ISSN 1981-8610

repec

English version

Revista de Educação e Pesquisa em Contabilidade

Journal of Education and Research in Accounting

REPeC, Brasília, v. 17, n. 3, Jul./Sep. 2023
Available online at www.repec.org.br
DOI: http://dx.doi.org/10.17524/repec.v17i3

ABRACICON
ACADEMIA BRASILEIRA
DE CIÊNCIAS CONTÁBEIS

Revista de Educação e Pesquisa em Contabilidade
Journal of Education and Research in Accounting

ISSN 1981-8610 Quarterly journal, digital and free published by Brazilian Academy of Science in Accounting (Abracicon)

EDITORIAL TEAM

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REPeC uses the Journal Electronic Editing System (SEER) for management of the periodical.

The Electronic Editing System (SEER) was translated and adapted from the Open Journal Systems (OJS) by the Brazilian Institute of Information in Science and Technology (IBICT). This free software, developed by the British Columbia University from Canada, aims at assisting scientific journals editing in each stage of the process, from submission and consultants evaluation to online publication and its indexation.

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REPeC: Journal of Education and Research in Accounting [eletrônic issue] / Brazilian Academy of Science in Accounting – v.1, n.1 (dec. 2006 /mar. 2007)-. -- Brasília: CFC, 2007-.
Quarterly
ISSN: 1981-8610
Access Mode: http://www.repec.org.br

1. Accounting Sciences 2. Accounting I. Federal Council of Accounting II. Title.
CDU-657

Catalographic Label prepared by Librarian Lúcia Helena Alves de Figueiredo CRB 1/1.401

Revista de Educação e Pesquisa em Contabilidade
Journal of Education and Research in Accounting

Periódico Trimestral, digital e gratuito publicado pela Academia Brasileira de Ciências Contábeis | Available online at www.repec.org.br

REPeC, Brasília, v. 17, n. 3, Editor's Word, p. 247-248, Jul./Sep. 2023 | ISSN 1981-8610

Editor's Word

Dear reader, we are delivering the third issue of 2023, and I would like to present and congratulate the articles published in this edition. Thank all the authors who submitted their manuscripts, but which, unfortunately, were not approved.

The first invited article was written by Vinícius Gomes Martins and Giuseppe Trevisan, bringing to light endogeneity and the importance of quasi-experiments for causal inference in Accounting research. They mainly present the models and studies in the field.

João Fernandes Barcellos, Nadia Cardoso Moreira, and Silvania Neris Nossa wrote the second article in this issue. It presents an analysis of whether intangibility, working capital, and working capital management influence a company's level of financial difficulty. The results show that the higher the working capital and the better its management, the less likely a company will find itself in financial difficulty. Increasing working capital and improving its management reduces the likelihood of companies facing financial difficulties to experience even more severe and possibly irreversible levels of financial difficulty. No evidence was found regarding intangibility.

The third article, written by Alann Inaldo Silva de Sá Bartoluzzio, Fernanda Filgueiras Sauerbronn, and Cláudia Ferreira da Cruz, presents Situational Analysis (SA), its theoretical and procedural assumptions to enable its application in Accounting research. The manuscript presents an analytical alternative not limited to events' micro, meso, or macro levels. Aware of social complexities, the essay enables recognizing the ecologies operating in the situation repositioning research at individual, collective, and discursive levels. Researchers can adopt SA to develop a research model that challenges the status quo and highlights unexplored facets of complex situations.

The fourth article was written by Mikaéli da Silva Giordani, Inaê de Sousa Barbosa, and Roberto Carlos Klann. It presents an analysis of the relationship between CEOs using LinkedIn to disseminate corporate information and the practice of earnings management. The findings show a positive relationship between CEOs' use of LinkedIn and the practice of earnings management through accruals. However, this same relationship was not identified for earnings management through real activities. The sensitivity test indicated that the use of LinkedIn by CEOs is positively related to AEM practices, both to increase and reduce the profits of the companies addressed in the study.

The fifth article, by Gabriel de Vasconcelos Rosa and Henrique Portulhak, aims to investigate the contribution of the ANPCONT Congress to research on Public Sector Accounting (PSA). The characteristics of the studies discussed in the PSA's thematic fields are presented, along with the rate at which these studies are converted into definitive publications. Additionally, the characteristics of the studies converted into publications are identified. The studies on PSA obtained a lower conversion rate than the general rate identified in previous studies. A more significant number of studies presented in a given edition did not necessarily result in more studies converted into definitive publications. The New Public Management paradigm, the quantitative approach, and the documentary strategies were the most predominant among studies. Economic theories were also widely adopted, while cities were the preferred unit of analysis, along with efficiency and fiscal management topics.

Flávia de Oliveira Rapozo and Talles Vianna Brugni wrote the sixth article. It aimed to analyze the influence of alternative work arrangements (AWAs) on work-home balance (WHB) and technostress (TS). Furthermore, the effect of WHB and TS on the job satisfaction (JS) of accountants and employees of accounting and auditing companies in Brazil was verified. The results show that AWAs positively affected TS and negatively impacted JS. However, no statistically significant differences were found for the impact on WHB. The results indicate a positive relationship between WHB and JS.

Finally, as shown in its objectives, I emphasize that REPeC is not a publication only linked to education but to several other fields, such as financial, managerial, public, tax, and auditing, among others.

Without further ado, I would like to thank our invaluable referees and all the researchers who submitted their papers to REPeC. Congratulations to those who had their papers approved. The demand is reasonably high, and the road to the final publication is arduous.

Thank you once again. I hope you enjoy this new issue.

Academic greetings.

Gerlando Lima, Ph.D.
Editor in Chief.

Revista de Educação e Pesquisa em Contabilidade
Journal of Education and Research in Accounting

Periódico Trimestral, digital e gratuito publicado pela Academia Brasileira de Ciências Contábeis | Available online at www.repec.org.br

REPeC, Brasília, v. 17, n. 3, art. 1, p. 249-268, Jul./Sep. 2023 | DOI: http://dx.doi.org/10.17524/repec.v17i3.3192 | ISSN 1981-8610

Effects of Intangibility, Working Capital, and Working Capital Management on Multilevel Corporate Financial Distress

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Abstract

Objetive: To analyze whether intangibility, working capital, and working capital management influence the companies' level of financial distress.

