by reporting how certain personality traits (in this case, dark traits) can be essential traits to achieve an appropriate level of skepticism. That is, audit firms could apply personality tests to professional candidates considering the elements found in this study, which would generate knowledge about the professional profile a company desires.

The literature indicates an unexplored relationship, considering that only socially desirable traits have been investigated with auditors' professional skepticism (Nelson, 2009; Quadackers *et al*., 2014; Cohen *et al*., 2017). Nevertheless, the results can contribute to the academic milieu by promoting an interdisciplinary connection between accounting and psychology. According to D'Souza and Lima (2018), this connection is seldom promoted but seems to be relevant to the auditing field, as noted by Hobson *et al.* (2020).

## 2. Theoretical Framework

This section addresses the relevance of professional skepticism among auditors, reports the Dark Triad's concepts, and presents previous studies addressing the Dark Triad within the accounting and auditing fields. This study's hypotheses are also developed and presented throughout the text.

### 2.1 Auditors' Professional Skepticism

According to Hurtt (2010), professional skepticism is more relevant in the auditing field than in any other profession. Nolder and Kadous (2018) corroborate this argument by explaining that professional skepticism is present in all auditing standards, while lack of skepticism would be the root of audit deficiencies in the eyes of inspectors. These authors and Hurtt *et al.* (2013) emphasize that, despite this importance, professional skepticism is still inconsistently defined.

According to NBC TA 200 (R1), professional skepticism would be a questioning mindset an auditor maintains throughout his/her work, making someone more critical when assessing audit evidence and, consequently, more apt to identify potential misstatements arising from errors or fraud. In this sense, professional skepticism is an indicator of auditing services' quality (Olsen &Gold, 2018). This is so because a quality audit demands auditors to be competent and at the same time recognize and report the audited entity's accounting misstatements (DeAngelo, 1981). Hence, in the absence of skepticism, an auditor's ability to recognize potential accounting irregularities is directly affected.

Thus, Olsen and Gold (2018) highlight that professional skepticism has received much attention in academic research. Mubako and O'Donnell (2018), for instance, verify whether auditors who know the different risks of fraud for each type of account tend to become less skeptical towards the evidence. The experiment's results indicated that the auditors who were aware that the risk of fraud was high in terms of revenue but low in terms of cost classified cost accounts as lower in the risk of account misstatements than the auditors with the information that both the accounts presented the same risk.

Hussin, Saleh, and Al-Smady (2019) analyze whether demographic factors influence the level of skepticism of auditors in Jordan. The results indicate that the auditors who had previously experienced frauds were positively related to skeptical attitudes, while the auditors' gender, specific knowledge, and experience did not present statistical significance in this relationship.

The experiment conducted by Stevens, Moroney, and Webster (2019) shows that when the team's identity is an important factor, auditors tend to show a greater level of skepticism when teammates present a favorable style compared to when teammates present an unfavorable style.

Therefore, professional skepticism remains a big issue, and there is a wide range of studies that can address this construct, which is essential for auditors, both within the academic milieu and regulatory bodies (Hurtt *et al.*, 2013).

## 2.2 The DarkTriad

Among the aversive personality traits presented by the psychology literature, Paulhus and Williams (2002) highlight three traits that achieved empirical prominence: Machiavellianism, narcissism, and psychopathy.

Studies before Paulhus and Williams (2002) had suggested that there was a relationship between Machiavellianism and psychopathy (Mchoskey; Worsel & Szyarto, 1998), between narcissism and psychopathy (Gustafson & Ritzer, 1995), and between Machiavellianism and narcissism (McHoskey, 1995). Based on these associations and the relevance of these constructs to academia, Paulhus and Williams (2002) investigated the relationship of the interdependence between these three elements based on a sample of 245 Psychology students, concluding at the end of the study that these elements are partially correlated but independent from each other. Hence, the so-called Dark Triad emerges.

Machiavellianism can be defined as a behavior in which individuals manipulate others as instruments to achieve personal purposes (Christie & Geis, 1970; Wilson; Near & Miller, 1996). Nelson and Gilbertson (1991) point out that the Machiavellianism term appears in a reference of Niccolò Machiavelli, especially in his work "The Prince," and that the author would pay a high price for this recognition. This is because subsequent generations of writers and students coined Machiavellianism as a synonym for immoral actions, unethical behavior, and hidden agenda (Ralph, 1973).

McIlwain (2003) considers that "cold-bloodedness" is one of the hallmarks of individuals with a Machiavellian nature, as it enables them to keep calm even in situations of intense emotional charge. This coldness contributes to manipulating others and a tendency to show no empathy or affective connection with people (Paal & Bereczkei, 2007). Based on this premise, it reasonable to believe that auditors who have Machiavellian traits present a higher level of skepticism than their counterparts, given their lack of affective connection with others (such as managers). Therefore, the following hypothesis was established:

- **H1: Machiavellianism positively influences professional skepticism among independent auditors**

Regarding narcissism – in a historical sense –, the term goes back to Greek mythology, in which the young Narcissus, endowed with remarkable beauty, refuses the love of the equally beautiful and devoted Eco, for believing that Eco would not be at the same level of his perfection. Hence, Narcissus starts a search for the perfect partner but, in the face of his inflated ego, can only fall in love with his reflection, a fact that eventually led to his death (Campbell & Foster, 2002).

Pulver (1970) points out that there are only two consensual facts in the vast literature addressing narcissism: 1) narcissism is one of the most important concepts at the heart of psychoanalysis; and 2)it is one of the most confusing. The author notes that this confusion goes back to its inception when even Sigmund Freud (who coined the term) reported dissatisfaction with his original definition of narcissism, namely: "the attitude of a person who treats his/her body in the same way in which the body of a sexual object is ordinarily treated [...]" (Freud, 1914, p.73, *apud* Crockatt, 2006).

Since Freud's seminal work (1914), the concept of narcissism has been expanded and later divided between pathological and non-pathological (Wallace & Baumeister, 2002).

This section is essential because even though some characteristics are considered key manifestations of a narcissist personality, such as arrogance and a feeling of entitlement (Rhodewalt & Peterson, 2009; Pincus & Lukowitsky, 2010), the literature has not reached a consensus regarding other characteristics (Maxwell; Donnellan; Hopwood & Ackerman, 2011), such as insecurity and emotional fragility, which according to Miller and Campbell (2008), would be associated with pathological narcissism, while Rosenthal and Hooley (2010) disagree of this logic, arguing that the ways narcissism is measured are mistaken and lead to such a belief.

Considering that, similar to the Dark Triad, narcissism is analyzed from a non-pathological perspective, as noted by D'Souza and Lima (2018), the second hypothesis was established based on the narcissism's general characteristic, arrogance (Rhodewalt & Peterson, 2009; Pincus & Lukowitsky, 2010). We assume that, because narcissist auditors would believe that they are more capable in technical terms than any other individual, they would be more skeptical toward financial reports performed by others. Hence:

- **H2: Narcissism positively influences professional skepticism among independent auditors.**

Psychopathy, in turn, refers to a personality disorder marked by lack of empathy, egocentrism, impulsive actions, and a lack of remorse for the consequences of these acts(Cleckley, 1976; Paulhus & Williams, 2002; Jones & Paulhus, 2014).

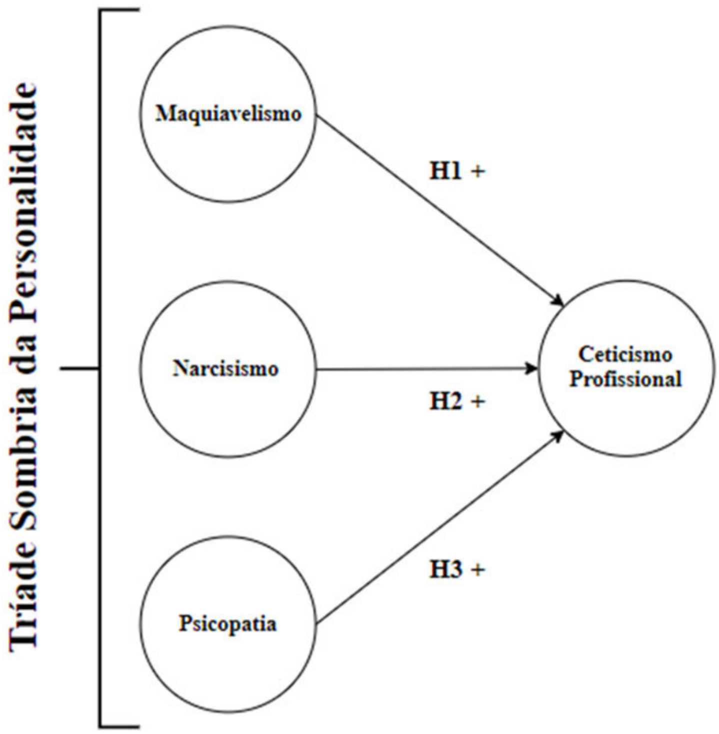
Psychopaths can also behave antisocially in a severe and premeditate way, with direct consequences for the society (Hare & Neumann, 2008; Viding & McCrory, 2018); however, according to Viding and McCrory (2018),this is not the general characteristic of these individuals. Jones and Paulhus (2014) corroborate this argument by explaining that even seminal works have established only two key elements as being typical of a psychopath: a sentimental deficit and a deficit in self-control.

In a work context, as stated by Wexler (2008), psychopaths tend to be successful due to skills, such as coldness when making complex decisions, ability to perform hard work, confidence, and objectivity. According to the author, these attributes denote trust and loyalty to the work colleagues, giving psychopaths wide networking to obtain personal objectives.

Thus, an independent auditor presenting a high level of (non-clinical) psychopathy should be more skeptical in his/her work given a lack of affection to others and an interest in performing a high-quality job to advance in the company's hierarchy, be recognized by his/her technical competence, and to promote his/her ego. Therefore, the third hypothesis emerges:

- **H3**: **Psychopathy positively influences professional skepticism among independent auditors**

Given the hypotheses previously presented, this study's design takes the form presented in Figure 1.




**Translation**: Dark Triad of Personality / Machiavellianism / Narcissism / Psychopathy / Professional Skepticism.

**Figure 1.** Study design

Source: developed by the authors (2020).

## 2.3 Previous Studies

The academic literature presents a set of (Brazilian and international) studies relating the Dark Triad with accounting. Various spheres within accounting are addressed in these studies (academic milieu; auditing; management accounting, etc.), showing its versatility and compatibility with the accounting field. Hence, this subsection presents some of the most recent studies in the field in chronological order.

Majors (2016) carried out a laboratory experiment with undergraduate students and reports evidence that being required to disclose intervals for estimates tend to lead managers to present less aggressive reports. The author highlights that this effect is maximized when managers present a high level of at least one Dark Triad trait. In principle, this would be explained by the disciplinary effect of mandatory bands when, by nature, these individuals feel the need to control others.

In a socio-bibliometric survey, D'Souza and Jones (2017) attempted to characterize the Dark Triad's scientific research in the business and accounting contexts between 2012 and 2014. The study sample (90 studies) enabled the authors to develop a taxonomy capable of reporting the following: a) Machiavellianism is an element with the greatest emphasis in the studies addressing manipulations; b) narcissism is the element most frequently explored and routinely associated with leadership and business decision-making, and; c) psychopathy usually arouses academic interest to assess hostile and inappropriate behavior of leaders in organizations. The authors note that, specifically in the accounting field, most studies associate the Dark Triad with a tendency for the occurrence of frauds in financial reporting.

D'Souza and Lima (2018) analyze the Dark Triad's influence on the professional interests of undergraduate students in Accounting Sciences. The survey, which involved 1,404 participants of all Brazilian regions, shows that the undergraduate students most frequently preferred Auditing and Accounting in private companies. The results show that the Dark Triad elements directly influence all the variables of career interest, suggesting, according to the authors, a search for social prestige and exhibitionism of hierarchical positions.

In a related study, D'Souza and Lima (2019) verify the relationship between the Dark Triad traits and the cultural values of the Accountancy students. The findings show a trend towards individualist values among those with high levels of the Dark Triad traits.

D'Souza *et al*. (2019) analyzed the relationship between maximization of personal and business gain and the Dark Triad. The survey conducted with 263 managers indicates that when the three elements of the Dark Triad are combined (narcissism, Machiavellianism, and psychopathy), they present a positive and significant influence on opportunistic maximization of gains.

Similar to this study's objective, Hobson *et al.* (2020) assume that independent auditors with high levels of Dark Triad traits are less prone to believe in managers, reinforcing professional skepticism. The results of the above experimental study corroborate the authors' expectations. Even though this study differs from the above in form, methodology, and target-population, its general purpose is the same. Nonetheless, Hobson *et al.* (2020) focus on "unjustified trust" in managers, while this study directly focuses on independent auditors' professional skepticism.

## 3. Methods

This is a quantitative study, the purpose of which is to explain how a phenomenon (professional skepticism) is related to the Dark Triad traits among independent auditors using numerical data and statistical techniques (Mujis, 2011).

The study population includes independent auditors actively registered in the CNAI (National Register of Independent Auditors). There were, on February 4th, 2020, a total 4,142 of auditors in this population. The Linkedin® platform was used to contact the target-population, and 1,246 independent auditors were identified. They were asked to answer an electronic questionnaire voluntarily and return it afterward. A total of 170 valid questionnaires were received by the end of this process (April 28th, 2020), with a response rate of 13.6% of the identifiable group.

Jones and Paulhus (2014) created the Short Dark Triad (SD3) to simply and effectively measure Dark Triad traits among individuals. Later, D'Souza and Lima (2018) translated the instrument's 27 statements (9 for each of the 3 traits) and kept the original 7-point Likert scale. Because this is a validated instrument that specifically meets this study's objective, the version translated by D'Souza and Lima (2018) was assumed to be efficient to measure Machiavellianism, narcissism, and psychopathy.

As for professional skepticism, the scale proposed by Hurtt (2010) was used. It measures the skepticism of independent auditors through 30 items rated on intervals ranging from 1 to 6. This scale's items are aggregated into six different subgroups, namely: Questioning Mind (MQ); Suspension of Judgment (SJULG); Search for Knowledge (BC); Interpersonal Understanding (CINT); Self-Esteem (AEST); and Autonomy (AUT). Haveroth and Cunha (2018) translated the scale proposed by Hurtt (2010) and to mitigate potential biases, a 7-point scale was also adopted for this construct.

Note that the reverse questions established by the authors of the original instruments were kept both for the SD3, and professional skepticism, while Cronbach's alpha was used to measure the internal consistency of both (Maroco & Garcia-Marques, 2006).

Other questions were asked to gather the control variables for the model, such as experience in the auditor's position (Nelson, 2009; Hurtt *et al*., 2013), which is measured in years; the auditor's gender (Bobek; Hageman & Radtke, 2015) measured in this study through a dichotomous variable (Male=1; Female=0); and whether they worked in one of the Big Four firms, according to DeAngelo (1981), also a dichotomous variable (*Big 4* = 1; Otherwise = 0). For descriptive purposes only, the respondents also reported in which state they were registered in the CNAI.

Latent variables were generated according to confirmatory factor analyses to measure the three elements of the Dark Triad – Machiavellianism, narcissism, and psychopathy, abbreviated here as MAQ, NAR, and PSI (through the SD3), and also the variables MQ, SJULG, BC, CINT, AEST, and AUT obtained with the professional skepticism proposed by Hurtt (2010). The objective is to corroborate a previously conceived theoretical conception (Fávero; Belfiore; Silva & Chan, 2009).

Because these constructs are organized on an ordinal scale, the confirmatory factor analysis is based on polychoric correlation matrices, following the methodological suggestion of Holgado-Tello, Chacón–Moscoso, Barbero–García and Vila–Abad (2010). Bistaffa (2010) emphasizes that a polychoric correlation matrix is formed by the bivariate association of two ordinal variables with at least three categories. In this sense, according to the author, starting with the hypothetical categorical variables A and B and their respective latent variables X and Y, and with a relationship between these variables, considering that: $A=a_i$, if $\lambda_{i-1} \leq X < \lambda_{i-1}$ ; $i$ =1,2,…,$m$ and B = $b_i$, if $\tau_{j-1} \leq Y < \tau_j$; j =1,2,…, $n$, with thresholds $\tau_i$ and $\lambda_j$, being $\lambda_0 = \tau_0 = -\infty$ and $\lambda_m = \tau_n = +\infty$, polychoric correlation coefficient ρ emerges, designated as the product-moment relationship between the latent variables X and Y.

The principal component analysis was used to extract the latent variables because the initial objective was to decrease the number of the original variables (Fávero *et al.*, 2009). *A priori* criterion was adopted during the extraction of factors considering only one unit per group.