Method: Unlike the literature that only distinguishes between companies facing financial distress and not facing financial distress, this study used a financial distress metric to allocate the companies into 3 levels of financial distress. An Ordered Probit model for Panel Data was used to address 1,968 observations of companies listed on B3 from 2011 to 2020.

Results: The higher a company's working capital and the better its management, the smaller the likelihood of it facing financial distress. Increasing working capital and improving management decreases the company's likelihood of facing severe and potentially irreversible financial distress. No evidence was found regarding intangibility.

Contributions: These results contribute to the literature, considering a lack of empirical evidence on the subject in a country with low competition among financial institutions, and to accounting consulting professionals, entrepreneurs, and regulators who can use these results to avoid, mitigate, or deal better with unfavorable financial situations with the potential to affect the financial market as a whole.

Keywords: Levels of Financial Distress; Business Risk; Intangible Assets; Financial Crises; B3.

Published in Portuguese and English. Original Version in Portuguese.

Round 1: Received in 11/4/2022. Review requested on 12/29/2022. Round 2: Resubmited on 2/24/2023. Review requested on 4/3/2023. Round 3: Resubmited on 5/2/2023. Accepted on 2/9/2023 by Vinícius Gomes Martins, PhD (Editor assistant) and by Gerlando Augusto Sampaio Franco de Lima, PhD (Editor). Published on 9/30/2023. Organization responsible for the journal: Abracicon

1. Introduction

This study's objective was to test whether intangibility, working capital, and working capital management impact the companies' level of financial distress. In times of high volatility and uncertainty, such as financial crises, companies must take precautions and signal positive and negative aspects to ensure their robustness and perpetuity (Zarb, 2018; Exame, 2023a). Hence, the professionals assessing the market demand must be capable of distinguishing between financially healthy and unhealthy companies to ensure the proper supply of resources, as this is when financing institutions determine the allocation of resources, risks, and returns (Lizares & Bautista, 2020; Exame, 2023a). Hence, the results of empirical research can support the identification of companies more likely to experience financial distress, facilitating the development of skills among professionals to select companies before providing resources, including risk pricing, considering that financial crises and changes in interest rates can affect both debtors and those providing financial resources (Lizares & Bautista, 2020; Exame, 2023a).

The economy depends on the success of companies (Gregova, Valaskova & Adamko, 2020; Zanon & Dantas, 2020). However, the rapid development of economic globalization and the environment in which companies operate has become increasingly complex and unpredictable, occasionally leading companies to experience unfavorable financial events (Zhang & Wang, 2014).

A company's financial distress is strongly linked with undesirable consequences, such as layoffs, defaults, no dividend distribution, a drop in share prices, and difficulties raising funds and getting credit from financial institutions (Gregova et al., 2020). Additionally, compared to other countries, the Brazilian market has a small number of banks, which may increase the cost of capital in the business environment. In addition to the borrower's financial health, Radebaugh and Gray (1993) state that the cost of capital for companies may also be a function of inflation, international issues, accounting regulation, economic growth, the level of education of the parties involved, social and environmental issues, code-law/common-law environment, taxation, shareholder protection, and the political system. Vieira Filho and Funchal (2016) note that, besides corruption issues, there are few credit options for businesses in the Brazilian market, and it is an environment in which the interests of minority shareholders are less recognized than those of majority shareholders. Considering this context, Brazil is a favorable environment for studies addressing the companies' financial problems, as its capital market is less expressive, few sectors have access to resources with subsidies from the Brazilian government and, as noted by Vieira Filho and Funchal (2016), the high-interest rates applied in Brazil. Duarte et al. (2020) agree with Vieira Filho and Funchal (2016) when analyzing the credit supply during the pandemic when companies with financial difficulties were penalized with a higher cost of capital than that applied to companies enjoying better financial health (Duarte et al., 2020). Companies with sound financial health are more easily approved for credit and, for this reason, shrink the credit market, leaving companies in financial distress with credit options that present a higher cost of capital (Duarte et al., 2020)

Such a negative context requires managers and financial analysts to study the companies' financial difficulties to understand the factors leading to financial problems and how to avoid or counter them (Gregova et al., 2020; Exame, 2023a). The motivation to study such a topic is that by understanding an unfavorable situation better, economic agents can prepare for difficult times by considering more precise actions, creating alternatives and protective measures (Exame, 2023a) by allocating capital according to the projected context, whether expanding or restructuring businesses (Kovacova & Kliestik, 2017; Sant'Anna et al., 2022) or monitoring interest rates (Exame, 2023a; Exame 2023b).

Note that the literature addresses financial distress considering only two possibilities: the company is either dealing with financial distress or not (Glover, 2016). However, as Farooq, Qamar, and Haque (2018) note, there are levels of financial distress, and it is important to classify these levels to conduct studies more aligned with reality. Hence, Farooq et al. (2018) introduced a new perspective on measuring financial distress. This new method has not yet been tested in the Brazilian market; however, it can help regulators discuss the actions of financial institutions in implementing contractual clauses among Brazilian companies to help mitigate risks to the Brazilian financial market.

Farooq et al. (2018) presented financial distress but did not develop a model to study the factors leading companies to experience financial adversities. Therefore, there is a gap in the literature due to a lack of Brazilian studies addressing the factors leading companies to experience different levels of financial problems. Another gap concerns verifying whether the method Farooq et al. (2018) proposed also works in Brazil, a market where there is less competition between the suppliers of financial resources. Hence, the scale proposed by Farooq et al. (2018) and not yet applied in Brazil classifies levels of financial distress into four: (zero) – companies not facing financial difficulties, (one) – mild level of financial distress, (two) – intermediate level of financial distress, and (three) – severe level of financial distress. In other words, studying the different levels of financial distress and understanding the determinant factors is justified in a developing country with restricted banking resources. Additionally, this is a context yet to be addressed in the literature. Hence, this study is intended to seek evidence on the factors (intangibility, working capital, and working capital management) that may lead companies to experience different levels of financial distress.

Intangibility is represented by the amount of intangible assets with respect to the companies' total assets. Examples of intangible assets include brands, patents, software, and technologies developed internally. Some sectors and sizes demand more attention and new monitoring mechanisms from lawmakers and banks supplying capital (Exame, 2023a). Higher amounts of intangible assets provide a competitive edge, given its ability to generate products, processes, and solutions that can optimize a company's operation, making it more competitive and financially healthier, hence, less vulnerable to financial adversities (Lizares & Bautista, 2020; Bhattacharya, 2021).