After extracting the latent variables using factor analysis, six equations were generated to be regressed via Ordinary Least Squares (OLS), highlighted below:

$$MQ = \alpha+\beta_1 GEN+ \beta_2 BIG4+ \beta_3 EXP+ \beta_4 MAQ+ \beta_5 NAR+ \beta_6 PSI+\varepsilon \quad (1)$$
$$SJULG = \alpha+\beta_1 GEN+ \beta_2 BIG4+ \beta_3 EXP+ \beta_4 MAQ+ \beta_5 NAR+ \beta_6 PSI+\varepsilon \quad (2)$$
$$BC = \alpha+\beta_1 GEN+ \beta_2 BIG4+ \beta_3 EXP+ \beta_4 MAQ+ \beta_5 NAR+ \beta_6 PSI+\varepsilon \quad (3)$$
$$CINT = \alpha+\beta_1 GEN+ \beta_2 BIG4+ \beta_3 EXP+ \beta_4 MAQ+ \beta_5 NAR+ \beta_6 PSI+\varepsilon \quad (4)$$
$$AEST = \alpha+\beta_1 GEN+ \beta_2 BIG4+ \beta_3 EXP+ \beta_4 MAQ+ \beta_5 NAR+ \beta_6 PSI+\varepsilon \quad (5)$$
$$AUT = \alpha+\beta_1 GEN+ \beta_2 BIG4+ \beta_3 EXP+ \beta_4 MAQ+ \beta_5 NAR+ \beta_6 PSI+\varepsilon \quad (6)$$

The Jarque-Bera and Breusch-Pagan tests were performed to verify normality and homoscedasticity of the residues, according to Fávero *et al.* (2009). In the absence of a Gaussian tendency for the residues' behavior, the assumption was relaxed based on the Central Limit Theorem (Gujarati& Porter, 2011), whereas where there was heteroscedasticity, it was treated with White's robust correction (Fávero *et al.*, 2009). Nevertheless, the 10-unit mark in the Variation Inflation Factor (VIF) was considered an acceptable limit of multicollinearity between regressors, according to Gujarati and Porter (2011).

Finally, to bring robustness to the study's results, regressions were estimated using Minimum Absolute Deviation (MAD) for the models previously presented. According to Ohlson and Kim (2015), by replacing the mean for the median as the parameter, this form of estimation suggests greater confidence in the results given the influence of potential outliers. It is also important to note that this technique adopted here as a sensitivity measure is semi-parametric, thus, exempt from the need to assume parameters such as normality and homoscedasticity of residues (Duarte, Girão & Paulo, 2017).

For explanatory purposes, MDA models will be given by:

$$Q\tau\ (VD|x) = \alpha\ (\tau)+\beta1\ (\tau)GEN+ \beta2\ (\tau)BIG4+ \beta3\ (\tau)EXP+ \beta4\ (\tau)MAQ+\beta5\ (\tau)NAR+ \beta6\ (\tau)\ PSI+\varepsilon \quad (7)$$

- Where: Q is the conditional quantile function; VD are the dependent variables of Equations 1 to 6; $\tau$ is the regression's quantile-parameter represented by median (0.5); x is the matrix of regressors; $\alpha$ is the intercept; $\beta_{1,2,3\ldots n}$ are the slope coefficients; is the stochastic error.

## 4. Analysis and Discussion of Results

### 4.1 Validation of the Instrument and Sample Characterization

First, it is important to report that the study's instruments, that is, SD3 and skepticism by Hurtt (2010), presented appropriate internal reliability, with Cronbach's alphas equal to 0.8182 and 0.8457, respectively. Assuming the precepts of Murphy and Davidshofer (2005), these are classified as "moderate to high" reliability. Nunnally and Bernstein (1994) also note that in the social sciences field (as is the case of this study), values between 0.7 and 0.8 are acceptable to validate an instrument's internal consistency. The same procedure was adopted considering the constructs individually and only two obtained values below 0.7 (NAR=0.6454 and MQ=0.6888). That is, even if considered in isolation, the results indicate appropriate consistency considering a tolerance measure.

As for the respondents' characterization, 51 (≅29.82%) reported being women, while 119 (≅69.59%) reporting being men. This predominance of males over females within audit firms' scope was also identified in the studies by Mendes *et al.* (2018) and Haveroth and Cunha (2018), though different percentages confirmed the majority of males, 86.67% and 74.90% respectively. Hence, in line with other studies, this study's results suggest that male individuals are a majority in the field of independent auditing.

The respondents were also classified in terms of the size of the firms for which they worked (Big 4 x Non-Big 4). In this sense, 101 participants were in the Non-Big 4 group, approximately 59% of the sample. Consequently, 69 respondents (approximately 41% of the sample) reported being an employee of one of the world's four largest independent auditing companies. The study by Haveroth and Cunha (2018), which used the Linkedin® platform to access independent auditors registered in the CNAI, found a percentage of approximately 49% in the Big 4 group from a total of 255 participants. Thus, in principle, the results are similar, apparently not showing bias due to sample variability.

The sample's composition considering the geographical factor (State where the independent auditor is registered to the CNAI), is presented in Table 1.

Table 1
**Sample composition (geographical)**

| Region | FA | FR (approx.) | Federal Unit | FA | FR (approx.) |
|---|---|---|---|---|---|
| Mid-West | 9 | 5.294% | Federal District (DF) | 4 | 2.353% |
| | | | Goiás (GO) | 2 | 1.176% |
| | | | Mato Grosso (MT) | 2 | 1.176% |
| | | | Mato Grosso do Sul (MS) | 1 | 0.059% |
| Northeast | 8 | 4.705% | Bahia (BA) | 4 | 2.353% |
| | | | Ceará (CE) | 1 | 0.059% |
| | | | Pernambuco (PE) | 3 | 1.177% |
| Southeast | 78 | 45.882% | Espírito Santo (ES) | 2 | 1.176% |
| | | | Minas Gerais (MG) | 6 | 3.529% |
| | | | Rio de Janeiro (RJ) | 4 | 2.353% |
| | | | São Paulo (SP) | 66 | 38.823% |
| South | 75 | 44.117% | Paraná (PR) | 27 | 15.882% |
| | | | Rio Grande do Sul (RS) | 28 | 16.470% |
| | | | Santa Catarina (SC) | 20 | 11.765% |
| **TOTAL** | **170** | **100%** | - | **170** | **100%** |

**Obs.**: FA = Absolute Frequency; FR = Relative Frequency.

Source: research data (2020).

Table 1 shows a predominance of the Southeast and South, while the state of São Paulo is the most frequently represented in this study. These numbers follow the proportion of the study's population (auditors with an active CNAI), in which the Southeast and South are the ones with the highest number of auditors and São Paulo is the leading state. Thus, in principle, it suggests a lack of bias due to sample variability.

Haveroth and Cunha (2018) also report both the leadership of São Paulo in terms of sample size among states and the leadership of the Southeast (followed by the South).

## 4.2 Factor Analysis and Descriptive Statistics

Based on the polychoric matrices, factor analysis was performed to extract the latent variables MAQ, NAR, and PSI (SD3) and MQ, SJULG, BC, CINT, AEST, and AUT (professional skepticism). Table 2 presents a summary of this process.

Table 2
**Factor analysis**

| Variable | Bartlett's test | KMO | Communality |
|---|---|---|---|
| AEST | 0.000 | 0.8566 | 0.7800 |
| AUT | 0.000 | 0.8102 | 0.7622 |
| BC | 0.000 | 0.8646 | 0.8614 |
| CINT | 0.000 | 0.8128 | 0.7291 |
| MAQ | 0.000 | 0.7279 | 0.4789 |
| MQ | 0.000 | 0.7964 | 0.6289 |
| NAR | 0.000 | 0.6619 | 0.4469 |
| PSI | 0.000 | 0.8217 | 0.6028 |
| SJULG | 0.000 | 0.8238 | 0.7080 |

**Note**: KMO=Kayser-Meyer-Olkin.

Source: research data (2020).

According to Fávero *et al.* (2009), adequate factor analysis is required to reject the null hypothesis of Bartlett's sphericity test; that is, the correlation matrix has not to be an identity matrix. As shown in Table 2, the p-values of all the variables for this test indicate that the premise is accepted at a 99% confidence level.

Kayser-Meyer-Olkin (KMO) criterion, which verifies the general consistency of data, also presented reliable values for the factor analysis' continuity. According to Fávero *et al. (*2009), KMO values above 0.6 are considered appropriate, a factor that is confirmed by the study's data. Considering the sample size (n=170), the commonality of factors can also be considered statistically significant for this study, according to Hair, Anderson, Tatham, and Black (2005).

As a measure of complementary analysis, the criteria to extract factors was replaced, *a priori*, by the latent root criterion (Kaiser's criterion) and all the initial results were maintained considering that only one factor presented an eigenvalue greater than one unit for all the variables (Fávero *et al.*, 2009).

Table 3 presents a descriptive summary of the quantitative variables.

Table 3
**Descriptive statistics**

| Variable | Mean | Median | Standard Deviation | Minimum | Maximum |
|---|---|---|---|---|---|
| AEST | 6.13 | 6.27 | 1.13 | 1.25 | 7.40 |
| AUT | 6.31 | 6.42 | 1.13 | 2.26 | 7.79 |
| BC | 6.94 | 7.31 | 0.70 | 1.65 | 7.40 |
| CINT | 6.00 | 6.21 | 1.36 | 1.59 | 7.78 |
| EXP | 8.98 | 7.00 | 7.86 | 0.00 | 37.00 |
| MAQ | 4.61 | 4.53 | 1.48 | 1.38 | 8.62 |
| MQ | 6.95 | 6.96 | 0.83 | 3.93 | 8.12 |
| NAR | 5.73 | 5.62 | 1.41 | 2.53 | 10.21 |
| PSI | 2.53 | 2.18 | 1.11 | 1.29 | 8.53 |
| SJULG | 6.50 | 6.59 | 0.99 | 3.36 | 7.84 |

Source: Research data (2020).

A low level of dispersion was observed among the variables with metric properties, except for the only discrete variable (EXP). This fact, corroborated by proximity between means and medians, indicates little influence of outliers in the sample set.

## 4.3 Regression Analysis (OLS)

Table 4 shows the results of the tests used to verify the basic assumptions to be assumed in the analysis of the OLS regressions.

Table 4
**Regression Assumptions**

| Panel A – Normality and Homoscedasticity of Residues | | | | | |
|---|---|---|---|---|---|
| Equation | Jarque-Bera | | Breusch-Pagan | Breusch-Pagan | |
| | Chi² | p-value | Chi² | p-value | p-valor |
| 1 | 7.59 | 0.022 | 3.58 | 0.058 | 0,058 |
| 2 | 12.52 | 0.002 | 1.62 | 0.203 | 0,203 |
| 3 | 594.50 | 0.000 | 141.01 | 0.000 | 0,000 |
| 4 | 14.13 | 0.000 | 0.41 | 0.520 | 0,520 |
| 5 | 81.32 | 0.000 | 10.16 | 0.001 | 0,001 |
| 6 | 14.04 | 0.000 | 15.43 | 0.000 | 0,000 |
| **Panel B – Multicollinearity between Regressors** | | | | | |
| GEN | BIG4 | EXP | MAQ | NAR | PSI |
| **VIF** 1.10 | 1.11 | 1.11 | 1.63 | 1.26 | 1.63 |

**Note**: VIF = Variance Inflation Factor.

Source: Research data (2020).

Assuming a 95% confidence interval, data in Table 4, Panel A, indicate a lack of Gaussian behavior for the residues in all the proposed equations. However, given the sample size of this study (n=170) and concerning the Central Limit Theorem, this assumption could be relaxed (Gujarati& Porter, 2011). Panel A indicates heteroscedasticity in equations 3, 5, and 6,given the level of significance adopted. White's correction was adopted in these equations to solve these obstacles, making its standard errors robust.

Finally, Panel B presents values much below the limit established by Gujarati e Porter (2011) for the VIFs, indicating, in principle, a lack of problems derived from collinearity between the stimulus variables.

Hence, it is important to analyze the regressions listed in the methodology section. Table 5 presents a summary.

Table 5
**OLS Regressions**

| Panel A | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Equation / Regressand** | **α** | **GEN** | **BIG4** | **EXP** | **MAQ** | **NAR** | **PSI** |
| (1) MQ | 6.408*** (21.58) | 0.015 (0.10) | -0.049 (-0.37) | 0.022** (2.57) | -0.040 (-0.74) | 0.113** (2.26) | -0.401 (-0.56) |
| (2) SJULG | 6.857*** (19.31) | -0.161 (-0.94) | -0.207 (-1.29) | 0.007 (0.70) | 0.027 (0.41) | 0.018 (0.29) | -0.184** (-2.12) |
| (3) BC | 7.276*** (31.94) | 0.059 (0.52) | -0.142 (-1.34) | 0.007 (0.91) | 0.009 (0.22) | 0.029 (0.89) | -0.233 (-1.58) |
| (4) CINT | 5.645*** (11.59) | -0.345 (-1.46) | 0.281 (1.28) | -0.008 (-0.59) | 0.030 (0.33) | 0.140* (1.70) | -0.148 (-1.26) |
| (5) AEST | 5.012*** (13.18) | 0.245 (1.27) | -0.443** (-2.52) | 0.031*** (2.94) | 0.050 (0.51) | 0.259*** (4.05) | -0.340*** (-3.32) |
| (6) AUT | 6.456*** (14.26) | 0.579*** (2.96) | -0.027 (-0.15) | 0.001 (0.09) | -0.140* (-1.82) | 0.091 (1.50) | -0.170 (-1.29) |

| Painel B | | | |
|---|---|---|---|
| **Equação / Regressando** | **F** | **Prob> F** | **R²** |
| (1) MQ | 2.24 | 0.0417 | 0.0763 |
| (2) SJULG | 1.46 | 0.1942 | 0.0511 |
| (3) BC | 1.38 | 0.2257 | 0.1250 |
| (4) CINT | 1.69 | 0.1271 | 0.0585 |
| (5) AEST | 7.16 | 0.0000 | 0.2349 |
| (6) AUT | 3.39 | 0.0036 | 0.1068 |

**Note**: * = 90% confidence level; ** = 95% confidence level; *** = 99% confidence level.

Source: Research data (2020).

The results presented in Table 5 enable us to disregard beforehand any linear relationships between the regressors of equations 2, 3, and 4 their respective regressands. Panel B shows that these equations present p-values (F)>0.05, that is, the models *per se* are not statistically significant at a 95% confidence level.

Equations 1, 5, and 6 – statistically significant and with explanatory power ($R^2$) of approximately 7%, 23%, and 10%, respectively –, present distinct results. The control variable GEN, for instance, is only statistically significant for the Autonomy characteristic. Men seem to have stronger traits of this characteristic than women. This result contradicts Haveroth and Cunha (2018) results as they found very similar means between these two groups (using descriptive statistics). A possible explanation for this discrepancy is the difference in the methods used in each study, while a potential impact arising from sample variability is not ruled out.

BIG4, another control variable, was statistically significant only for AEST. The negative sign suggests that independent auditors working in one of the Big Four firms have higher self-esteem than their counterparts, contrary to the apparent indifference of this aspect found by Haveroth and Cunha (2018). Hurtt (2010) explained that self-esteem corresponds to the level in which auditors trust themselves. Hence, this result is in line with DeAngelo (1981) proposes, that even if partially, regarding the high quality of the services provided by large audit firms. Note, however, that even though confidence is relevant for professional skepticism among auditors, overconfidence is a common problem among these professionals (Lucena, Fernandes & Silva, 2011), possibly damaging the quality of the service they provide (Steppan, Santiago, Silva, Cavalcante & Silva, 2015).

The last control variable (EXP) appears statistically significant for MQ and AEST. In both cases, the sign was positive, suggesting that more experienced auditors question more and have higher self-esteem and confidence in their capabilities. This result is in line with Nelson (2009) and Hurtt et *al*. (2013), considering that experience brings a greater ability to identify patterns, errors, etc. Nonetheless, as previously explained, Nelson (2009) points out that more experienced auditors may also have their professional skepticism decreased if they assume imprudent attitudes arising from bad habits at work.

When analyzing this study's interest variables, we note that the MAQ variable is statistically significant (at a 10% level of significance) for the construct that refers to independent auditors' autonomy. The negative sign that precedes this coefficient indicates an inverse relationship between the variables, suggesting lower autonomy among independent auditors who present characteristics of Machiavellianism.