Working capital provides information regarding short-term liquidity, which is essential for shareholders and creditors to observe the degree of short-term solvency when comparing a company's rights and most immediate obligations (Rajendran, 2019). Companies with higher working capital indicators tend to be healthier and face fewer financial adversities because they are less centered on passive than on assets in the short term (Nobanee & Abraham, 2015).

Finally, this study's last factor of interest is the management of working capital represented by the cash cycle, measured by the difference between the operating cycle and the average payment period. The longer the cash cycle, the longer the company finances itself and its customers with its own resources. Otherwise, the longer the period the company has its operation financed by third-party resources. The longer a company's cash cycle, the worse the working capital management is because it more frequently finances itself and its customers than its creditors (Talonpoika et al., 2017). An Ordered Probit for Panel Data was estimated in this study considering 1,968 observations of active companies listed on the stock exchange *Brasil, Bolsa, Balcão (B3)*. Financial data were obtained from the Economatica database from 2011 to 2020.

The results indicate that intangibility does not influence a company's likelihood of experiencing different levels of financial adversities. Even though the literature shows evidence that intellectual capital can make a company less vulnerable to financial distress (Shahwan & Habib, 2020), intangible assets (including licenses, patents, etc.) do not seem to have the same effect in the Brazilian market. The higher the working capital and the better its management, the higher the likelihood of a company not experiencing financial difficulties, and even if experiencing financial problems, more working capital and better management decrease the chance of a company facing irreversible financial problems. Therefore, both working capital and its management are essential to keep a company's health and robustness and prevent financial adversities, indicating a greater ability to honor its obligations and manage its resources in the short term.

The interest in studying such relationships in Brazil concerns the particularities of developing countries, with few bank options for raising funds, which may increase the likelihood of companies facing financial adversities. For example, the level of economic development and legal and capital costs for companies experiencing financial distress are comparatively higher in less developed countries, such as Brazil, than in more developed countries, like the United States. (Céspedes, González & Molina, 2010). Financial distress processes are longer, more bureaucratic, and more expensive due to a less robust code of law than that of more developed countries, where there is a better established legal framework (common law). Such a characteristic may add new conclusions to the literature (Céspedes et al., 2010) and the market assessing resource demand (Lizares & Bautista, 2020).

This study contributes to the literature with empirical evidence on financial distress models proposed by Farooq et al. (2018), and also verifies the determinants of financial distress (intangibility, working capital, and working capital management) of Brazilian companies. The purpose is to provide a more comprehensive explanation of the factors affecting the likelihood of companies experiencing different levels of financial distress. Studying financial distress and its determinants provides a practical contribution to regulators, financial institutions, and companies so they have more tools and empirical evidence to develop contracts that enable mitigating risks in the market as a whole (Farooq et al., 2018; Lizares & Bautista, 2020; Exame, 2023a; Exame, 2023b).

2. Theoretical framework

2.1 Financial difficulties

Corporate financial distress is usually characterized by a decrease in headcount, delays in the payment of obligations, delayed and lower dividend payments to shareholders, and decreased product quality (Safiq, Selviana, & Kusumastati, 2020). Financial adversities concern a situation in which a company's operating cash flow is constantly below its financial expenses (Geng et al., 2015).

Farooq et al. (2018) and Inekwe, Jin, and Valenzuela (2018) agree that financial distress does not emerge from a one-step process but from multiple heterogeneous adverse events. Many businesses fail due to external factors, such as a local or global economic crisis, or internal factors, such as governance or capital management failures (Inekwe, Jin, & Valenzuela, 2018). In this sense, Gregova et al. (2020) highlight the need to study corporate financial distress, as it is strongly linked to undesirable consequences, even in developing countries: employee layoffs, defaults, adverse effects on the distribution of dividends and the companies' shares price (Gregova et al., 2020) and even the bankruptcy of financial institutions (Exame, 2023a; Exame, 2023b).

The risks for companies in financial distress may be even more significant in the Brazilian market than in other countries because of the small number of banks in Brazil, which may increase the cost of capital for the business environment (Radebaugh & Gray, 1993). Fundraising and the cost of raising funds is a function of inflation, international affairs, accounting regulation, economic growth, education of the parties involved, social and environmental issues, legal environment (code law/common law), taxation, shareholders protection, political system (Radebaugh & Gray, 1993), and the risks inherent to the sector (Exame, 2023a) besides governance practices (Exame, 2023b).

The literature addresses different ways of measuring financial distress, either by identifying a significant decrease in cash reserves (Moreno-Bromberg & Vo, 2017) or by allocating companies under different classifications: judicial recovery - Brazil or in special treatment - China (Geng et al., 2015); lowering expectations; and according to shareholders' interest in the company, represented by a significant drop in the price of shares (Tandiontong & Sitompul, 2017) or identifying companies constantly operating with a negative cash flow (Geng et al., 2015). Some industries are more exposed to risks and, therefore, demand more attention from financial institutions and regulators (Exame, 2023a).

Farooq et al. (2018) recommend that future studies not define financial distress using a single criterion but classify it as mild, medium, or severe. Such a classification brings a new factor, expanding the range of what financial distress is considered to be (Farooq et al., 2018). The design of degrees of financial distress considered that healthy companies initially face profitability problems, which is when the first level of financial distress is defined. The continuity of such problems results in liquidity problems; hence, the second level of financial distress concerns a situation in which the company experiences constant losses and liquidity problems. When severe liquidity is reached, i.e., when a company does not have sufficient assets to meet its financial obligations, it has reached the third level of financial distress (Farooq et al., 2018). According to Exame (2023), some sectors may experience a higher level of financial distress, which does not necessarily represent a risk of default. In other words, other factors need to be monitored depending on the company's sector.

Generally, the more indebted, the more likely a company finds itself in financial distress, consequently increasing its financial risk; such a risk interests creditors, shareholders, and managers, as it supports decision-making (Tandiontong & Sitompul, 2017). Pamplona et al. (2020) studied Brazilian family and non-family businesses and concluded that the different levels of indebtedness may affect the probability of experiencing financial distress. A company's total debt increases the likelihood of experiencing financial distress, while long-term debt decreases its chance of facing financial distress (Pamplona et al., 2020).

Farooq et al. (2018) analyzed the likelihood of companies in different financial distress levels to recover. They noted that companies classified at level zero are not in financial distress, while there is a high level of financial distress at level three. Healthy companies are more likely to face severe liquidity problems when they face moderate liquidity problems as the first level, and they may recover from any level of financial distress. However, recovery is less likely when facing severe liquidity (Farooq et al., 2018).

When a company is in financial distress, its board of directors tries to avoid bankruptcy by restructuring its assets and liabilities by redistributing resources and obligations (Cardoso & Peixoto, 2019); however, capital costs may be higher in this context. Vieira Filho and Funchal (2016) found evidence that there are few credit options for the Brazilian business community, generally with high-interest rates that are applied in Brazil. Duarte et al. (2020) studied credit supply during the pandemic and concluded that companies facing financial adversities were penalized with higher capital costs and lack of resources. Duarte et al. (2020) concluded that companies with good financial health are more easily approved for credit and, as a result, shrink the credit market, leaving companies in financial distress with more costly credit options.

2.2 Intangibility

Intangible assets consist of the stock of intangible resources that enter the production process and are necessary for creating and selling new or improved products and processes (Arrighetti, Landini & Lasagni, 2014). By definition, these assets do not have tangibility but have value, and based on this value, they compose the companies' body of non-current assets (Azin & Alias, 2019). Intangible assets include those produced internally, such as construction projects and internal software, and assets acquired externally, such as licenses and patents (Arrighetti et al., 2014).

A substantial and growing portion of corporative assets consists of intangible assets, and researchers have long recognized that intangible assets are critical for a company's value, influencing financial policies, results, and failures (Lim, Macias & Moeller, 2020). The role of a company's intangible assets is to strategically increase its competitiveness, value, and management capacity, hence minimizing the risk of financial distress (Shahwan & Habib, 2020). Intangible assets have been increasingly relevant in the modern economic globalization context, where there is a greater demand for information, as it influences the competitiveness in the market organization (Osinski, Selig, Matos & Roman, 2017).

The literature has sought to examine the role of intangible assets in improving financial performance and, therefore, decreasing the companies' likelihood of facing financial distress (Shahwan & Habib, 2020). The results of Shahwan and Habib (2020) suggest verifying whether intangible assets can affect a company's operation, making them less vulnerable to financial adversities. Therefore, considering a context of corporative competitiveness and potential financial distress with the potential to constantly demand performance and resilience from companies (Osinski, Selig, Matos & Roman, 2017), the objective is to test whether the higher the value of a company's assets, the lower its level of financial distress. Therefore, the first hypothesis is proposed:

H1: The higher a company's intangibility, the lower its likelihood of facing financial distress.

2.3 Working capital

Working capital is an accounting indicator measured by the difference between current assets and liabilities (Pouraghajan & Emamgholipourarchi, 2012). This relationship between short-term assets (e.g., cash and inventories) and short-term financing sources (e.g., suppliers and short-term financing) brings information regarding a company's short-term investment and strategies and short-term financing (Kayani, Silva & Gan, 2020).

Such an indicator indicates a company's solvency of short-term obligations; hence, the higher this indicator is, the more comfortable the company is to pay its obligations using its short-term resources (Almansour, 2015). High working capital can allow companies to increase their sales by granting longer payment terms to their customers (Baños-Caballero, García-Teruel & Martínez-Solano, 2014). However, to increase working capital, the company can opt for long-term debt, consequently facing higher financial expenses - which, if not well managed, may lead the company to financial distress (Baños-Caballero et al., 2014). This strategy, however, is less risky than raising money through short-term debt (Safiq et al., 2020).

The decision to finance the level and sources of investment together with working capital financing sources is a matter of working capital policy (Altaf, 2020). A company can be aggressive or conservative in its approach to working capital financing (Altaf, 2020). If a company can sustainably generate profits, it is more likely to make an efficient and efficacious use of working capital (Safiq et al., 2020). However, a company with incompetent management, with low working capital levels, presenting more current liabilities than current assets is likely to threaten its survival (Safiq et al., 2020). Therefore, high working capital levels increase the likelihood of companies avoiding financial distress in the short term (Shahdadi, Rostamy, Sadeghi Sharif, & Ranjbar, 2020). Given the importance of working capital, we seek to relate it to different levels of financial distress and verify its impact on a company's likelihood of facing different levels of financial distress. Hence, the second hypothesis is presented:

H2: The higher a company's working capital, the lower its likelihood of facing higher financial distress levels

2.4 Working capital management

In addition to the working capital itself, another essential component of a company's financial attributes is the management of working capital, which, according to Pouraghajan and Emamgholipourarchi (2012), directly impacts a company's financial indicators. Managing working capital is relevant because it influences the business profitability and risk, consequently influencing its financial health (García-Teruel & Martínez-Solano, 2007).

Efficient working capital management includes planning and controlling current assets and liabilities to mitigate the risk of not meeting short-term obligations and preventing excessive asset investments (Pouraghajan & Emamgholipourarchi, 2012). For this reason, working capital management is a priority in the corporate world, and companies using its components effectively are highly likely to have a competitive advantage over their competitors (Al-Qudah & Al-Afeef, 2015). Such an advantage is often generated from the company's growth capacity, which can be achieved through operational efficiency and the optimization of working capital management (Botoc & Anton, 2017); when working capital is optimized, financial resources are generated to foster growth (Boțoc & Anton, 2017).

The cash cycle is used to measure working capital management, as it implicitly contains the company's payment, receipt, and inventory terms. The higher this indicator, the more a company is financed by third parties instead of financing them, and its terms are more efficient (Pouraghajan & Emamgholipourarchi, 2012). This indicator seeks to capture the quality of management of short-term resources that make up working capital; on average, the longer the cash cycle, the worse the working capital management (Kayani et al., 2020). Therefore, it is expected that the better the working capital management is, the better the company's short-term resources are applied, the better its deadlines are optimized, and the lower its financial distress. Thus, the third hypothesis is presented:

H3: The better a company's working capital, the lower its likelihood of facing higher financial distress levels

3. Method

3.1 Sample

Data were collected from the companies listed on the Brazilian stock exchange, Brasil, Bolsa e Balcão (B3), using the secondary database Economatica. Data from the companies' balance sheets and income statements were collected annually and corrected for inflation. Data on macroeconomic control variables, such as interest, exchange rate, and inflation (Extended National Consumer Price Index - *IPCA*), were taken from the Central Bank, and annual growth from the Gross Domestic Product from the Brazilian Institute of Geography and Statistics (IBGE).