This contradicts this study's expectations, considering that Machiavellian individuals do not establish affective ties with others (Paal & Bereczkei, 2007); hence, they should be completely autonomous and disregard others' opinions assuming the level of evidence demanded by the hypothesis (Hurtt, 2010). Perhaps this controversial result may be linked to the fact that Machiavellian people manipulate others to achieve their personal goals (Christie & Geis, 1970; Wilson *et al*., 1996) and, therefore, less autonomy could be interpreted as a delegation of tasks, which the auditor does not wish to perform. More studies are needed to understand this finding better.

Regarding narcissism (NAR), there is a statistically significant linear relationship between this variable and questioning minds and self-esteem. Both the results are in line with the notion that narcissistic individuals are arrogant (Rhodewalt & Peterson, 2009; Pincus & Lukowitsky, 2010). This result was expected in this study, and the results confirm it. Thus, auditors with this characteristic should question more because they doubt others' ability when validating a given issue while simultaneously presenting a high level of confidence in their capabilities.

The relationship between NAR and autonomy (AUT) was not statistically significant. This result contradicts the expectations, but it is possibly explained by the auditors' eventual lack of power to make autonomous decisions in their firms. This explanation seems realistic because the average experience of the sample's independent auditors is approximately nine years. Hence, a considerable portion of the sample may be composed of auditors who do not yet occupy a management position, and consequently, cannot act on their own in many situations (Muzel, 2018).

Concerning the psychopathy trait (PSI), note that this variable presented a statistically significant relationship only with the AEST variable. The negative sign in this relationship indicates that auditors with high levels of psychopathy would have lower self-esteem. This result opposes Wexler (2008), in which psychopath individuals would have confidence as a typical trait in their work activities. Perhaps, this is a specific point in the auditors' function, so that future studies are needed to make comparisons and verify this issue.

The fact that PSI was not significantly associated with AUT is noteworthy. This is because egocentrism is a characteristic trait of psychopaths (Paulhus & Williams, 2002; Jones & Paulhus, 2014), and a positive sign for the autonomy variable was expected. This finding can be explained by potential power relations existing in audit firms, beyond the respondents' individual perspectives. This is possible given the arguments previously presented regarding the NAR variable. According to Muzel (2018), the study participants' average experience in years in non-managerial positions would impede them from acting on their own in many situations.

In summary, this set of results indicates total rejection of H1 and H3, while H2 was only partially rejected.

## 4.4 Sensitivity Analysis (MDA)

As described in the methodology sector, the results of the regressions estimated with minimum absolute deviation to analyze the sensitivity of the general results are presented below. Table 6 shows data that refer to equations 1, 5, and 6 only to enable comparisons with the valid models estimated via OLS.

Table 6
**MDA Regressions**

| Equation/ regressand | α | GEN | BIG4 | EXP | MAQ | NAR | PSI |
|---|---|---|---|---|---|---|---|
| (1)<br>MQ | 6.568***<br>(18.03) | 0.003<br>(0.02) | -0.125<br>(-0.75) | 0.026**<br>(2.58) | -0.107<br>(-1.58) | 0.111*<br>(1.85) | 0.057<br>(0.64) |
| (5)<br>AEST | 5.106***<br>(13.43) | 0.386**<br>(2.11) | -0.502***<br>(-2.95) | 0.034***<br>(3.26) | -0.033<br>(0.47) | 0.309***<br>(4.76) | -0.320***<br>(-3.50) |
| (6)<br>AUT | 6.053***<br>(9.12) | 0.439<br>(1.36) | -0.134<br>(-0.44) | 0.001<br>(0.07) | -0.136<br>(-1.12) | 0.184<br>(1.63) | -0.135<br>(-0.83) |

**Note**: * = 90% confidence level; ** = 95% confidence level; *** = 99% confidence level.

Source: research data (2020).

There is only one change concerning the initial results among the control variables. It refers to the GEN variable, which becomes statistically significant with the AEST (95% confidence interval), but, in turn, loses its statistical significance with the AUT variable.

In turn, variables BIG4 and EXP keep all their statistically significant relationships. The coefficients estimated through MDA are very close to OLS's coefficients, and their signs did not change.

For the variables of interest, note that MAQ, previously significant at a 90% confidence interval to explain AUT, no longer presents a linear statistically significant relationship. This result may challenge the negative sign previously found, which contradicted the existing literature on Machiavellianism.

In turn, NAR and PSI maintain the same statistically significant relationships perceived in the OLS estimates in addition to the same signs and coefficients with very similar magnitudes.

Thus, this set of results shows greater consistency with the results perceived in the OLS estimates when indicating that there was little influence of outliers, given that the results based on the median were preserved almost in their entirety.

## 5. Final Considerations

Professional skepticism is a desirable characteristic for the proper exercise of the audit profession according to provisions of regulatory and academic bodies. However, it is also known that such an attribute is difficult to measure.

Given the relevance and complexity of auditors' professional skepticism, some studies seek to explain these variable's determinant factors, in which the auditors' personality traits are one aspect frequently addressed. Up to the moment, however, no empirical studies addressing socially undesirable personality traits have been found. According to Hobson *et al.* (2020), this gap is relevant because psychology suggests that the auditors' personality traits tend to influence the quality of the services they provide.

In this context, this study's objective was to analyze the influence of the Dark Triad on professional skepticism among independent auditors in Brazil.

In general, the results suggest that: a) Machiavellianism does not positively influence professional skepticism, as it can harm this quality in terms of auditors' autonomy; b) Narcissism among independent auditors can benefit professional skepticism as it raises self-esteem and a questioning mindset, and: c) psychopathy does not favor professional skepticism among auditors. The results show that this personality trait may decrease professional skepticism by decreasing self-esteem among these workers.

This study is limited because it does not consider the auditors' socially desirable personality traits together with their undesirable traits and does not explore each individual's specificities in the face of these unanswered questions.

Hence, future studies are suggested to analyze the relationship between the auditors' Dark Triad personality traits and professional skepticism using an interpretative approach, which would enable the participants to report how their personal and professional experiences influence their skeptical attitudes.

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# Framework-Based Teaching: does the choice of the active methodology matter for the application of teaching cases?

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## Abstract

**Objective:** to demonstrate the benefits of active methods, the study proposes to identify which skills and competencies are developed in the application of different teaching cases and techniques, in the light of framework-based teaching (FBT) and Bloom's taxonomy (BT).
**Methods:** The technique Verbalization and Observation Group (VG-OG), Simulated Jury and Problem-Based Learning (PBL) were tested. The students' perception was collected through a questionnaire and analyzed in further depth through a focus group.
**Results:** According to the students, the use of the techniques developed distinct skills and competencies. Thus, the choice of the method to apply cases should be aligned with the educational objectives established by the teacher. Although competencies of all FBT stages were developed, the teaching techniques VG-OG and PBL developed the competencies of the advanced stage of FBT more, while the simulated jury developed competencies of the intermediate stage.
**Contribution:** The findings may be useful for teachers in various areas to step up the process of teaching and learning through the application of active methods, and for the International Accounting Standard Board (Iasb) to go beyond the development of cases for teaching FBT, incorporating them into the agenda for reflection about what methods to use for the application of these materials in the institute to promote the understanding and coherent application of the International Financial Reporting Standards (IFRS).
**Keywords:** Active methods; FBT; Teaching cases: Competencies.

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## 1. Introduction

The consistent application of IFRS requires skills from students that are related to making judgments, the ability to cope with uncertainties, to make choices and estimates (Barth, 2008). In line with this, the Iasb has developed teaching materials in accounting, composing the so-called framework-based teaching (FBT), aiming to assist teachers, students, accounting professionals and Higher Education Institutions (HEIs) in the teaching-learning process of IFRS (Wells, 2011). FBT is specifically aimed at the development and/or improvement of skills and competencies, mainly for the understanding and consistent application of IFRS, dividing teaching into three stages: awareness, understanding and competence (Costa, Gomes, Braunbeck, & Santana, 2018; Wells, 2011; Wells & Tarca, 2014). In this perspective, the teaching of IFRS occurs gradually, in that these three stages with the introductory, intermediate, and advanced disciplines of the Accountancy course, respectively (Costa *et al*., 2018).

The didactic materials the Iasb has developed for FBT are characterized as teaching cases, as they correspond to the problematization of situations that take place in the professional context in the teaching-learning process (Alberton & Silva, 2018). The teaching case *Open Safari*, specifically developed for stage-three FBT, leads students to conceptual reasoning and accounting policy formulation consistent with the conceptual structure, besides exercising estimates and judgments (Wells & Tarca, 2014). This choice of cases can be justified by the fact that these materials support skills and competency building for accounting professionals (Januário, Pinho, Gonçalves, & Araújo, 2020; Costa *et al.*, 2018). Regarding the achievement of this goal, Costa *et al.*(2018) identified that, in the perception of Accountancy students, the teaching case *Open Safari*, applied using the PBL teaching technique, helped students in the development of skills and competencies in the cognitive and affective domains of BT.

In this sense, the FBT stages are associated with the skills and competencies in the cognitive and affective domains of BT, which implies that, even in initial disciplines, students can develop skills and competencies of the intermediate and advanced stages of FBT, and vice-versa (Costa *et al.*, 2018). Costa, Áila, Santos, and Cruz (2020) also found this association, but showed results that differ from Costa *et al.* (2018) regarding the skills developed through the application of the *role-play* teaching technique in a discipline in stage-one FBT. These results suggest that it is possible to use different teaching strategies for skills and competency building in the cognitive and affective domains of BT in all FBT stages, with different strategies developing different skills and competencies.

Given this context, teaching cases can be applied using different teaching strategies, and both the case and the strategy adopted for its application can help students in building different skills and competencies (Costa *et al.*, 2018; Costa *et al.*, 2020). In this line of thought, Januário *et al.* (2020) identified that, in the students ‘ view, the active method used to apply the teaching case may have a differentiated impact on the teaching-learning process. Nevertheless, these authors did not associate this perception with skills and competency building. In addition, Costa *et al.* (2018) and Costa *et al.* (2020) applied the PBL and *role-play* techniques in stage-three and stage-one classes, respectively, and at different times, which does not permit evaluating whether different techniques develop different skills and competencies in the same class.

It is noteworthy that, through FBT, the Iasb has produced IFRS teaching materials that could develop skills and competencies this board considers relevant for the training of accounting professionals, but did not discuss ways to apply these materials. Thus, identifying which active methods help in building the skills and competencies required from the accounting professional constitutes a relevant research gap for the improvement of FBT.

Hence, the objective of this research is to identify which skills and competencies are developed in the resolution of teaching cases that apply different teaching techniques. This analysis was performed in the light of BT and FBT. The research was undertaken with Accountancy graduates from a public university in Minas Gerais. The teaching techniques VG-VO, simulated jury and PBL were tested in the application of three different teaching cases. The students' perception was collected through a questionnaire applied at the end of each teaching technique employed and supplemented with a focus group at the end of the introductory accounting discipline II (first stage of FBT).

The VG-OG technique is mainly recommended for students to develop distinct synthesis skills in the construction of knowledge (Anastasiou & Alves, 2004). The VG examines and discusses a situation proposed by the teacher, while the OG critically analyzes the discussions. Next, the groups' role is inverted, when the VG starts to listen while the OG presents its contributions (Saldanha, Guerra, Firmino, Vasconcelos & Sampaio, 2019). The objective of the Simulated Jury is similar to that of the VG-OG technique, but its dynamics consist in assigning the role of the prosecution to one group of students and the role of the defense to another (Thiesen, Giovanaz, Rieger, & Bernhard, 2017). Due to the simulation of a jury environment, the application of this technique allows the students to engage broadly (Anastasiou & Alves, 2004). On the other hand, the PBL mainly stimulates the students' responsibility of the students for their own learning and the development of more in-depth and significant knowledge and can be conducted in seven steps with the application in more than one tutorial session (Soares, Botinha, Casa Nova, Soares, & Bulaon, 2017). The teaching cases applied using the teaching techniques VG-GO, Simulated Jury and PBL constitute an opportunity for skills and competency building resulting from the association between FBT and BT.

The results of this research contribute to the literature on the validity of the grounds of FBT, showing the effectiveness of the teaching cases for skills and competency building, partially depending on the active method that is used to apply it, and also to the literature on the effectiveness of using active methods in the teaching-learning process in higher education. More specifically, the results of this study contribute to the evaluation of the use of the teaching techniques VG-OG, Simulated jury and PBL, in teaching cases, regarding skills and competency building required by the accounting professional, in the initial disciplines of the course, corresponding to stage-one FBT. Furthermore, the results may be useful for the Iasb to reflect on how to apply the teaching cases developed in FBT, as the board has not yet provided information on how to apply these cases in order to achieve the objectives of FBT.

## 2. Literature Review and Research Hypotheses

The adoption of IFRS entails implications in accounting practice as well as in accounting education (Carvalho & Salotti, 2013). In that context, one of the main challenges is to prepare students for the conscious application of concepts inherent in the standards and in principles-based financial reporting (Barth, 2008). Therefore, the Iasb has developed teaching materials in accounting in order to assist HEIs in the teaching-learning process of IFRS (Costa *et al.*, 2018). It is important to note that the main objective of FBT is to assist students in building and improving the skills and competencies needed for the understanding and coherent application of IFRS (Costa *et al.*, 2018; Wells, 2011).

According to Wells and Tarca (2014), FBT divides IFRS teaching into three stages: awareness, understanding and competence. In the first stage, students become aware of the existence of judgments and estimates for the application of IFRS. In the second stage, they delve into the content addressed in the first through the knowledge of excerpts from the conceptual structure. In the third stage, that of competence, through the fundamental principles of the standards, students recognize transactions and events, and know how to classify transactions and apply the requirements established in the standards (Costa *et al.*, 2018; Wells, 2011; Wells & Tarca, 2014). These stage coincide with the introductory, intermediate and advanced disciplines of the Accountancy course, respectively (Costa *et al.*, 2018).

Both FBT and BT establish gradual skills and competency building through stages and domains, respectively. BT advocates that the teaching-learning process should start from the simpler to the more complex, in order to stimulate students in the search for behavioral experiences (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1983). In this sense, BT classifies the learning opportunities in three main domains: cognitive, affective and psychomotor.

The cognitive domain deals with intellectual learning, comprising the acquisition of new knowledge, skills and attitudes, and is composed of six categories: knowledge, understanding, application, analysis, synthesis and evaluation (Bloom *et al.*, 1983). The student can recall information (knowledge), give meaning to the content (understanding), use information, methods and content in new situations (application), identify and analyze content parts and their interrelationships (analysis), organize, aggregate and join parts of learning in order to create a new "whole" (synthesis) and, furthermore, judge the value of the knowledge based on well-defined criteria (evaluation) (Ferraz & Belhot, 2010).

The affective domain involves feelings and postures and is related to the emotional and affective development of the individual, which is composed of five categories: receptivity, response, appreciation, organization and characterization (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1974). The skills and competencies developed in the affective level mean that the individual has accepted the knowledge, thus helping the development of the cognitive level. Thus, disposition, responsibility, interest and participation are aspects in this domain (Bloom *et al.*, 1974). According to BT, the individual only ascends to a new category, in the three domains, when (s)he achieves proper performance in the previous category, as each persons uses skills acquired in the previous levels (Ferraz & Belhot, 2010), which is analogous to the philosophy of the stages in FBT.

Ferraz and Belhot (2010) clarify that BT permits the planning and choice of the learning instrument that can be addressed in an integrated and structured way, considering that all individuals have the capacity to learn and that they differ only in relation to the level of depth and abstraction of each person's knowledge. This difference can be characterized by the method used and the organization of the teaching-learning process, so it is important to choose appropriate strategies and teaching methods and delimit the specific content (Ferraz & Belhot, 2010).

Costa *et al.* (2018) and Costa *et al.* (2020) associated the FBT stages and the cognitive and affective domains of BT and showed effectiveness in achieving the objectives FBT proposed. Hence, these domains are the focus of this work. Costa *et al.* (2018) state that in the first stage of FBT, the categories of knowledge, understanding and application in the cognitive domain of BT would be developed. In the second stage, the analysis category would be added to these three initial categories, while all categories of the cognitive domain of BT would be developed in the third stage. Costa *et al.* (2020) declare that the affective domain can be fundamental for the development of the categories of knowledge and understanding, addressed in FBT stages 1, 2 and 3. These authors showed that the categories of the cognitive domain of BT mutually interact with the affective domain, suggesting that there is simultaneity among them. Also, the affective domain of BT helps in the development of cognitive categories and vice versa (Costa *et al.*, 2020). The association between the cognitive and affective domains of BT and the stages of FBT is shown in Table 1.

Table 1
**Association between BT and FBT stages**

| Domains | Stage 1 – FBT | Stage 2 – FBT | Stage 3 – FBT |
|---|---|---|---|
| **Cognitive** | | | |
| 1. Knowledge | • | • | • |
| 2. Understanding | • | • | • |
| 3. Application | • | • | • |
| 4. Analysis | | • | • |
| 5. Synthesis | | | • |
| 6. Evaluation | | | • |
| **Affective** | • | • | • |

Source: adapted from Costa *et al*. (2018) and Costa *et al*. (2020).

As noticed, Costa *et al.* (2018) and Costa *et al.* (2020) employed active learning methods as a way to intensify the teaching-learning process. Active methods consist of teaching methods that enable students to develop learning through their own responsibility, changing them from passive subjects into active participants in the teaching-learning process (Sauaia, 2006). These methodologies are based on how to assist the student in the learning process through real or simulated experiences, in order to solve the challenges that may arise in social practice (Berbel, 2011). Coetzee and Schmulian (2013) highlight that the traditional style, in the passive transmission of knowledge, does not provide, by itself, the development of critical, analytical, and judgment skills. Thus, the teaching methods develop different competencies and help in the enrichment of content and the achievement of educational objectives (Leal & Borges, 2016).

Nagib and Silva (2020) explain that the teaching technique the teacher uses can help the student in the development of different competencies. Hence, applying teaching cases by means of different teaching techniques allows you to develop different behaviors and competencies in the teaching-learning process. In this sense, the VG-OG teaching technique is associated with self-control, social interaction, creativity, and oral expression (Oliveira & Campos, 2017). The Simulated Jury teaching technique permits the confrontation of viewpoints and different positions in an intellectual dispute (Moura, Pereira, & Souza, 2017). The PBL teaching technique develops knowledge, skills, and attitudes in solving real problems that arise in business practice (Soares, Botinha, Casa Nova, Soares & Bulaon, 2017). Table 2 shows the synthesis of skills and competencies that can be developed through the application of these teaching techniques, in accordance with the domains of BT proposed by Bloom *et al.* (1974).

Table 2
**Teaching techniques *versus* skills and competencies**

| Technique | Definition | Skills and competencies | BT | Source |
|---|---|---|---|---|
| VG-OG | It is a teaching technique in which the classroom is divided into two groups: one verbalization group (VG) and one observation group (OG). The VG has to discuss the theme the teacher proposed, while the OG has to observe whether the concepts are being discussed appropriately. | Self-control | AF | Masetto (2003); Nagib (2018); Oliveira and Campos (2017). |
| | | Creativity | AF | |
| | | Social interaction | AF | |
| | | Leadership | PS | |
| | | Oratory and verbal communication | CO | |
| | | Critical thinking | CO | |
| | | Respect for other people's opinions | AF | |
| Simulated Jury | Is considered as a formal discussion in which two or more opinions on a theme that tends to be considered polemic are opposed and both sides try to convince a third party. | Mental agility | PS | Moura *et al*. (2017); Thiesen, Giovanaz, Rieger and Bernhard. (2017). |
| | | Argumentation | CO | |
| | | Critical thinking | CO | |
| | | Teamwork | CO | |
| PBL | It is a discussion-centered method focused on problem solving. Drives the individual towards deeper and more significant knowledge, permitting courage and responsibility for the student's individual learning. | Intellectual and cultural curiosity | AF | Coetzee and Schmuliam (2013); Jackling, De Lange and Natoli (2013); Heinz *et al*. (2019); Soares *et al*. (2017). |
| | | Interdisciplinarity | CO | |
| | | Critical thinking | CO | |
| | | Duty of one's own learning | AF | |
| | | Solving practical problems | CO | |
| | | Decision making | CO | |
| | | Teamwork | CO | |

**Obs.**: BT: Bloom's taxonomy; AF: affective domain; CO: cognitive domain; PS: psychomotor domain.

Source: elaborated by the authors.

Given the differences among the teaching methods (Table 2), in the selection of active methods for use in the teaching-learning process, the teacher should analyze the subject/content's teaching objectives, understand the profile of the group (Marion, Garcia & Cordeiro,2009), as well as the amount of time available to apply the techniques, the complexity of the elements to be considered in all activities and feature of the learning environment that should offer freedom, decisions, and judgments of solutions (Smith *et al.*, 2017). Active methods are resources that, when aligned with the pedagogical objectives, can contribute to skills and competency building (Nagib & Silva, 2020).

Thus, the active methods can help in achieving the objectives proposed by FBT and established in the cognitive and affective domains of BT as, as Costa *et al.* (2018) and Costa *et al.* (2020) demonstrated, in the use of these strategies in the classroom, students became more active in the teaching-learning process. In addition, these strategies make it possible to relate theory with practical examples, reconcile the themes learned in teaching cases with other disciplines, seek information and develop affective and cognitive skills in the students' perception. These authors specifically found that the application of active methods helped to build the skills and competencies in the cognitive domain of BT, and not only in the first three categories (knowledge, comprehension, and application), thus suggesting that students can develop the abilities and skills of the intermediate and advanced stages of FBT, even when taking subjects in the initial stages, and, vice-versa, beyond those linked to the affective domain. Hence, the objectives of FBT were achieved, using active methods. Given this context, the first research hypothesis is:

- **$H_{1:}$ The application of the teaching techniques VG-OG, Simulated Jury and PBL in the solution of teaching cases develops distinct skills and competencies, according to the students' perception.**

Costa *et al.*(2018) identified the students' perception of the utility of the PBL teaching technique applied in the discussion of the teaching case *Open Safari* in a stage-three FBT subject. Costa *et al.* (2020) observed the students' perception when the role-play technique was applied in first-stage FBT skills and competency building. These authors identified that both techniques develop skills and competencies required by FBT and that these are aligned with the cognitive and affective domains of BT. Nevertheless, the skills and competencies built were different when using PBL and role-play, which leads to the second research hypothesis:

- **H2: the application of the teaching techniques VG-OG, Simulated Jury and PBL in the resolution of teaching cases develops the FBT stages differently.**

## 3. Methodological Procedures

The research is descriptive, in view of the objective, the data collection and, in relation to the technical procedures, these are classified as a qualitative-quantitative approach. This section is divided into two parts: in the first, it is described how the techniques were applied in the classroom, as well as the theme of the teaching cases. In the second sub-section, the content of the questionnaire and how it was applied are illustrated. In addition, the method used in the implementation of the focus group is presented.

### 3.1 Application of teaching techniques: VG-OG, simulated jury and PBL

The teachers of the subject Introductory Accounting II intentionally chose the teaching techniques VG-OG, Simulated Jury and PBL in accordance with the learning objective set for the classes of each content taught. These techniques were used in the application of teaching cases prepared for three contents contained in the program of this discipline, respectively: i) Fixed Funds and Bank Reconciliation; ii) Trade Bills in Portfolio, Simple collection and Factoring of Trade Bills; and iii) Provisions, Contingent Liabilities and Assets. A brief description of the content of these cases is presented in Table 3.

Table 3
**Topic addressed in teaching cases**

| Theme | Case |
|---|---|
| Fixed Funds and Bank Reconciliation | The case presents real data on a union that goes through bank reconciliation, cash management and internal control problems. In the role of consultants, the students need to propose solutions to the problems listed in the case. |
| Provisions and Contingent Liabilities | The focus of the case is to reflect the criteria for the identification, measurement, and recognition of contingent provisions and liabilities based on the context of the rupture of the Fundão and Brumadinho dams. |
| Trade Bills in Portfolio, Simple Collection and Factoring | The purpose of the case is to take students into a context of analyzing transactions involving factoring loans and/or promissory notes, including the assessment of the risks and financial benefits involved in the transactions. |

Source: Elaborated by the authors.

The application of each teaching case happened in three distinct moments: pre-class, class and post-class. As a pre-class, students had to follow the instructions and perform the activities available on the Moodle platform: reading the references indicated, quizzes and solving the teaching cases. The teaching techniques VG-OG, Simulated Jury and PBL were applied during the class. In Table 4, the application process of these techniques is summarized.

Table 4
**Application process of the teaching techniques in the classroom**

| Theme | Application form of the technique to solve the teaching case |
|---|---|
| Fixed Funds and Bank Reconciliation | VG-OG: six pairs were drafted to present the bank reconciliation. Subsequently, the students were divided into verbalizing and observing groups for the debate on cash management and internal control. After this stage, the roles of the groups were reversed. At the end, the tutors complemented to end the technique. |
| Provisions and Contingent Liabilities | Simulated Jury: students were divided into: prosecution group, defense group, jury and judge. Each group had a limited time to present its arguments. After the debates between the groups, the teacher closed off, pointing out the main points on the topic. |
| Trade Bills in Portfolio, Simple Collection and Factoring | PBL: the application of the technique was segregated in seven steps and developed in two tutorial sessions. In the first session, the students were separated into groups and were instructed to choose a leader and a secretary to advise the group, and also performed steps one to five: I) reading the problem-situation; ii) identification of problems; iii) discussing background knowledge; iv) synthesis of previous steps, and: v) identification of subjects/themes to be studied. Then, the tutors discussed each stage with the students and requested the delivery of the reports prepared in group. As a post-class, the students were instructed to submit a new report with all the steps redone, and individually perform step six: search for information. In the second tutorial session, the previous groups were maintained. The last stage of the PBL – stage seven: integration of information and problem solving, proposed that the students prepare a final report with useful information for the solution of the identified problem-situation. To discuss the teaching case, the following activities were randomly distributed to the groups: presentation; elaboration of questions; answering of questions; and complementing answers. Finally, the tutors closed off the technique and asked the groups to provide for the final report. |

Source: elaborated by the authors.

After the application of teaching techniques during the class (Table 4), in the post-class, the students continued the study of each theme with the proposed activities, aiming to consolidate and verify the learning.

## 3.2 Applying the questionnaire and conducting the Focus Group

To identify the students' perception of skills and competency building in the application of the teaching techniques, a questionnaire based on Weil, Oyelere, Yeoh and Firer (2001) and adapted by Costa *et al.* (2018) was used to establish a relationship with the cognitive and affective domains of BT. This instrument comprises four parts: i) information to characterize the respondent: age, regular course period, gender, occupation and whether they worked in the accounting area; ii) evaluation of techniques, containing 37 statements for students to score (from one to ten) regarding the likely acquisition of skills; iii) four statements for students to score (from one to ten) regarding: benefits, usefulness and ways of applying techniques; and iv) open questions – space for students to freely express their opinions.

The subject Introductory Accounting II was taught in the second academic semester of 2019, the first year of an undergraduate degree in Accountancy. Out of 48 enrolled students, 37 took the discipline for the first time. Thirty-one students participated in the application of the VG-OG technique; 23 students in the Simulated Jury and 33 students in PBL, adding up 87 answers. The students voluntarily answered the evaluation questionnaires at the end of the application of each teaching technique. The respondents' age range varied between 18 and 40 years, with a mean age of 20 years, being 51% male. Regarding the exercise of the accounting profession, 71% of the students reported not working and 12% of those who worked said they worked in the accounting area.

The answers the students provided were analyzed with the help of descriptive statistics. Subsequently, the *Shapiro-Francia* univariate normality test was used to evaluate the applicability of parametric and non-parametric tests to the respective data (Fávero, Belfiore, Silva, & Chan, 2009). For the outputs that followed a normal distribution, Student's t-test was used for comparison of means; for the others, the Kruskal-Wallis test and Wilcoxon test were used for medians. These procedures were adopted to verify whether the skills and competencies differed in relation to the teaching techniques used, the FBT stages in the light of BT, as well as to evaluate the students' general perception of the active methods.

To triangulate the analysis of the data in this study, a focus group was organized in which 12 students participated. The focus group took approximately two hours and was held at the university premises. The students agreed to participate voluntarily, and the criteria for choosing them balanced characteristics such as gender (five men and six women) and performance of the discipline (lower and higher grades).

The focus group was led by a moderator and three observers. Like in the study by Costa *et al.* (2020), the topics present in the discussion script were: i) development of skills and competencies in each stage of the work (case and application techniques); ii) motivation; iii) individual or group study and research; iv) practical business vision; v) teamwork; (vi) difficulties and limitations; and vii) performance in the discipline. If the debate did not develop from the main question of each of these topics, the moderator had alternative questions to seek the students' participation.

Before starting the focus group, the moderator clarified to the participants that the grades of the Introductory Accounting II discipline had been closed, although not yet published. The focus group was recorded with audiovisual resources (with the students' formal authorization), and fully transcribed manually by the observers. As performed in the study by Cunha, Beuren, & Guerreiro (2014), the answers and questions of the discussion script served as reference for the content analysis. To quote the participants' conversations in the focus group, their names were replaced by A1, A2 (...) A12.

## 4. Analysis of Results

Table 5 shows a general average for the three techniques and the students' perception for each of them. First, the general average of the students ' perception was analyzed (Table 5, "General" column). Based on the ranking elaborated based on the general average of the grades obtained in the questionnaire, the students' perception shows that the teaching cases applied with the teaching techniques VG-OG, Simulated Jury and PBL enabled the development of the 37 skills and competencies related to the cognitive and affective domains of BT (general average between 7.56 and 8.88), corroborating Coetzee and Schmuliam (2013), considering that the change in the traditional teaching style would entail the students' skills and competency building.

The competency "practical-view of the decision process" ranked 1st (mean 8.88, Table 5). This competency also ranked 1st in the study by Costa *et al.* (2020), and 2nd in the study by Costa *et al.* (2018). This result suggests that the use of active methods can help students visualize the business environment and the decision-making process, which is relevant for professional training as recommended by AICPA (2020).

The 2nd place in the ranking is "responsibility for one's own learning", in this study and in that of Costa *et al.* (2020), and 7th in the study by Costa *et al.* (2018). In the focus group, student A12 commented on this competency as follows: "*we had to seek information, seek knowledge, before they gave it to us*". For student A4, this competency was more developed through the PBL technique: "*the PBL instigated more the aspect of seeking, pursuing knowledge, stimulating research (...), in the PBL we had to seek everything first*". Because this competence belongs to the affective domain of BT, these findings show that the students were affectively involved with the active methods applied, and that this competence can help the development of the students' cognitive level, according to Bloom *et al.* (1974) and Costa *et al.* (2020).

The "view of a company's functioning" ranked 3rd, against the 5th and 16th place in the study by Costa *et al*. (2020) and Costa *et al.*(2018), respectively (Table 5). Considering the development of this competency and the competency of "a practical view of the decision-making process" in the 1st position of the ranking, it is verified that the cases applied with the teaching techniques VG-OG, Simulated Jury and PBL generally caused the students to glimpse more the business environment than with the role-play technique employed by Costa *et al.* (2020) and the teaching case *OpenSafari* applied with the PBL technique in the research by *Costa et al.* (2018). Therefore, the active methods applied in this study mainly stimulated the development of business-related competencies, as recommended by AICPA (2020), leading students to understand factors related to the internal and external environment of companies (AICPA, 2020; Ott, Cunha, Júnior & Luca, 2011).

In this sense, in the focus group, student A8 said that the active methods applied enabled their maturation because of the contact with practice: "*I think it helped me in the question of maturing, because we study the subject in the classroom and that's it. Then, when you get out of this 'box', sometimes it gets a little confused, but it also helps you see the reality and the problems it has, mistakes that the accountants should not make; we learn from their mistakes so as not to repeat them*". Student A1 also shared this opinion: "*in school, we get very stuck in theory, and when we have contact with these cases, I think we go more towards reality*".

Nevertheless, compared to the studies by Costa *et al.* (2020) and Costa *et al.* (2018), the active methods applied in this research resulted in higher positions in the ranking regarding the following skills and competencies: "technical knowledge" (4th position *versus* 11th in both studies), "problem identification" (6th position *versus* 34th and 22nd), "evaluating ideas" (13th position *versus* 16th and 15th), "synthesis" (15th position *versus* 29th and 25th) and "organization of information" (19th *versus* 23rd and 20th). Therefore, the students perceived these skills and competencies more in the application of cases with the teaching techniques VG-OG, Simulated Jury and PBL, suggesting that $H_1$ cannot be rejected.