The analysis covers from 2011 to 2020. It composes an unbalanced panel basis because the International Accounting Standards (IFRS) were only adopted in Brazil from 2010 onwards. Table 1 shows the sample treatment in detail. The initial database comprises 4,532 company-year observations from 2010 to 2020 without filters or discarding data. The financial companies were excluded because the characteristics of their financial balances require a different interpretation. After disregarding the missing and invalid values in all the metrics proposed in this study and the control variables, the final sample remained with 1,968 company-year observations from 2011 to 2020. The continuous variables were winsorized at 1%, in both tails, to mitigate bias caused by outliers when estimating the coefficients of the model proposed.

Table 1
Sampling

Action	Observations Excluded	Total observations
Data collected	0	4,532
Companies from the financial sector excluded	407	4,125
Observations missing information on financial distress excluded	1,248	2,877
Observations missing information on intangibility excluded	564	2,313
Observations missing information on working capital and working capital management excluded	338	1,975
Observations missing information on control variables excluded	7	1,968
Final sample		**1,968**

Source: developed by the authors.

3.2 Model and variables

The model used to meet the study's objective is presented in Equation (1):

$$DF_{it} = \beta_0 + \beta_1\, Intangibilidade_{it} + \beta_2\, CG_{it} + \beta_3\, Gestão\_CG_{it} + \sum \beta_k\, Controles_{it} + \varepsilon_{it} \quad (1)$$

Where: DF_{it} represents the multilevel measure of financial distress of company i in year t, which ranges from zero to three, where zero translates into less financial distress and 3 into more financial distress. $Intangibilidade_{it}$ ty represents the intangibility measure of company i in year t. CG_{it} represents the measure of working capital of company i in year t, and $Gestão\_CG_{it}$ represents the measure of working capital management of company i in year t. Ordered Probit for Panel Data was used, considering that financial difficulty is a discreet variable ranging from 0 to 3.

According to hypotheses H1, H2, and H3, $\beta_1, \beta_2, \beta_3$ are expected to be negative, indicating that the more intangibility, the more working capital, and the better a company's working capital management, the less likely a company is to face financial distress or potentially irreversible high levels of financial distress.

Regarding the explained variable, according to Farooq et al. (2018), financial distress can be classified into four levels:

$$DF_{it} = \begin{cases} 0; \text{ if company } i \text{ is not facing financial distress in year } t \\ 1; \text{ if company } i \text{ is facing mild financial distress in year } t \\ 2; \text{ if company } i \text{ is facing an intermediate level of financial distress in year } t \\ 3; \text{ if company } i \text{ is facing severe financial distress in year } t \end{cases}$$

Mild financial distress, called declining earnings, occurs when a company reports yearly losses or records declining earnings for two consecutive years. ***Intermediate*** financial distress, called moderate liquidity, occurs when a company does not generate enough funds to comply with its obligations to creditors. The Interest Coverage Ratio (ICR), measured by the ratio between EBIT (earnings before interest and taxes) and financial expenses, is analyzed to verify this condition. Thus, a company is said to be at an intermediate level of financial distress if its ICR is less than 1 for 2 consecutive years or less than 0.8 in the current year. Finally, ***severe*** financial distress, or severe liquidity, occurs when a company's net worth is negative, i.e., when liabilities exceed total assets.

As for the explanatory variable, corresponding to the first hypothesis – intangibility –, the definition by Ji and Lu (2014) was used: the ratio between intangible assets and the total assets of company *i* in year *t*, according to Equation (2):

$$Intangibilidade_{it} = \frac{Intangíveis_{it}}{Ativo\ Total_{it}} \qquad (2)$$

Regarding working capital – the second hypothesis, CG_{it} –, is defined by the difference between the current assets and liabilities of company *i* in year *t* (Altaf, 2020). However, this variable was divided by the total assets of company *i* in year *t*, as shown in Equation (3), to control for working capital according to the company's size and treat companies of different sizes, as performed by Ohlson (1980). Without this control, larger companies would naturally present more extreme working capital values than smaller companies.

$$CG_{it} = \frac{(Ativo\ Ciculante_{it} - Passivo\ Circulante_{it})}{Ativo\ Total_{it}} \qquad (3)$$

Working capital management (third hypothesis), $Gestão\_CG_{it}$ is based on the Cash Cycle value, as studied and defined by Fernández-López, Rodeiro-Pazos, and Rey-Ares (2020); the longer the cash cycle, the worse the working capital management. Therefore, the variable $Gestão\_CG_{it}$ was defined as the negative value of the Cash Cycle of company *i* in year *t*. Thus, the longer the Cash Cycle, the lower the $Gestão\_CG_{it}$ will be, indicating worse working capital management, according to Equation (4):

$$Gestão\_CG_{it} = (-1) * (Ciclo\ de\ Caixa_{it}) \qquad (4)$$

The Cash Cycle is the difference of the Operating Cycle and the Average Payment Period. The Operating Cycle is measured by the sum of the Average Inventory Term and the Average Receipt Period, and the Average Payment Term is the ratio between the Supplier's account and the Purchasing account multiplied by 360 (days). The Average Inventory Term is the ratio between the inventory account and the Cost of Goods Sold multiplied by 360 (days). The Average Collection Period is the ratio between Accounts Receivable and Net Revenue multiplied by 360 (days).

Regarding the control variables, these were included in this study to mitigate the risk of potential bias from variables omitted in the model. Additionally, dummy variables of sector (according to B3 classification) and year were included to remove potential sectoral and temporal trends. The companies' long-term indebtedness *(Endividamento)*, calculated by the ratio between the total long-term indebtedness and the total assets, while being an important element of leverage to generate growth, must also be taken into account in the financial distress models, as it is a fundraising modality that generates financial burden and negatively affects results via financial expenses (Sarkar, 2020).

In addition to the conventional variables, the companies' volatility of profits *(Vol_Lucros)*, measured by the standard deviation of net profits over net revenues, was included; this control is essential in models dealing with financial distress (Zarb, 2018).