Table 5
***Ranking* of skills and competencies**

| R | Skills and Competencies | BT | General | | VG-OG | | | | Simulated Jury | | | | PBL | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | $\bar{x}$ | M | $\bar{x}$ | M | P>t | P>z | $\bar{x}$ | M | P>t | P>z | $\bar{x}$ | M | P>t | P>z |
| 1 | Practical view of the decision-making process | SYNT | 8.88 | 9 | 8.77 | 9 | 0.58 | | 9.00 | 10 | | 0.77 | 8.91 | 9 | | 0.83 |
| 2 | Responsibility for one's own learning | AFFECT | 8.83 | 9 | 8.63 | 9 | | 0.37 | 8.70 | 9 | | 0.56 | 9.09 | 10 | | 0.16 |
| 3 | View of a company's functioning | SYNT | 8.80 | 9 | 8.79 | 9 | | 0.94 | 8.78 | 9 | | 0.85 | 8.82 | 9 | | 0.92 |
| 4 | Technical knowledge | COMP | 8.76 | 9 | 8.83 | 9 | | 0.91 | 8.70 | 9 | | 0.88 | 8.73 | 9 | | 0.98 |
| 5 | Considering several solutions | EVAL | 8.70 | 9 | 8.93 | 10 | | 0.36 | 8.39 | 9 | | 0.25 | 8.70 | 9 | | 0.89 |
| 6 | Identifying problems | KNOW | 8.61 | 9 | 8.77 | 9 | | 0.64 | 8.71 | 9 | | 0.81 | 8.39 | 9 | 0.22 | |
| 7 | Relating theory and practice | SYNT | 8.61 | 9 | 9.00 | 10 | | **0.05*** | 8.35 | 8 | | 0.25 | 8.42 | 9 | | 0.38 |
| 8 | Interpretation | ANAL | 8.53 | 9 | 8.94 | 9 | | **0.05*** | 8.39 | 8 | | 0.44 | 8.24 | 8 | | 0.21 |
| 9 | Considering different perspectives and users | SYNT | 8.53 | 9 | 8.65 | 9 | | 0.73 | 8.70 | 9 | | 0.42 | 8.30 | 8 | | 0.29 |
| 10 | Thinking conceptually | ANAL | 8.51 | 9 | 8.55 | 8 | | 0.92 | 8.48 | 9 | | 0.78 | 8.48 | 9 | 0.92 | |
| 11 | Integrating various subjects of the discipline | COMP | 8.49 | 9 | 8.61 | 9 | | 0.45 | 8.13 | 8 | | 0.08 | 8.64 | 9 | | 0.40 |
| 12 | Applying knowledge | SYNT | 8.49 | 9 | 8.74 | 9 | | 0.28 | 8.57 | 9 | | 0.89 | 8.21 | 8 | | 0.23 |
| 13 | Evaluating ideas | ANAL | 8.48 | 9 | 8.58 | 9 | 0.71 | | 8.91 | 9 | | 0.58 | 8.09 | 9 | | 0.12 |
| 14 | Critical thinking | ANAL | 8.42 | 8 | 8.66 | 9 | 0.32 | | 8.57 | 8 | | 0.91 | 8.09 | 8 | | **0.05*** |
| 15 | Synthesis | COMP | 8.41 | 8 | 8.65 | 9 | | 0.39 | 8.30 | 8 | | 0.56 | 8.27 | 8 | | 0.75 |
| 16 | Analysis | ANAL | 8.41 | 9 | 8.44 | 9 | 0.92 | | 8.45 | 9 | | 0.85 | 8.36 | 9 | 0.83 | |
| 17 | Identification of relevant data | KNOW | 8.38 | 8 | 8.23 | 8 | 0.55 | | 8.61 | 9 | | 0.53 | 8.36 | 9 | 0.95 | |
| 18 | Summarizing information | COMP | 8.35 | 9 | 8.66 | 9 | | 0.19 | 8.39 | 9 | | 0.91 | 8.03 | 8 | | 0.23 |
| 19 | Organizing information | KNOW | 8.34 | 8 | 8.42 | 9 | 0.77 | | 8.65 | 8 | | 0.51 | 8.06 | 8 | 0.23 | |
| 20 | Studying the contents of the discipline | AFFECT | 8.31 | 9 | 8.39 | 9 | 0.80 | | 8.50 | 9 | | 0.73 | 8.12 | 9 | | 0.86 |
| 21 | Interpreting the financial statements | ANAL | 8.26 | 9 | 8.08 | 8 | 0.53 | | 9.27 | 10 | | **0.00*** | 7.76 | 8 | 0.06 | |
| 22 | Consolidation of prior knowledge | COMP | 8.25 | 9 | 8.87 | 10 | | **0.02*** | 8.04 | 8 | | 0.30 | 7.82 | 8 | | 0.17 |

| R | Skills and Competencies | BT | General | | VG-OG | | | | Simulated Jury | | | | PBL | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | $\bar{x}$ | M | $\bar{x}$ | M | P>t | P>z | $\bar{x}$ | M | P>t | P>z | $\bar{x}$ | M | P>t | P>z |
| 23 | Problem solving | APPLIC | 8.16 | 8 | 8.61 | 9 | | 0.08 | 7.87 | 8 | | 0.19 | 7.94 | 8 | | 0.57 |
| 24 | Distinguishing facts from opinions | APPLIC | 8.15 | 8 | 8.06 | 8 | | 0.79 | 8.70 | 9 | | 0.16 | 7.85 | 8 | | 0.31 |
| 25 | Active participation | AFFECT | 8.12 | 8 | 8.1 | 8 | 0.95 | | 8.30 | 8 | | 0.82 | 8.03 | 8 | | 0.85 |
| 26 | Research skills | AFFECT | 8.10 | 8 | 8.31 | 9 | | 0.47 | 8.41 | 9 | | 0.46 | 7.70 | 8 | | 0.17 |
| 27 | Dealing with uncertainty and ambiguity | EVAL | 8.09 | 8 | 8.26 | 8 | | 0.87 | 7.87 | 8 | 0.54 | | 8.09 | 9 | 1.00 | |
| 28 | Judgment | APPLIC | 8.09 | 8 | 8.11 | 8 | 0.93 | | 8.65 | 9 | | 0.11 | 7.67 | 8 | 0.13 | |
| 29 | Relevant questions | AFFECT | 8.07 | 8 | 8.08 | 9 | | 0.86 | 8.39 | 9 | | 0.26 | 7.85 | 8 | | 0.23 |
| 30 | Decision making using incomplete information | EVAL | 8.06 | 9 | 7.90 | 8 | 0.63 | | 8.30 | 9 | 0.53 | | 8.03 | 9 | 0.93 | |
| 31 | Teamwork | KNOW | 8.02 | 8 | 7.38 | 8 | **0.04*** | | 8.35 | 8 | | 0.73 | 8.36 | 9 | 0.23 | |
| 32 | Persuasion | KNOW | 7.98 | 8 | 7.94 | 9 | 0.89 | | 8.52 | 9 | | 0.20 | 7.63 | 8 | | 0.09 |
| 33 | Ability to listen | KNOW | 7.95 | 8 | 7.85 | 8 | | 0.66 | 8.43 | 8 | | 0.32 | 7.70 | 8 | 0.35 | |
| 34 | Motivation | AFFECT | 7.85 | 9 | 7,68 | 9 | 0.64 | | 8.30 | 9 | | 0.56 | 7.70 | 9 | 0.66 | |
| 35 | Oratory and verbal communication | KNOW | 7.69 | 8 | 7.5 | 8 | 0.59 | | 8.36 | 9 | 0.13 | | 7.41 | 8 | 0.40 | |
| 36 | Creativity | AFFECT | 7.61 | 8 | 7.34 | 8 | 0.39 | | 8.45 | 9 | **0.04*** | | 7.30 | 7 | | 0.07 |
| 37 | Written communication | KNOW | 7.56 | 8 | 7.58 | 8 | 0.95 | | 7.61 | 8 | | 0.87 | 7.52 | 8 | 0.72 | |

**Obs.**: R: ranking of the skills and competencies selected by the student in agreement with the overall average; BT: the Taxonomy of Bloom; AFFECT: affective domain; APPLIC: application; ANAL: analysis; EVAL: evaluation; COMP:: comprehension; KNOW: knowledge; SYNT: synthesis; $\bar{x}$: mean; M: median; P>t: p-value of student's t-test between the mean of skills and competencies in each teaching technique and others; P>z: the p-value of the Kruskal-Wallis test between the mean of skills and competencies in each teaching technique and others; N: no. of observations; *: variables that are statistically distinct.

Source: elaborated by the authors.

Specifically, considering the case applied with the teaching technique VG-OG, the students perceived greater development of the skills and competencies of "relating theory and practice", "interpretation" and "consolidation of background knowledge". Regarding the skill of "relating theory and practice", some students emphasized, in the focus group, that the applied method made it possible to visualize accounting in practice: "*it seemed closer to reality*" (A9). "*I think we felt the profession more*" (A7). Associated with the skills of "interpretation" and "consolidation of background knowledge", student A11 said: "the *VG-OG was what made us work more, because we struggled to understand bank reconciliation, the question was asked in the group what a cashed cheque is, what this is, what that is*". Student A6 concluded: "*all the steps of VG-OG, from solving the union case to listening, talking and knowing how to debate, VG-OG was what made us feel like an accountant*" (A6). In contrast to the other active methods applied, the skill of "teamwork" presented less development in the case applied using the teaching technique VG-OG (mean of 7.38). This finding corroborates the skills and competencies listed in Table 2, as their development is not covered in the literature with the application of the VG-OG teaching technique.

Regarding the case applied with the Simulated Jury teaching technique, as observed in Table 5, the students perceived greater development of the ability to "interpret financial statements" and the competency of "creativity". In function of referring to situations that have occurred in the Brazilian context regarding the identification, measurement, and recognition of provisions, contingent liabilities and assets, the students may have chosen the ability to "interpret financial statements" as an alternative to the argumentation skills expected in Table 2, as found in some of the statements of the students in the focus group: "*in the Jury, you need to argue, even if you do not agree with what is going on*" (A2). "*The Jury activity brings much more argumentation than PBL*" (A12). "*I agree with A12, I think the jury and VG-OG instigate the argumentation part more*" (A4).

Regarding the development of the competency of "creativity "with the Simulated Jury technique, the students may have glimpsed this because it relates to the ability of argumentation, as students A1 and A4 pointed out in the focus group: "*at the moment when we are in a jury, we have to be able to create an argument very quickly*" (A1); "*I think that also in the jury maybe we lose a little of the focus, because I remember the times when a (...) had to reach out to us and talk: do not forget that the focus is provision! You are so incited to want to argue about that that you actually forget (...)*" (A4). Although student A4 commented on the loss of focus of the discussion during the prosecution and defense with this technique, her statement indicates that the students sought to be creative. This finding demonstrates that the teacher can consider this technique when the educational objective is the development of creativity, in addition to composing the set of skills and competencies indicated by the literature (Table 2).

Regarding the case applied with the teaching technique PBL, as shown in Table 5, the ability of "critical thinking" was less developed with this technique compared to the others, according to the students' perception, despite the mean score of 8.09. The development of this skills confirms Soares *et al.* (2017), in the sense of using the PBL teaching technique to direct the student to a deeper knowledge, in addition to favoring the development of other skills and competencies (Table 2). In the focus group, the students stressed that the technique allowed them to interconnect subjects from other disciplines or exercise research skills.

Thus, the skills and competencies developed in each case applied with the teaching techniques do not permit rejecting H1, suggesting that the application of the teaching techniques VG-OG, Simulated Jury and PBL in the resolution of teaching cases, develops distinct skills and competencies, according to the students' perception. Based on the above, the 38 skills and competencies in the ranking were developed according to the students, mainly as the average scores were superior to seven. In addition, among the teaching techniques applied, four were more perceived with VG-OG, two with the Simulated Jury and one with PBL.

Table 6 shows the descriptive statistics for the BT domains, as well as the hypothesis tests performed to assess whether the skills and competencies the students indicated differ between the FBT stages.

Table 6

**Comparison between the investigated BT domains and the FBT stages**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Panel A – General** | | | | | | | | | |
| **BT** | **N** | $\bar{x}$ | **s** | **Min** | **M** | **Max** | **FBT stages** | | |
| Affective Domain | 83 | 8.16 | 1.36 | 4 | 8.29 | 10 | E1 | E2 | E3 |
| Knowledge | 82 | 8.08 | 1.3 | 2.63 | 8.19 | 10 | $\bar{x}$: 8.24<br>M: 8.32 | $\bar{x}$: 8.29<br>M: 8.35<br>**P>z:0.00*[a]** | $\bar{x}$: 8.35<br>M: 8.37<br>**P>z:0.00*[b]** |
| Comprehension | 86 | 8.45 | 1.13 | 3.4 | 8.4 | 10 | | | |
| Application | 87 | 8.13 | 1.46 | 1.33 | 8.33 | 10 | | | |
| Analysis | 84 | 8.42 | 1.2 | 3 | 8.5 | 10 | | | |
| Synthesis | 86 | 8.66 | 1.02 | 5.6 | 8.7 | 10 | | | |
| Evaluation | 86 | 8.29 | 1.37 | 3.33 | 8.33 | 10 | | | |
| **Panel B – VG-OG** | | | | | | | | | |
| **BT** | **N** | $\bar{x}$ | **s** | **Min** | **M** | **Max** | **FBT stages** | | |
| Affective Domain | 30 | 8.2 | 1.43 | 5.43 | 8.71 | 10 | E1 | E2 | E3 |
| Knowledge | 30 | 8 | 1.3 | 5.13 | 8.31 | 10 | $\bar{x}$: 8.36<br>M: 8.48 | $\bar{x}$: 8.42<br>M: 8.63<br>**P>z:0.01*[a]** | $\bar{x}$: 8.48<br>M: 8.62<br>**P>z: 0.03*[b]** |
| Comprehension | 30 | 8.73 | 1.07 | 6.2 | 9.05 | 10 | | | |
| Application | 31 | 8.26 | 1.4 | 4 | 8.33 | 10 | | | |
| Analysis | 31 | 8.54 | 1.26 | 4.67 | 9 | 10 | | | |
| Synthesis | 31 | 8.79 | 1 | 7 | 8.8 | 10 | | | |
| Evaluation | 30 | 8.4 | 1.3 | 4.33 | 8.33 | 10 | | | |
| **Panel C – Simulated Jury** | | | | | | | | | |
| **BT** | **N** | $\bar{x}$ | **s** | **Min** | **M** | **Max** | **FBT stages** | | |
| Affective Domain | 20 | 8.41 | 1.07 | 5.57 | 8.5 | 10 | E1 | E2 | E3 |
| Knowledge | 21 | 8.4 | 0.85 | 7 | 8.75 | 10 | $\bar{x}$: 8.35<br>M: 8.33 | $\bar{x}$: 8.41<br>M: 8.34<br>**P>z: 0.01*[a]** | $\bar{x}$: 8.39<br>M: 8.35<br>**P>z: 0.32[b]** |
| Comprehension | 23 | 8.31 | 0.79 | 6.8 | 8.2 | 10 | | | |
| Application | 23 | 8.41 | 0.86 | 7.33 | 8.33 | 10 | | | |
| Analysis | 20 | 8.65 | 0.63 | 7.5 | 8.5 | 10 | | | |
| Synthesis | 22 | 8.68 | 1 | 6.4 | 8.7 | 10 | | | |
| Evaluation | 23 | 8.19 | 1.18 | 5.67 | 8.33 | 10 | | | |
| **Panel D – PBL** | | | | | | | | | |
| **BT** | **N** | $\bar{x}$ | **s** | **Min** | **M** | **Max** | **FBT stages** | | |
| Affective Domain | 33 | 7.97 | 1.46 | 4 | 8.14 | 10 | E1 | E2 | E3 |
| Knowledge | 31 | 7.95 | 1.52 | 2.63 | 8 | 10 | $\bar{x}$: 8.04<br>M: 8.02 | $\bar{x}$: 8.08<br>M: 8.14<br>**P>z:0.02*[a]** | $\bar{x}$: 8.21<br>M: 8.27<br>**P>z: 0.00*[b]** |
| Comprehension | 33 | 8.3 | 1.34 | 3.4 | 8.4 | 10 | | | |
| Application | 33 | 7.82 | 1.78 | 1.33 | 7.67 | 10 | | | |
| Analysis | 33 | 8.17 | 1.38 | 3 | 8.33 | 10 | | | |
| Synthesis | 33 | 8.53 | 1.06 | 5.6 | 8.6 | 10 | | | |
| Evaluation | 33 | 8.27 | 1.58 | 3.33 | 8,67 | 10 | | | |

**Note**: BT: Bloom taxonomy; N: No. of observations; $\bar{x}$: mean; s: standard deviation; Min: minimum value; M: median; Max: maximum value; E1, E2 and E3: mean of the categories of the cognitive domain of BT that make up stages 1, 2 and 3 of FBT (according to Table 1); P>z: p-value of the Wilcoxon Test between: 1) a:E1 and E2; 2) b: E1 and E3; *: statistically distinct variables.

Source: elaborated by the authors.

The means registered in Table 6 (all superior to 7.82) indicate that, in the students ‘ perception, the skills and competencies in the affective and cognitive domains of BT, as well as Stages 1, 2 and 3 of FBT, were developed through the application of the VG-OG, Simulated Jury and PBL techniques. The Wilcoxon tests (P>z) show that, in general, stage 1 developed differently from stages 2 (mean 8.29, p-value 0.00) and 3 (mean 8.35, p-value 0.00). The same occurred in the application of VG-OG and PBL. VG-OG and PBL specifically developed more stage-three skills and competencies, followed by stages 2 and 1, respectively. On the other hand, the Jury technique developed more stage-two skills and competencies, followed by stages 1 and 3 in a tie for the second place.

These results corroborate the findings by Costa *et al.* (2018) and Costa *et al.* (2020), as the active methods applied in this research permitted the development of competencies listed in the simple categories to more complex categories of the cognitive domain of BT, which, by association, correspond to FBT stages 1, 2 and 3, reinforcing the argument that skills and competencies of the intermediate and advanced stage can also be developed in the initial stage of FBT. Based on these findings, H2) cannot be rejected, suggesting that the application of the teaching techniques VG-OG, Simulated Jury and PBL in the resolution of teaching cases develops the FBT stages differently.

Table 7 shows the outputs of the hypothesis tests regarding the students' general perception of the applied active methods.

Table 7
**General perception of the applied active methods**

| Attributes | General | | VG-OG | | | Simulated Jury | | | PBL | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | $\bar{x}$ | M | $\bar{x}$ | M | P>t | $\bar{x}$ | M | P>t | $\bar{x}$ | M | P>t |
| Usefulness of the case for teaching | 9.24 | 10 | 9.24 | 10 | 0.12 | 9.30 | 10 | 0.14 | 8.36 | 8 | **0.00*** |
| Usefulness of teaching technique | 8.92 | 9 | 8.92 | 9 | 0.73 | 9.43 | 10 | **0.02*** | 8.36 | 9 | **0.02*** |
| Improvement in the teaching-learning process | 8.61 | 10 | 8.61 | 10 | 0.91 | 9.22 | 10 | 0.07 | 8.27 | 9 | 0.13 |
| Fitness to the subject introductory accounting II | 9.61 | 10 | 9.61 | 10 | **0.05*** | 9.73 | 10 | **0.05*** | 8.33 | 9 | **0.00*** |

**Obs.**: $\bar{x}$: mean; M: median; P>t: P-value of *student*'s *t*-Test between each attribute investigated in the applied methods and the others; *: statistically distinct variables.

Source: elaborated by the authors.

The results on the attributes investigated in Table 7 show that, overall, the students perceived, the usefulness and fitness of the cases applied with the teaching techniques VG-OG, Simulated Jury and PBL for the subject introductory accounting II, thus improving the teaching-learning process. This perception of the students confirms the development of skills and competencies based on the alignment between the pedagogical objectives established by the teacher and the use of active methods, as suggested in Nagib and Silva (2020).

Among the teaching techniques applied, the students perceived less usefulness of both the case and the teaching technique PBL applied, although this method enabled the development of all the skills and competencies investigated (Table 5). In the focus group, the student's statements help to understand the reasons for these results. According to student A7, one of the main reasons was the choice of content for the case: "*the only thing I have to suggest is about the PBL, not to apply it again with trade bills, because I think it is a matter with many details*". For students A2 and A11, respectively, the reason was the absence of elements to carry out the accounting treatment: "*I found it cool, but the company is acquiring a lot of trade bills, so how could it solve this? We could show it, for example, in the form of entries*" (A2). "*We ended up fleeing and did not focus on promissory notes and trade bills, besides not having contact with the many details*" (A11). Despite these observations, the expressiveness of the grade assigned to the teaching technique PBL (average between 8.27 and 8.36) highlights its importance for the students' skills and competency building in the discipline. As the most useful teaching technique, the students chose the Simulated Jury, which, as already explained in this study, may have been the result of the association with the ability to "interpret financial statements" and the competency of "creativity", found to be the most developed through the application of this active method (Table 5).

That said, the results in Table 7 show that the active methods used in this research influences the teaching and learning process in the discipline, allowing the students to develop the 37 skills listed in the ranking in Table 5, in addition to the cognitive and affective domains, and the achievement of stages 1, 2 and 3 of FBT, both of which are presented in Table 6.

## 5. Final Considerations

The objective of this research was to identify which skills and competencies are developed in the resolution of teaching cases that apply different teaching techniques. This objective was achieved in the light of BT and FBT, based on the application of a questionnaire at the end of the application of the teaching techniques VG-OG, simulated jury and PBL, and supplemented with a focus group at the end of the subject Introductory Accounting II.

According to the students, the teaching cases applied with the three teaching techniques employed made it possible to develop all 37 skills and competencies investigated in the questionnaire. These active methods allowed the students to visualize the business environment and decision-making process. In addition, the students perceived the development of their autonomy and responsibility for their own learning, which suggests that the methods used made the students engage affectively with the teaching-learning process.

Comparing the results of the students' perception for the development of skills and competencies in the use of the three techniques in the application of the teaching cases, through average and median tests, the findings showed that:

- the VG-OG technique allowed greater development of the skills and competences of "relating theory and practice", "interpretation" and "consolidation of background knowledge". On the other hand, the competency "teamwork " reached a lower average in the students' perception;
- when using the Simulated Hury technique, the greatest development was found for the skills of "interpretation of financial statements" and "creativity";
- the PBL technique differed from the others only in terms of the competency of "critical thinking", indicated by the students as less developed (despite the mean score of 8.09).

Based on the results found in this research, the application of the teaching techniques VG-OG, Simulated Jury, and PBL in the solution of teaching cases develops distinct skills and competencies, according to the students' perception. Thus, it is inferred that the choice of the teaching technique in the application of cases should be aligned with the educational objectives established by the teacher.

In addition, the application of the teaching techniques developed skills and competencies from all stages of FBT and, consequently, from the cognitive and affective domains of BT, corroborating the studies by Costa *et al.* (2018) and Costa *et al.* (2020).Thus, the applied active methods are effective for the improvement of skills and competencies necessary for the understanding and consistent application of IFRS. The VG-OG and PBL techniques developed the FBT stages in the following order: 3, 2 and 1. When the Simulated Jury was applied, stage 2 comes first, followed by stages 1 and 3 in a tie in the second place. These results suggest that the Iasb could include the study of appropriate active methods for the application of teaching cases in each of the FBT stages on its agenda, as the results of the research highlight the relevance of the method used in the application of the teaching cases.

In addition, affective issues demonstrated by the students, such as interest, responsibility for learning, creativity and active participation contribute to cognitive development, leading to the finding that the cognitive and affective domains interact mutually, in line with the results found by Costa *et al.* (2020)

As contributions of this study, the importance of teaching techniques for the development of skills and competencies in the solution of teaching cases is highlighted, demonstrating based on the research findings that educational learning objectives can be optimized with the help of active methods. Therefore, these results can be useful to teachers, HEIs, company managers and regulators that are involved in the teaching-learning process of IFRS, so that the development of skills and competencies required for the training of accounting professionals is encouraged. Specifically, the Iasb can go beyond the development of teaching cases in FBT, reflecting on which methods to use in the application of these materials.

One limitation of the study may be related to the impossibility of separating the skills and competencies developed exclusively through the solution of teaching cases and with the teaching techniques VG-OG, Simulated Jury and PBL. In this sense, as a suggestion for future research, it is suggested to evaluate the segregated development and set of skills and competencies, using the active methods applied in this research, as well as the interaction with other disciplines.

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# The influence of budgets' coercive and enabling characteristics on empowerment and creativity

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## Abstract

Objective: To analyze the influence of budget coercive and enabling characteristics on managers' empowerment and creativity.
Method: A survey was conducted, and 100 valid responses were obtained from managers enrolled in the Brazilian Association of Information Technology Companies (Assespro). Data were analyzed using structural equations modeling through Partial Least Squares (PLS).
Results: The results show that the budget's coercive characteristics improved the creativity of managers of technology companies; however, the influence of the budget's enabling characteristics was significantly greater. The mediating test revealed that empowerment did not mediate the relationship between budget's coercive characteristics (planning) and creativity but partially mediated the relationship between budget's enabling characteristics (dialogue) and creativity.
Contributions: This study contributes to the theoretical sphere by showing that a business budget can be perceived in two different lights. It can promote a feeling of empowerment among employees and boost their creativity, encouraging them to use resources sustainably and innovatively.
**Keywords:** Coercive Control; Enabling Control; Budget Role; Empowerment; Creativity.

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## 1. Introduction

A budget is an instrument used to fulfill the objectives of planning (planning, coordination, resources allocation, and establishment of operational volumes) and dialogue (communication, awareness-raising, motivation) (Ekholm & Wallin, 2011). The theory of bureaucratic formalization may be in line with the budget's usefulness (Adler & Borys, 1996). In this sense, a budget that is useful for planning has a coercive form because it provides rigid processes with a hardly interactive role (Radke&Widener, 2016).

This denotes adequate budgetary control to comply with previously specified standards (Ahrens & Chapman, 2004). The study argues that a budget establishes an environment characterized by self-management and freedom within established boundaries, promoting empowerment (Simons, 1994). Mundy (2010) states that a budget with the dialogue attribute provides clarity and understanding within the work environment.

Recent studies report empirical evidence that the combination of different management controls with different weights in its system support creativity (Henri 2006; Widener 2007; Mundy 2010; Bedford, 2015; Kruis et al., 2016; Curtis & Sweeney, 2017; Janka& Guenther 2018; Muller-Stewens et al., 2020). A dialogue-based budget can be linked to the enabling model because it shares responsibility and gives employees autonomy (Radke & Widener, 2016).

Therefore, the roles of an enabling budget include establishing a dialogue to support decision-making and encourage interaction among an organization's hierarchical entities (Adler &Borys, 1996). Creativity among collaborators is crucial for successful organizations; thus, implementing managerial controls is often a dilemma faced within this process (Amabile, Conti, Coon, Lazenby & Herron, 1996).

The dilemma faced by firms is linked to the fact that the specific nature of creative production requires the substantial use of formal control, while such control may harm creativity (Grabner & Speckbacher, 2016). However, Dysfunctional behavior demands formal control to coordinate and effectively regulate employees' behavior (Adler & Chen, 2011).

In this context, budgetary control enables goals to be aligned with the employees' behavior to achieve more efficiency (Speklé, Elten & Widener, 2017). Behavioral literature indicates that freedom at work, which can be facilitated by managerial controls, enables individuals to be creative, while rigid controls may impede creative thinking (Amabile et al., 1996).

The literature suggests that managers' behavior is affected by formal controls communicating restrictions and limitations on the power to develop tasks (Koestner, Ryan, Bernieri & Holt, 1984). Additionally, budgetary control can make employees feel empowered because it indicates that their effort can guide their choices and expectations. As proposed in the Self-Determination Theory, empowerment support self-regulated behavior (Sierens, Vansteenkiste, Goossens, Soenens & Dochy 2009).

It is essential to understand the effects of an enabling budget and a coercive budget on the managers' creativity and empowerment. Recent evidence indicates that the Management Control System (MCS) may favor empowerment and creativity (Adler & Chen, 2011; Marginson, Aulay, Roush & Zijl, 2014; Grabner & Speckbacher, 2016; Cools, Stouthuysen & Van Abbeele, 2017; Speklé et al., 2017), however, how does budgetary control behave in this process, considering that it is a component of the Management Control System?

An MCS information can be used in a coercive manner to ensure that the organization is on the right path to achieve its goals, but also in an enabling manner to ensure that the top management's information and concerns are vertically shared (Muller-Stewens, Widener, Moller&Steinmann, 2020). In this sense, this study's research problem is: **What is the influence of budgets with coercive and enabling characteristics on the managers' creativity?** This study aims to analyze the influence of budgets with coercive and enabling characteristics on the managers' empowerment and empowerment.

This study contributes to the theoretical field by showing that a business budget can be perceived in two different ways, promoting employees' empowerment and creativity and facilitating the sustainable and innovative consumption of resources through the creative initiative of employees. This study's results suggest that a budget itself is an instrument that promotes greater organizational creativity. In this aspect, there are accounting practices that reconcile mechanical and organic characteristics (Ahrens & Borys, 1996).

In practical terms, this study contributes to providing information regarding the management process, which provides appropriate instruments for business continuity. The primary evidence suggests that an enabling budget more easily promotes organizational creativity than a coercive budget. These roles enable discussing potential decisions, encourage interaction among hierarchical entities (Ahrens& Chapman, 2004), and promote autonomy and learning (Radker&Widener, 2016).

## 2. Theoretical Framework and Establishment of Hypotheses

### 2.1 Budget Roles and Two types of Formalization

Corporate budgeting plays various roles, characterized as cyber control, to signal goals, analyze deviations, and make corrections (Kruis, Widener&Speklé, 2016), as well as to influence behaviors, motivate, promote debates, and disseminate knowledge to the entire organization (Arnold & Gillenkirch, 2015).

Ekholm and Wallin (2011) argue that a budget plays two roles within organizations, namely: planning (planning, coordination, resource allocation, and establishment of operational volumes) and dialogue (communication, create awareness, and motivate). These roles present the possibility to inform, reconciling bureaucracy positive and negative aspects according to two types of formalization: coercive and enabling. Budget roles are analyzed according to the framework proposed by Adler and Borys (1996), who studied the characteristics of formalization, design process, and system implementation.

Additionally, the design and use of managerial controls affect organizational behavior (Hall, 2008). Enabling systems can facilitate responsibilities (Adler &Borys, 1996; Burney, Radtke & Widener, 2017), different from what happens with control devices used by the top management (Free, 2007; Chapman &Kihn, 2009). Managerial control through enabling formalization has power over individuals' behavior (Hempel, Zhang & Han, 2012), leading employees to feel they have some degree of freedom within existing rules and systems (Wouters & Wilderom, 2008). Additionally, they enable greater interaction between users and the system and between the managers at different hierarchical levels, encouraging problem-solving capacity because it provides feedback and reveals improvements (Adler &Borys, 1996; Wouters&Wilderom, 2008; Hartmann & Maas, 2011).

Adler and Borys (1996) predict that enabling formalization consists of procedures that help employees deal with their workplaces' contingencies to fulfill their tasks and enables organizational memory that captures learned lessons with experiences. The enabling type facilitates employee motivation despite the existence of rules (Wouters & Wilderom, 2008).

Therefore, rules facilitate the structure and refine the employees' behavior without hierarchical commitment (Adler &Borys, 1996). Van der Hauwaert and Bruggeman (2015) suggest that enabling managerial controls support organizational environments conducive to motivation, competence, and relationships.

Control mechanisms such as corporate budgeting are categorized as enabling versus coercive continuum (Sánchez, Velez & Ramón-Jerónimo, 2012). The budgetary process is characterized as coercive when it restricts managerial action's freedom and determines how employees and managers ought to behave.

A budget can be considered enabling when it enables discussing potential decisions and encourage interaction among hierarchical entities (Ahrens & Chapman, 2004). Coercive formalization seeks employees' compliance (Wouters&Wilderom, 2008); that is, rules to forcibly conduct the fulfillment of specified standards (Ahrens& Chapman, 2004).

Therefore, the information inherent to a budget can play different roles, enabling compliance with pre-established standards when planning (coercive) or enabling dialogue (enabling). In summary, the coercive use of a budget may be restricted to employees' behavioral control, and the enabling use of a budget promotes autonomy and learning (Radke & Widener, 2016).

## 2.2 Empowerment and Creativity

The Self-Determination theory explains how the individuals' perceptions of stimulus to actions and decision contexts influence intentional behavior, especially their intrinsic involvement and commitment to actions and effort (Ryan &Deci, 2000). Positive involvement with a task depends on a sense of self-determination, which in turn depends on the satisfaction of three human needs (autonomy, competence, and relationship), as explained by Deci and Ryan (1987).

Regarding autonomy, there is a belief that actions are inherent and do not depend on an individual's perseverance. In terms of competence, people believe in their ability to perform tasks and on their degree of control over their actions' results. On the other hand, relationships denote a social environment that brings a sense of security and support (Ryan & Deci, 2000).

The concept of self-determination at the workplace is related to the notion of empowerment, determining the extent to which employees believe they can perform their tasks autonomously (Speklé et al., 2017). This theory associates various behavioral aspects to self-determined motivation, including social development and well-being (Ryan & Deci, 2000).