The size of a company *(Tamanho)* can be related to the financial distress variable, considering that the larger the company, the more resources it may have to avoid financial distress – such as, for example, having more accessible credit and bargaining power with suppliers. It indicates that the larger a company's size, the less likely it will get into financial distress. Hence, it is recommended to include it in the model as a control, measured by the natural logarithm of total assets (Situm, 2015).

The company's revenue growth *(Cresc_Receita)*, measured by the percentage change in the net revenue for a given year compared to the previous year, should also be considered a relevant factor to avoid financial distress. The reason is that the greater the growth, the better the projection of a company's long-term financial situation and, therefore, the less likely it is to get into financial distress (Baños-Caballero et al., 2014).

The macroeconomic environment is important when analyzing financial distress, considering that companies are directly exposed to external factors that can potentially lead them, their customers, investors, or suppliers to change their behavior in the market, thus changing the course of their business. (Kliestik, Misankova, Valaskova & Svabova, 2018). Therefore, control variables with macroeconomic information – such as the exchange rate *(Cambio)*, measured at the end of the period, of the Real on the Dollar, and the interest rate *(Selic)*, measured by the basic interest rate of the Brazilian economy – may directly affect the revenue and/or costs of companies which, consequently, may affect their investments and the cost of raising funds, thus possibly making access to capital more difficult and increasing the cost of borrowing, imposing a burden more significant than expected and leading companies to experience financial distress (Mok, 1993).

Inflation *(Inflacao)* is a variable that represents the monetary stimulus, measured by the IPCA accumulated in the period, which may bring unpredictability in future prices or increase the cost of production, often without passing it on to the customers' final price (Tandiontong & Sitompul, 2017). The growth of the gross domestic product, calculated as a percentage change, represents an improvement in the macroeconomic environment that boosts businesses. In a growing environment, the greater the business opportunities, the more customers may be willing to buy products, and the greater the opportunities may be to avoid financial distress (Inekwe et al., 2018).

4. Data Analysis

4.1 Descriptive Statistics

Table 2 presents the frequency of observations according to year and level of financial distress. Note that the number of observations increases in an unbalanced panel. Most companies have faced no financial distress (*DF*=0) over the years, except for 2011. The intermediate level of financial distress (*DF*=2) follows with the second highest frequency per year.

Table 2
DF frequency according to year.

YEAR	DF				
	0	**1**	**2**	**3**	**Total**
2011	0	0	54	13	**67**
2012	88	22	61	15	**186**
2013	95	22	56	18	**191**
2014	87	34	56	19	**196**
2015	50	36	84	26	**196**
2016	55	24	95	27	**201**
2017	85	13	80	26	**204**
2018	98	11	75	31	**215**
2019	115	17	70	34	**236**
2020	139	17	79	41	**276**
Total	**812**	**196**	**710**	**250**	**1.968**

Source: developed by the authors.

Table 3 presents the descriptive statistics of the variables of the model proposed. Note that all variables have the same number of observations. It is worth noting that the variables *Cambio*, *Selic*, *Inflacao*, and GDP present 1,968 observations, but only 10 different values repeated for all companies in the same year.

Table 3
Descriptive Statistics

Variable	N	Minimum	Q1	Mean	Median	Standard deviation	Q3	Maximum
Intangibilidade	1.968	0	0,0026	0,1134	0,0226	0,1778	0,1560	0,7824
CG	1.968	-2,1171	-0,0010	0,0599	0,1081	0,4194	0,2623	0,7410
Gestão_CG	1.968	-6.784	-171,33	-238,24	-66,49	965,52	-17,19	2.966
Endividamento	1.968	0	0,0532	0,1990	0,1709	0,1765	0,2934	0,8933
Vol_Lucros	1.968	0,0071	0,0429	4,2000	0,0877	23,0566	0,2776	153,48
Tamanho	1.968	10,21	13,42	14,76	14,90	1,86	16,06	18,67
Cresc_Receita	1.968	-83,80	-10,51	7,53	1,24	58,86	12,27	469
Cambio	1.968	1,68	2,35	3,30	3,33	1,01	3,95	5,16
Selic	1.968	2,00	4,50	8,28	7,25	4,03	11,75	14,25
Inflacao	1.968	2,95	4,31	5,55	5,84	2,05	6,29	10,67
PIB	1.968	-4,06	-3,28	-0,10	1,32	2,68	1,78	3,97

Source: developed by the authors.

Note that the companies have an average level of 11.34% of intangible assets, with a minimum of 0% and a maximum of 78.24% of intangibility. The *CG* variable has a mean of 0.0599, indicating that, on average, the companies had 5.99% of their total assets in working capital. The minimum was -211.71%, and the maximum was 74.10% of total working capital assets. The variable *Gestão_CG* presented a mean of -238.24, which means that out of 360 days, the companies had 238 positive cash cycle days on average. The third quartile of the *Gestão_CG* variable is -17.19 (negative), implying that less than 25% of the companies presented a (positive) *Gestão_CG*, that is, they had a negative Cash Cycle (Table 3).

The Pearson correlation between the model's variables was calculated (results not listed). The statistically significant correlations (at 10%) between the model's independent variables range from -0.666 (*Cambio* and *PIB*) to 0.734 (*Selic* and *Inflation)*. The only strong correlation (below -0.7 or above 0.7) found was between *Selic* and *Inflation*, which may indicate a perfect collinearity problem. However, the maximum value of the VIF (Variance Inflation Factor) of the model's independent variables was 7.15 for the *Cambio* rate variable, followed by the VIF of 5.68 for the GDP variable, the others had a VIF lower than 5. The model was estimated without the variables *Cambio* and *PIB* (results not listed), and the results were similar, not changing the conclusions regarding this study's hypotheses. Therefore, we chose to keep the variables.

4.2 Estimated model's results

The model shown in Equation (1) was estimated to test the hypotheses using an Ordered Probit model for Panel Data estimated by the Maximum Likelihood Method, controlling for sector and year-fixed effects. The results are presented in Table 4. Table 5 presents the estimated probabilities of a company facing different financial distress levels according to working capital and working capital management.

According to the results of the Breusch–Pagan/Cook–Weisberg test for heteroscedasticity (p-value = 0.00%<1%), Table 4 shows evidence that the model has a heteroscedasticity problem; hence, errors robust to heteroscedasticity were estimated.