In this sense, psychological empowerment is understood as an individual's intrinsic motivation toward his/her work environment, manifested by cognitions of meaning, competence, self-determination, and impact (Spreitzer, 1995). Studies by Hall (2008), Mahama and Cheng (2013), Appuhami (2017), Souza, Anzilago, and Beuren (2017) report inferences that lead to conclusions regarding the effects of managerial controls on the dimensions of psychological empowerment. On the other hand, Beuren, Santos, and Bernd (2020) suggest that an enabling perception of managerial controls is associated with psychological empowerment, indicating that managerial controls' characteristics affect managers' work.

Thus, the way companies use budgets can change their collaborators' sense of social development and well-being. Managerial control can promote self-determination for varied behaviors, including the production of creative ideas (Amabile et al., 1996). Creativity can be induced through empowerment and feelings of ownership and control over one's work (Amabile et al., 1996). These authors also suggest that empowerment encourages employees to use unconventional ways to perform their work.

Annarelli and Nonino (2016) proved that enabling managerial control affects organizational resilience, understood by an organization's ability to prepare itself, respond to, and recover from unexpected events. In this sense, organizational resilience occurs due to its employees' attitude and engagement; thus, these individuals' creativity may be reinforced by enabling managerial control.

Limnios et al. (2014) highlight that resilience depends on the characteristics of the organizational system and its ability to respond to the environment in an offensive (adaptive) or defensive (reactive) manner. In this sense, resilience can be promoted by the individuals' creativity based on the organizational system's characteristics. It is assumed that managerial control with a flexible characteristic favors changes and support individuals to be more creative to deal with the daily challenges experienced within organizations.

## 2.3 Establishment of the Study's Hypotheses

The use of a budget creates an environment characterized by self-management and freedom within established limits, which promotes empowerment (Simons, 1994). Annarelli and Nanino (2006), Mundy (2010), Limnios et al. (2014) support this notion by indicating that managerial controls are essential to simultaneously direct and train managers and employees, which can facilitate creativity and at the same time restrict inappropriate behavior.

The budget's role, together with planning, has been characterized by cyber control (Bedford, 2015). Hence, it may be linked to the cyber perspective of control, which is essential to plan operationally and assess performance (Arnold & Artz, 2019). That is, intended to direct compliance with established standards (Ahrens & Chapman, 2004).

In this context, Wouters and Roiimans (2011) suggest that the establishment of goals can promote problem-solving capacity and experimentation. Grabner and Speckbacher (2016) suggest that pre-established objectives are used to assess performance in creative environments. Working towards a goal gives autonomy and promotes the team's creativity to develop innovative solutions to ensure organizational perpetuity (Amabile, 1997; Cools et al., 2017).

The idea is that these aspects result from the creation of an environment that supports autonomy to promote intrinsic motivation and self-regulated behaviors, as opposed to "controlling" environments (Simons, 1995). Hence, employees have the opportunity to make choices regarding their actions within certain boundaries (Amabile et al., 1996).

Cools et al. (2017) conclude that a budget focused on planning clarifies the goals, objectives, and restrictions that lead to the structuring of decision problems so that creative thinking is precise, considering that solutions do not adjust to all decision parameters (Speklé et al., 2017). The authors also state that these can guide and improve understanding of the relationship between actions and results, which promotes creative behavior even more.

Therefore, the following hypothesis is proposed:

- **H1– The budget's roles focused on planning influence creativity.**

Research in social psychology and organizational behavior has addressed various aspects of creativity (Abbey& Dickson, 1983; Amabile et al., 1996; Hirst, van Knippenberg & Zhou, 2009). These studies conclude that having a feeling of autonomy is important, but the work environment itself also plays a significant role (Amabile & Pillemer, 2012).

A budget's roles focused on dialogue are characterized as organic control (Bedford, 2015). A budget, as an enabling control mechanism, enables dialogue to support decision-making and encourages interaction among hierarchical entities (Ahrens&Chapman, 2004) and facilitates employees' motivation, despite existing rules (Wouters&Wilderom, 2008).

In this sense, giving explicit instructions, recognizing creative thinking, encouraging a discourse that supports creativity, and generating ideas are all favorable aspects (Amabile et al., 1996). These roles enable exchanging information in an environment where individuals are incited to challenge the *status quo* and participate in debates and discussions to devise creative solutions for daily challenges.

Organizations intending to facilitate creativity should create a process to exchange information that stimulates and supports creativity. Empirical evidence reported by Simons (1994) and Gong, Cheung, Wang, and Huang (2012) suggests that information exchange is necessary for the teams to become more creative. In this sense, the following hypothesis is proposed:

- **H2 – A budget's roles focused on dialogue influence creativity more strongly than roles focused on planning.**

Sanchez, Velez, and Ramón-Jerónimo (2012) categorize budget as a continuum going from enabling to coercive. A budget as a control mechanism plays different roles, such as imposing limits on managerial actions and promoting dialogue, interaction, and motivation (Radke & Widener, 2016; Ahrens & Chapman, 2004). This study proposes that the coercive and enabling uses of a budget support autonomy.

A budget's roles focused on planning, communicate goals in terms of critical performance measures to guide behavior, and providing feedback to facilitate learning (Simons, 1995). Hence, giving employees opportunities to believe that they can choose within established boundaries (as shown in empowerment) and providing organizational encouragement and supervision was considered an essential stimulus for creativity in organizational environments (Amabile et al., 1996).

Additionally, empowerment represents autonomous motivation as it supports individuals' autonomy (Gagne & Deci, 2005). Facilitating and expanding access to information at different levels is necessary to empower (Spreitzer, 1995). Hence, sharing information strengthens one's sense of competence and purpose, a valuable element within organizations (Spreitzer, 1995).

Some studies in the accounting field (Hall, 2008; Mahama&Cheng, 2013; Mouang, 2015; Appuhami, 2017; Souza et al., 2017; Souza &Beuren, 2018) suggest that design and managerial control interfere in the individuals' empowerment. Hempel et al. (2012) add that organizational formalization can promote empowerment because it can direct the organization, regardless of whether it is centralized or not.

Thus, enabling managerial controls can minimize differences in power within the organization because it broadens the sharing of knowledge, skills, and rewards among all organizational levels (Adler &Borys, 1996). Broadening the boundaries of employees' decision-making reflects on empowerment, self-esteem, and the establishment of organizational tasks (Kantur&Iseri-Say, 2012). The individuals feel greater empowerment when they perceive themselves as a significant part of the organization, which implies minimum formalization of tasks based on goals and responsibility (Spreitzer, 1996). In this sense, the following hypothesis is proposed:

- **H3 – Empowerment mediates the relationship between the budget's roles focused on planning and creativity**

Recent studies report evidence that the combination of controls with different weights in the managerial control system supports creativity (Kruis et al., 2016; Bedford, 2015). A budget with its roles focused on dialogue communicates the concerns of managers in all the organizational units. These employees become aware of the opportunities and potential threats to achieving goals (Speklé, Elten & Widener, 2017).

A budget's roles focused on dialogue can encourage individuals to think unconventionally and find unusual solutions and approaches (Burroughs, Dahl, Moreau, Chattopadhyay & Gorn 2011; Cools et al., 2017). Marginson et al., (2014) suggest that the interactive use of budget with roles can broaden the feeling of empowerment. Hall (2008) explains that the use of a diversified set of performance measures in a business' various units makes managers experience greater freedom, autonomy, and the opportunity to perform tasks.

Previous studies support the notion that employees become more creative when they feel empowered and perceive that they have the freedom to perform tasks (Alge, Ballinger, Tangirala & Oakley, 2006). The consequence is that if an organization is interested in encouraging creativity, the work environment should be based on empowerment. Hence, giving explicit instructions, recognizing creative thinking, encouraging a discourse that supports creativity, and the generation of ideas are all aspects that concern organizational incentive to creativity (Amabile et al., 1996; Alge et al., 2006).

In addition to providing opportunities for employees to believe that they can make choices regarding their actions within established boundaries (as shown in empowerment), organizational incentives, and supervision, were considered an essential stimulus for organizational creativity (Amabile et al., 1996).

Consequently, the managerial control system is designed and presented to be internalized and assimilated, which supports and improves self-determination and the perception of empowerment. Therefore, it requires the managerial control structure to support autonomy (Deci& Ryan, 1987) and provide a proper structure to support the decision-making individuals face (Sierens et al., 2009). It is easy to promote creative behavior in a conducive (interactive) work environment, where the notion that freedom also affects the managers' level of empowerment emerges. Hall (2008) states that a set of diversified performance measures in a business various units makes managers experience greater freedom and autonomy to perform their tasks.

Marginson et al. (2014) report positive results between the interactive use of non-financial performance measures and self-determination, suggesting that the interactive use of budget can improve a sense of empowerment, which is associated with intrinsic and self-determined motivation.

Interactively using a budget creates a work environment where employees need to be creative. The diagnostic use, goals, objectives, and performance boundaries do not need to be seen as negative restrictions, but can, in the presence of interactive support control, be perceived as challenges that only generate instigating problems, encouraging individuals to think unconventionally (Burroughs, Dahl, Moreau, Chattopadhyay & Gorn 2011; Cools et al., 2017).

Given the previous discussion, the following hypothesis is proposed:

- **H4 – Empowerment mediates the relationship between budget roles focused on dialogue and creativity.**

## 3. Methodological Procedures

A survey was conducted with managers belonging to Assespro. The organizations' data are available at the website of each regional Assespro (São Paulo, Bahia, Sergipe, Pernambuco, Paraíba, Rio Grande do Sul, and Brasília). The study's instrument was applied via telephone from December 2018 and February 2019. A total of 100 questionnaires were answered and validated.

### 3.1 Research Instrument

This study is based on the survey presented in Appendix A. The statements were rated on a seven-point Likert scale. The questions adapted from Ekholm and Wallin (2011) concerning budget roles were used in the instrument. The authors divided the budget roles presented by Ax and Kullven (2005) into two variables called planning and dialogue. In planning, the budget must be linked to strategies, coordinate the units, allocate resources, and determine the organization's operational volumes (Ekholm & Wallin, 2011). In dialogue, it is supposed to raise awareness of what is essential to achieve, communicate objectives and ideas, remuneration, assign responsibilities, and motivate the personnel (Ekholm & Wallin, 2011).

As for empowerment, the instrument's three first questions were developed by Spreitzer (1995) and the other two were developed by Speklé, Elten, and Widener (2017). The questions assessed independence and freedom to make choices at work. The instrument focused on creativity was based on Farmer, Tierney, and Kung-McIntyre (2003), with questions addressing the development of new ideas and solutions for problems in the managers' work.

### 3.2 Data Analysis Procedures

Data were treated in a unidimensional way, with internal consistency validated by confirmatory factor analysis. The Structural Equations Modeling technique, which is appropriate to understand complex relations, was applied to test the hypotheses (Hair Jr Black, Babin, Anderson &Tatham, 2009). These relationships' parameters indicate the effect of independent variables on the dependent variables (Marôco, 2010).

Data reliability was verified using Composite Reliability (CR). Composite Reliability accepts values above 0.7 and measures the items' internal consistency. Convergent validity was calculated using Average Variance Extracted (AVE), which refers to the general variance in the indicators and suggests values above 0.5 (Hair Jr et al., 2016).

Additionally, the discriminant validity test (HTMT) was performed to obtain evidence that the construct is unique and captures phenomena other measures do not. Discriminant Validity means that the individual items present only one latent construct (Hair et al., 2009). The method suggests by Fornell and Larcker (1981) was used to apply this test because it compares the percentage of the extracted variance to any two constructs with the squared estimation of the correlation between these constructs. The variance estimates should be greater than the quadratic estimation of the correlation. Another indicator that reinforces this validity is Heterotrait-Monotrait Ratio (HTMT), suggested by Henseler et *al.* (2016).

As suggested by Mackenzie and Podsakoff (2012), the Harman test was performed because data from a survey with exogenous and endogenous variables from the same source (same respondent, response format, collection method, and at the same time) were used. In this method, the structural model (the relationship between latent variables) and the measurement model (the relationship between the indicators and latent variables) are disregarded, estimating the Exploratory Factor Analysis (EFA) with all the items in the same analysis employing the unrotated principal components method (Bido, Mantovani & Cohen, 2018). Therefore, the method considers bias when the solution results in a single factor extracted or a single factor extracts most of the variance in the set of variables (Podsakoff, Mackenzie, Lee & Podsakoff, 2003).

## 4. Analysis and Discussion of Results

The descriptive analysis of data is presented to facilitate the understanding of the respondents' profile (Table 1).

Table 1
**Descriptive statistics of the study's variables**

| Description | Mean | Median | Minimum | Maximum | Standard Deviation |
|---|---|---|---|---|---|
| Plan_1 | 6.32 | 7.00 | 1.00 | 7.00 | 0.99 |
| Plan_2 | 6.24 | 7.00 | 1.00 | 7.00 | 1.05 |
| Plan_3 | 6.17 | 6.00 | 1.00 | 7.00 | 1.17 |
| Plan_4 | 6.24 | 6.00 | 3.00 | 7.00 | 0.90 |
| Diálog_1 | 6.10 | 7.00 | 1.00 | 7.00 | 1.20 |
| Diálog_2 | 6.11 | 6.00 | 3.00 | 7.00 | 0.93 |
| Diálog_3 | 6.37 | 7.00 | 1.00 | 7.00 | 0.95 |
| Diálog_4 | 5.86 | 6.00 | 1.00 | 7.00 | 1.41 |
| Diálog_5 | 5.70 | 6.00 | 1.00 | 7.00 | 1.57 |
| Emp_1 | 5.82 | 6.00 | 1.00 | 7.00 | 1.33 |
| Emp_2 | 5.57 | 6.00 | 1.00 | 7.00 | 1.64 |
| Emp_3 | 5.78 | 6.00 | 1.00 | 7.00 | 1.40 |
| Emp_4 | 5.58 | 6.00 | 1.00 | 7.00 | 1.63 |
| Emp_5 | 6.21 | 7.00 | 1.00 | 7.00 | 1.17 |
| Criat_1 | 6.24 | 7.00 | 1.00 | 7.00 | 1.07 |
| Criat_2 | 5.94 | 6.00 | 1.00 | 7.00 | 1.23 |
| Criat_3 | 6.15 | 7.00 | 1.00 | 7.00 | 1.31 |
| Criat_4 | 6.39 | 7.00 | 1.00 | 7.00 | 0.96 |
| Criat_5 | 5.94 | 6.00 | 1.00 | 7.00 | 1.27 |

**Note**: Plan=Planning; Dialog=Dialogue; Emp=Empowerment; Criat=Creativity.

Source: Study's data.

Concerning the planning role, the statement with the highest mean (6.32) refers to the planning item. The highest mean (6.37) obtained in the dialogue role refers to the statement creation of what is important to achieve. The statement with the highest mean (6.21) in empowerment refers to the high degree of initiative allowed within the organization. The highest mean (6.39) obtained in the creativity construct refers to the interaction between managers concerning new ideas' development.

In general, the constructs presented high means, indicating that the managers addressed in this study perceive both the use of a budget divided into different roles (planning and dialogue) and also that the organization enables a creative environment that promotes empowerment.

The minimum sample tests were performed using G-power with the parameters: effect size (0.15), level of significance at α=5%, and sample power of 1-β=0.8 (Faul, Erdfelder, Buchner & Lang, 2009). The minimum number of respondents required to proceed with the analysis was 77. We verified that the answers to the first 20% and the last 20% did not present significant differences, not indicating non-response bias.

We also found that there is no bias in the common method since after considering the variables in the theoretical model as dependent at different times, none of them presented items with VIF higher than 3.3. The same was confirmed by Harman's single factor test (Gomez-Conde, Lunkes& Rosa, 2019). After meeting the criteria, we continued with structural equation modeling.

The structural equation modeling was operationalized into two stages. The first stage assesses the measurement model, verifying the instrument's reliability and validity (Hair Jr. et al., 2016). When above 0.70, the index of composite reliability attests to the instrument's reliability. Validity convergence is confirmed when AVE is higher than 0.50, while Cross Loading and Fornell and Larcker matrices attest discriminant validity (Hair Jr. et al., 2016). Table 2 presents the measurement model.

**Table 2**
**Measurement model**

| Constructs | CC | AVE | Discriminant validity | | | |
|---|---|---|---|---|---|---|
| | | | Planning | Planning | Empowerment | Dialogue |
| Planning | 0.755 | 0.518 | **0.720** | | | |
| Planning | 0.870 | 0.575 | 0.478 | **0.758** | | |
| Empowerment | 0.886 | 0.613 | 0.387 | 0.640 | **0.783** | |
| Dialogue | 0.822 | 0.541 | 0.394 | 0.536 | 0.437 | **0.736** |

Source: Study's data

The results presented in Table 2 show that the measurement model criteria were met. The constructs' reliability was confirmed as composite reliability was above 0.70 (Hair Jr et al. 2016). The constructs' validity was also confirmed with AVE above 0.50 and Farnell and Larcker and Cross Loading matrices were consistent with what Hair Jr et al. (2016) propose. Compliance with convergent validity shows that the constructs explain more than 50% of the statements' variances. The fact that discriminant validity was confirmed shows that the constructs are different from each other. Additionally, there is no collinearity between each construct's items, considering that VIF was below 0.5 in all the models (Hair Jr et al. 2016).

Additionally, Heterotrait-Monotrait Ratio (HTMT) was initiated as suggested by Henseler et al. (2016), reinforcing the constructs' validity. The HTMT ratio is shown below, as shown in Table 3.

Table 3
**Heterotrait-Monotrait Ratio (HTMT)**

| Constructs | Planning | Creativity | Empowerment |
|---|---|---|---|
| Creativity | 0.544 | | |
| Empowerment | 0.427 | 0.706 | |
| Dialogue | 0.460 | 0.631 | 0.434 |

Source: Study's data.

The indicators in Table 3 confirm the constructs' validity as they were below the threshold of 0.85 (Henseler *et al.*, 2016), which denotes the constructs are different. It is important to note that meeting the measurement model criteria is a prerequisite to initiating bootstrapping. After meeting these requirements, we proceeded with the structural model analysis.

The structural model serves as a parameter for the rotation of 5,000 subsamples and 5,000 interactions based on a confidence interval with bias-corrected and accelerated with the two-tailed test at a 5% significant level (Hair Jr. et al., 2016). These parameters are initialized using the Bootstrapping technique to confirm the hypotheses or not. Table 4 presents the relationship between the constructs.

Table 4
**Relationship between the constructs**

| Constructs | Coef. | *T-Value* | *P-Value* | *Hypothesis* | |
|---|---|---|---|---|---|
| Planning → Creativity | 0.202 | 2.230 | 0.026** | H1 | Confirmed |
| Dialogue → Creativity | 0.261 | 2.731 | 0.006*** | H2 | Confirmed |
| Planning → Empowerment → Creativity | 0.114 | 1.600 | 0.110 | H3 | Not confirmed |
| Dialogue → Empowerment → Creativity | 0.151 | 2.596 | 0.009*** | H4 | Partically confirmed |

**Note** 1:*p<0.10; **p<0.05; ***p<0.01.
$R^2$= Creativity (0.523); Empowerment (0.246)
$Q^2$= Creativity (0.240); Empowerment (0.110)

Source: Study's data.

Hypothesis H1 conjectured that the budget's roles focused on planning influence creativity. The findings show that the budget's roles focused on planning increase the creativity of managers in technological companies ($\beta$=0.202, p<0.026). At a 5% significance level, this evidence enables not rejecting H1. Hence, we infer that the usefulness of the budget embodied in planning induces coercive logic of control, enabling the standardization of processes. This standardization enables the establishment of balance (Simons, 1995), which sustains creativity. At the same time that managers are given freedom, it is also necessary to standardize tasks to the point that managers become creative at work (Simons, 1995; Adler &Borys, 1996).

This finding confirms that a budget used to restrict expenditure and plan organizational goals promotes the emergence of creative alternatives on the part of managers to achieve satisfactory results, even with scarce resources (Amabile, 1997; Grabner & Speckbacher, 2016; Cools et al., 2017). Inferences by Wouters and Roijmans (2011) and Speklé et al., (2017) were confirmed; that is, establishing goals on a budget encourages the emergence of innovative ideas to experience and solve problems.

The second hypothesis postulated that the budget roles focused on dialogue exert a greater influence on creativity than roles focused on planning. The statistical results enable not rejecting $H_2$, considering that the influence of dialogue on creativity was greater than planning ($\beta$=0.261, p<0.006). These findings lead to the conclusion that even though a budget's role focused on planning leads to creativity, the dialogue dimension presents enabling characteristics that promote greater freedom and independence among managers.

There is evidence that the feeling of autonomy generated by the enabling use of budgetary controls is essential for companies. However, an environment that favors dialogue plays a fundamental role in promoting creative skills (Amabile et al., 1996; Hirst, Van Knippenberg& Zhou, 2009; Amabile&Pillemer, 2012).

These findings suggest that an enabling budgetary control promotes interaction among hierarchical entities (Ahrens& Chapman, 2004), which motivates managers to implement creative ways to deal with complex decisions (Wouters & Wilderom, 2008; Speklé et al., 2017).

The third hypothesis concerned the mediation role of empowerment in the relationship between a budget's roles in planning and creativity. The findings enabled rejecting H3, as empowerment did not mediate the relationship between the budget's coercive characteristic (planning) and creativity ($\beta$=0.114, p<0.110). It suggests that empowerment makes the enabling use of a budget restrict a potential direct effect on organizational creativity.

Empowered managers restrict the freedom of managerial action, making the enabling budget, which already lacks dialogue, into a factor that does not promote creativity (Radke & Widener, 2016; Ahrens & Chapman, 2004); contradicting evidence that empowerment represents autonomous motivation (Sun, Zhang, Qi& Chen (2012). In this sense, organizations adopting enabling budgets need to be careful with how managers are empowered to prevent creative attitudes are occluded.

Hypothesis H4, which postulated empowerment mediates the relationship between the budget's roles focused on dialogue and creativity, was partially confirmed. Bido and Silva (2019) noted that partial mediation occurs when the direct effect has a significant relationship at the same time as the indirect relationship. In conclusion, a budget's roles in dialogue communicate the top managers' concerns in all the organizational units.

These employees become aware of the potential opportunities and threats to achieve goals and conceive creative skills to overcome daily challenges (Speklé, Elten & Widener, 2017). Therefore, enabling budgetary controls empowers managers, stimulating them to think in unorthodox solutions and approaches (Burroughs et al., 2011; Cools et al., 2017).

There is evidence from Hall (2008) and Marginson et al., (2014) that using a budget based on dialogue can broaden the feeling of empowerment, making managers feel freer, more autonomous, and with greater opportunities to perform tasks. Note that the enabling characteristics of a budget based on dialogue lead to greater empowerment, boosting creativity.

The dimensions of a budget focused on dialogue suggest that managers in technological environments use budgets to communicate objectives better, sensitize about goals, and promote personal motivation (Ekholm & Wallin, 2011). These enabling characteristics increase the level of autonomy (Speklé, Elten & Widener, 2017) and creativity (Farmer, Tierney & Kung-McIntyre, 2003; Speklé, Elten & Widener, 2017). In general, empowerment partially reinforces the relationship between dialogue and creativity.

Regarding the model adjustment, the model's independent variables explained creativity with a large effect ($R^2$=0.52). Concerning accuracy, creativity presented a $Q^2$ equal to 0.24, which indicates the model's predictive relevance.

## 5. Final Considerations

A budget promotes the managers' greater creativity, regardless of its use. In this sense, budgets can be used to promote organizational creativity. However, even though both types of budgets promote creativity, the enabling budget more easily promotes organizational creativity than the coercive type.

The results also indicate that empowerment does not affect the relationship between the coercive use of a budget and organizational creativity. The difficulty in promoting creativity may be related to the lack of dialogue the coercive use of a budget promotes, caused, in this case, by the distance created by managers with a feeling of empowerment.

On the other hand, we conclude that companies adopting an enabling budget promote organizational dialogue, enabling empowered managers to obtain an effect different from that obtained by companies that only use budgets focused on the planning role (coercive). It confirms that empowerment has a mediating effect on the relationship between a budget's roles in dialogue and organizational creativity.

### 5.1 Theoretical and practical implications

This study has implications for the literature in the field as it shows that the enabling use of budgets is greater than the coercive use. A budget encourages greater interaction among hierarchical entities (Ahrens & Chapman, 2004), while empowerment partially reinforces the relationship between the enabling use of budgets and creativity.

It shows that a budget has mechanical and organic characteristics, which aligns with generating new ideas, searching for unconventional ways to solve problems, greater independence, and searching for learning (Ahrens & Borys, 1996; Ahrens & Chapman, 2004). These occurrences were reported by Simons (1995) and Ahrens and Borys (1996), as they state that managerial control increases creativity.

The implications from a practical point of view include suggestions that dynamic environments where individuals are encouraged to seek creative ideas, using the coercive and enabling characteristics of budgets, encourage organizations to achieve objectives. This would make organizations capable of understanding how to use the budget and lead managers to make an effort to promote empowerment and creativity.

### 5.2 Limitations and suggestions for future studies

This study focuses on the relationships proposed here; however, further analyzes can verify whether the participating managers' characteristics and those of the organizations in general influence the proposed relationships. The budgets' enabling and coercive characteristics were addressed here because these can promote or restrict behaviors. Therefore, this proposal is exposed to the scrutiny of more researchers in the field; at the same time, it suggests future studies to explore budgets' coercive and enabling characteristics. Future studies can also explore how the use of a budget can enhance organizational learning.

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# Appendix A

**Utility of the budget focused on planning** (Ekholm & Wallin, 2011)

For each of the statements below, indicate how useful you find the budget for the following goals. Consider the scale between 1=Not useful at all and 7=Very useful
1. Planning linked to company strategies
2. Coordination of business units
3. Resource allocation to the units
4. Determination of operational volumes

**Utility of the budget focused on dialogue** (Ekholm & Wallin, 2011)

For each of the statements below, indicate how useful you find the budget for the following goals. Consider the scale between 1=Not useful at all and 7=Very useful
1. Attribution
2. Communication of objectives and ideas
3. Create awareness of what is importante to achieve
4. Staff motivation
5.Remuneration

**Empowerment** (Spreitzer, 1995; Speklé, Elten and Widener& 2017)

For each of the statements below, indicate the independence and freedom to make choices in your work. Consider the scale between 1= I disagree and 7= I totally agree
1.Has significant autonomy to determine how to execute the work
2. Decides by himself how to execute the work
3. Has many possibilities of Independence and freedom in how to execute the work
4. Making important decisions on how to operate is allowed
5. A high degree of initiative is allowed

**Creativity** (Farmer, Tierney & Kung-McIntyre, 2003)
For each of the statements below, indicate the development of new ideas and solutions to problems in your work. Consider the scale between 1= I disagree and 7= I totally agree
1. Thinks of other ways to solve problems when confronted with obstacles
2. Has new perspectives on old problems
3. Deals with several new ideas and problems at the same time
4. Helps other people to develop new ideas
5. Has many new ideas

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# Guidelines for Authors

## 1. Paper Submission Guidelines

To submit articles to the *Journal of Education and Research in Accounting* – REPeC authors should follow the standards and criteria set by REPeC. From January 2013, the guidelines of the American Psychological Association (APA) with regard to citations and references should be followed. Submissions not complying with the standards will be rejected.

Articles submitted to the journal must be original, i.e., cannot have been published or submitted to another journal.

Articles may be written in Portuguese, English, with at least 5,000 and maximum 9,000 words, including tables, figures, notes and references. A maximum of 5 (five) authors are allowed per article. All papers accepted will be translated and published in two languages: Portuguese and English.

Articles containing tables or figures, they [the tables and figures] should be in a format that allows them to be edited. In case some of these Figures or Tables have been imported from other programs such as Excel, Power Point etc.., the source file must also be sent as Supplementary File.

Do not use expressions like id., ibid., op. cit., loc. cit. and the like, or reference notes and footnotes. Notes at the end of the text are acceptable, but should be avoided.

The submission of articles should be done electronically, through the www.repec.org.br website. At the end of the submission an electronic message will be sent by e-mail, confirming receipt of the article.

## 2. Content and Formatting of Papers

At the moment of submission, the articles should contain:

- The **title** in the language of origin of the article (Portuguese or English) without identifying the author(s);
- An **abstract** written in the language of origin of the article (Portuguese or English) with at least 150 and at most 200 words, single space between lines, in four paragraphs containing the following elements, highlighted: **Objective, Method, Results and Contributions**. At the end of the abstract should be placed **three to five** keywords;

**Objective:** this study was aimed at investigating the relevance of accounting education and research for the growth of the Brazilian economy during the first decade of the 21st century.

**Method:** to collect the data, a structured questionnaire was used, elaborated based on the relevant literature. The questionnaire was tested and applied to a sample of Brazilian accountants and businessmen during 2017. In the analysis of these data, content analysis was applied and statistical tests were used to establish relations between the answers obtained.

**Results:** the main findings of this study indicate that the expansion of accounting education and research in Brazil was essential for the growth of the economy, according to the respondents' perception, despite the impression that accountants and businessmen need to make better use of the accounting information.

**Contributions:** from the academic viewpoint, the evidences from this research contribute to fill of an important existing gap in the Brazilian literature. What the market is concerned, they contribute by providing evidence that, despite its perceived relevance, its users need to make better use of the accounting information.

**Key words:** Education: Research; Accounting.

- The article itself, written in Portuguese or English, with at least 5,000 and at most 9,000 words, including tables, figures, notes and references.
- The pages of the articles should be properly numbered in the upper right corner, typed with Word for Windows, under the following conditions:
  - A4 paper (210 x 297 mm);
  - Times New Roman, size 12;
  - Spacing: single;
  - Paragraph input: 1.25;
  - Margins: 3cm top, 2cm bottom, 3cm left, 2cm right;
  - Tables and figures in Times New Roman, size 10;
  - Citations and references must comply with current standards of the APA (American Psychological Association).

## 3. Tables and Figures[i]

Tables and figures should be used in articles whenever their information make text comprehension more efficient, without repeating information already described in the text.

### 3.1 Tables

The table should usually show numeric or textual information organized in an orderly exposition of columns and rows. Any other statement should be characterized as textual figure.

The table should be displayed with its information visible and sufficient for their understanding and should be formatted as follows:

i Most of these guidelines were adapted from the Manual for Submissions of the *Revista de Administração Contemporânea* – RAC, available at www.anpad.org.br.

| | |
|---|---|
| Table editor | Word for Windows 97 or superior. In case authors have drawn their tables in Microsoft Excel or in a similar program, please remake the tables using the feature in Word. |
| Font | Times New Roman, size 10. |
| Line spacing | Simple. |
| Spacing before and after paragraphs | 3 pt. |
| Table colors | Use only black and white (grayscale). |
| Title | The table title must be brief, clear and explanatory. It should be placed above the table, in the top left corner, and on the next line, just below the word Table (with a capital initial), followed by the number that designates it. The tables are presented with Arabic numerals in sequence and within the text as a whole. Eg: Table 1, Table 2, Table 3, and so on. |
| Citation of tables | When citing tables in the text, type only the number referring to the table, for example Table 1, Table 2, Table 3 and so on. (the word 'Table' should be presented with the first letter capitalized). Never write 'table below', 'table above' or 'table on page XX' because the page numbers of the article may change while formatting. |
| Table notes | The font used in the notes of the table should be Times New Roman, size 10, single spaced. The notes should be described in the footnote of the table, and they serve to indicate the Source of the information of the table, and other information important to understanding the table. |

## 3.2 Figures

The figure should show a flow chart, a chart, a photograph, a drawing or any other illustration or textual representation.

The figure should be displayed with its information visible and adequate for its understanding, and should be formatted as follows:

| | |
|---|---|
| Font | Times New Roman, size 10. |
| Figure colors | Use only black and white (grayscale). |
| Format | Figures should be submitted in an editable format. |
| Title | It explains the figure concisely, but discursively. The title should be placed under the figure and numbered with Arabic numerals in sequence, preceded by the word Figure (with initial capital). Eg: Figure 1, Figure 2, Figure 3, etc. After the title, any other information necessary for clarification of the figure or source must be added as a note. |
| Captions | The caption is the explanation of the symbols used in the figure and must be placed within the limits of the figure. |
| Size and proportion | Figures must fit the dimensions of the journal. Therefore, a figure should be drawn or inserted into the article so that it can be reproduced in the width of a column or page of the journal to which it will be submitted. |
| Citations in the main text | When citing a figure in the text type only the number referring to the figure, e.g. Figure 1, Figure 2, Figure 3 and so on. (the word 'Figure' should be presented with the first letter capitalized). Never write 'figure below' figure above ', or even 'figure on page XX' because the page numbers of the article can be changed during formatting. |

## 4. Citations and References

For the full version of the standards of citations and references according to APA (American Psychological Association), access http://www.repec.org.br/index.php/repec/article/view/1607/1237.