Table 4
Probit Ordenado

	DF	
	Coef.	**Estat. Z**
Intangibilidade	-0,3562	(-0,82)
CG	-3,4322	(-11,85)***
Gestão_CG	-0,0003	(-4,39)***
Endividamento	2,7340	(7,17)***
Vol_Lucros	0,0153	(5,79)***
Tamanho	-0,3324	(-6,75)***
Cresc_Receita	-0,0030	(-3,31)***
Cambio	-0,3851	(-1,44)
Selic	0,0356	(0,40)
Inflacao	0,1241	(2,22)**
PIB	-0,1156	(-2,80)***
Sector Fixed Effect		Sim
Year Fixed Effect		Sim
Number of Observations		1.968
P-Value of Breusch–Pagan/Cook–Weisberg test for Heteroscedasticity		0,0000

Note: *, **, and *** indicate significance levels at 10%, 5% and 1%, respectively.
Source: developed by the authors.

In this study, examples of intangible assets include: brands, patents, software, and technologies developed internally and which may give companies a competitive advantage, making them financially healthier and, therefore, less vulnerable to financial distress (Lizares & Bautista, 2020; Bhattacheryay, 2021). Table 4 shows that the coefficient of the *Intangibilidade* variable was not statistically significant (p-value>10%). Therefore, we have no evidence that *Intangibilidade* is related to the likelihood of companies facing different levels of financial distress; hence, hypothesis 1 (H1) was not confirmed. Thus, intangible assets can strategically increase a company's competitiveness, its value and management capacity, leading it to perform better (Osinski, Selig, Matos & Roman, 2017; Shahwan & Habib, 2020). However, it was not relevant in decreasing the companies' probability of facing different financial distress levels. According to Shahwan and Habib (2020), a company's intellectual capital makes it less vulnerable to financial distress, which does not seem to be the case when we look at intangible assets as a whole, including licenses, patents, etc.

Table 4 shows that the estimated coefficient of the variable is negative and statistically significant at 1% (p-value<1%), confirming hypothesis 2 (H2), i.e., the greater a company's working capital, the less likely it is to face higher levels of financial distress. This finding is in line with those of Baños-Caballero, García-Teruel and Martínez-Solano (2014) and Shahdadi, Rostamy, Sadeghi Sharif and Ranjbar (2020), indicating that greater working capital allows companies to increase their sales by granting longer payment terms to their customers and such an increase in sales reduces the likelihood of a company getting into financial distress. Even if a company gets into financial distress, more working capital reduces its chance of facing severe and potentially irreversible financial distress.

Panel A of Table 5 presents the estimated probabilities of companies facing different financial distress levels according to different levels of working capital (CG). Companies are more likely to face irreversible financial distress (99.89%) when there are lower CG levels (CG = -2.11). As CG increases (CG = -0.11), the chance of a company facing financial distress is even more significant, but it reduces the chance of it facing very severe financial distress (14.83%). The highest probability at the highest CG level (CG = 0.89), is the company not facing financial distress (89.12%).

Thus, there is a greater probability that a company faces severe financial distress at very low levels of working capital (CG=-2.11). At an intermediate level of working capital (CG =-1.11 and -0.11), the probability of facing severe financial distress decreases. However, it is highly likely to face an intermediate level of financial distress. Only when the working capital is positive, at its highest level, does the company have greater chances of not getting into financial distress.

Therefore, before working capital reaches very low levels, which may lead to severe financial distress, it will reach an intermediate level, taking the company to an intermediate level of financial distress. When it happens, the company may take measures to increase working capital and avoid severe and potentially irreversible financial distress.

Table 5

Average marginal effect

Panel A: Working capital average marginal effect								
	DF							
CG	**0**		**1**		**2**		**3**	
	Prob.	**Z Statistics**	**Prob.**	**Z Statistics**	**Prob.**	**Z Statistics**	**Prob.**	**Z Statistics**
-2,11	0,00003%	(0,47)	0,0001%	(0,51)	0,1090%	(0,79)	99,8909%	(722,69)***
-1,11	0,2178%	(1,40)	0,2705%	(1,63)	16,3423%	(3,41)***	83,1694%	(16,33)***
-0,11	22,5434%	(12,34)***	8,4795%	(9,75)***	54,1454%	(24,47)***	14,8317%	(8,55)***
0,89	89,1186%	(39,24)***	3,7463%	(5,25)***	6,8388%	(4,41)***	0,2962%	(2,49)**
Panel B: Working capital average marginal effect								
	DF							
Gestão_CG	**0**		**1**		**2**		**3**	
	Prob.	**Z Statistics**	**Prob.**	**Z Statistics**	**Prob.**	**Z Statistics**	**Prob.**	**Z Statistics**
-6,8	41,1366%	(26,52)***	9,2253%	(11,05)***	38,3486%	(23,50)***	11,2896%	(12,13)***
-3,6	41,1546%	(26,52)***	9,2252%	(11,05)***	38,3363%	(23,49)***	11,2839%	(12,13)***
-0,4	41,1725%	(26,51)***	9,2252%	(11,05)***	38,3240%	(23,48)***	11,2783%	(12,13)***
2,8	41,1905%	(26,51)***	9,2251%	(11,05)***	38,3117%	(23,47)***	11,2727%	(12,13)***

Note: *, ** e *** indicate levels of significance at 10%, 5% and 1%, respectively.
Source: developed by the authors.

As for the results regarding working capital management (*Gestão_CG*), Table 4 shows that the coefficient of the variable *Gestão_CG* is negative and statistically significant at 1% (p-value < 1%). This percentage indicates that, the better the working capital management, the less likely a company is to be in financial distress, and the less likely it is to experience higher financial distress levels, confirming hypothesis 3 (H3). These results corroborate the findings of Boțoc and Anton (2017), García-Teruel and Martínez-Solano (2007), Pouraghajan and Emamgholipourarchi (2012), and Qudah & Al-Afeef (2015), showing that working capital management is an important factor for a company's financial health.

Table 5, Panel B shows that, regardless of the *Gestão_CG*, the company has a higher estimated probability of not being in financial distress (*DF=0*). The worse the , the estimated probability of a company not facing financial distress reduces from 41.1905% to 41.1366%, and the probability of it facing severe (*DF*=3), intermediate (*DF*=2), or mild (*DF*=1) distress increases by 0.0169%, 0.0368%, and 0.0002%, respectively. Therefore, the estimated probability of a company facing certain levels of financial distress increases as working capital management worsens; such probability changes depending on the level of financial distress.

Therefore, reducing the volume of working capital without a counterpart that justifies such a decrease may render the company more vulnerable to financial distress. A very sharp decrease will make the company more susceptible to irreversible financial distress, as it will consume resources relevant to its financial health. Worsened working capital management, such as important changes in financial and operational terms that impact the cash cycle, may lead to a greater probability of financial distress, and more accentuated deterioration increases the probability of a company facing higher levels of financial distress.

5. Final Considerations

This study aimed to analyze the impact of intangibility, working capital, and working capital management on the likelihood of companies facing different financial distress levels. The results indicate that the greater the working capital and the better its management, the lower the probability of a company facing higher levels of financial distress. Additionally, the results indicate that before working capital reaches very low levels and leads the company to experience severe financial distress, it will reach an intermediate level of working capital and impose the company an intermediate level of financial distress. When this happens, the company may take measures to increase its working capital, avoiding severe and potentially irreversible financial distress.

The results do not indicate a relationship between intangibility and the likelihood of a company facing different financial distress levels. In general, the results on intangibility can support the market and regulators involved in the adjustment of contractual clauses of companies with the profile addressed here. As the results focus on intangibility in general in the Brazilian market, future studies are suggested to investigate the sectors with a high concentration of intangible assets precisely because these items need attention on the part of managers, financial market, and regulators when it comes to contractual monitoring in the case of financing.

This study contributes to the literature on the determinants of financial distress in Brazilian companies by applying a multilevel variable developed by Farooq et al. (2018) to assess the companies' different levels of financial distress. This approach differs from studies only investigating companies that are either facing or not facing financial distress. Empirical results related to working capital and working capital management provide practical contributions by showing that monitoring working capital and its management can mitigate the risk of companies facing financial distress. The results allow creditors to analyze a company's balance sheet over time and decide whether to finance its activities according to the working capital policy observed during different periods and what is believed to shield against severe financial distress. Thus, these results also support the improvement of more assertive contractual clauses, the monitoring of companies' risk, and regulators when considering the contexts experienced by Brazilian companies and financial institutions. Another contribution is that companies can better allocate the cost of capital in the Brazilian market through contractual clauses involving the application of these results. Thus, this study's results contribute to monitoring the risk of financial distress and severe and potentially irreversible situations in the Brazilian market. Finally, this study can help mitigate the cost of capital for less risky companies.

In practice, the managers of companies in developing countries, like in the case of the Brazilian market, have few bank options for raising funds. Considering this study's results, managers can observe their companies' financial distress level and decide how to allocate the resources that make up the working capital according to the level of financial distress. Managers can also seek long-term financing, change the company's capital structure, include more equity capital to replace short-term liabilities for financing, and increase working capital. Regarding working capital management, managers can restructure their cash cycle by negotiating deadlines with suppliers and customers, investing in logistics or internal machinery, and optimizing their processes to reduce the cash cycle.

Although intangible assets can be strategic to increase competitiveness (Osinski, Selig, Matos & Roman, 2017; Shahwan & Habib, 2020), they did not prove relevant in explaining the different levels of financial distress. In this sense, Shahwan and Habib (2020) argue that intellectual capital makes the company less vulnerable to financial adversities. A relationship between intangibility and financial difficulty levels was not found here, possibly because of the different characteristics of different intangibles. Therefore, the relationship between the different types of intangibles (e.g., human capital, licenses, patents, etc.) and the likelihood of a company facing different financial distress levels should be tested. Additionally, a suggestion is that these relationships be analyzed in different economic contexts since these relationships may be more pronounced in times of financial crisis. Finally, the possibility of controlling for the managers' educational level is suggested, as it may also directly interfere with companies' financial policies and potentially lead to different levels of financial distress over time.

Additionally, this study brings a discussion that adds to the market of resources suppliers, companies, and regulators, presenting an additional mechanism that managers, financial institutions, and Brazilian regulators can use to monitor companies; the crises affecting companies and financial institutions may affect the entire market (Exame, 2023a; Exame, 2023b).

One of this study's limitations concerns the unavailability of data, which prevented individual analyses of human capital, licenses, and patents as intangible assets. Future studies are suggested to address these variables in addition to exchange rate variations among companies operating in other markets, interest rates, startups, and small and medium-sized companies, as the results may differ in such contexts. Finally, this new multilevel financial distress metric is suggested to predict bankruptcy, non-payment, or debt renegotiation.

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Revista de Educação e Pesquisa em Contabilidade
Journal of Education and Research in Accounting

Periódico Trimestral, digital e gratuito publicado pela Academia Brasileira de Ciências Contábeis | Available online at www.repec.org.br

REPeC, Brasília, v. 17, n. 3, art. 2, p. 269-288, Jul./Sep. 2023 | DOI: http://dx.doi.org/10.17524/repec.v17i3.3221 | ISSN 1981-8610

Situational Analysis in Accounting Research: a Postmodern Perspective

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Abstract

Objective: Revise and illustrate the Situational Analysis (SA) method and its theoretical and procedural assumptions to enable novel inductive inquiry in accounting studies.

Method: We develop a theoretical essay on SA advances Grounded Theory, addressing the challenges of social life in the postmodern world. The essay focus on how accounting researchers can explore SA in diverse projects, especially those requiring multiple data about a particular phenomenon, allowing researchers to integrate action in different contexts. SA's analytical stance is structured through maps, embracing the notion of empirical evidence to promote epistemic diversity and multivocality and recognize the importance of non-human elements in structuring social relations.

Results: The paper presents an analytical alternative that is not limited to the micro, meso, or macro levels of events. Facing complexities, it provides relational views of ecologies of situations, repositioning research in individual, collective and discursive ways. With SA, a researcher can develop novel inquiry that challenges the status quo and unexplored facets of complex situations.

Contributions: The paper explores and illustrates the potential of a qualitative method not yet familiar to accounting researchers, bridging the gap between post-modern perspectives on discourse and investigation of agency on complex phenomena involving accounting concepts and mechanisms.

Keywords: Situational analysis. Grounded theory. Post-modern perspective. Adele Clarke.

Published in Portuguese and English. Original Version in Portuguese.

Round 1: Received in 12/12/2022. Review requested on 5/7/2023. Round 2: Resubmited on 5/31/2023. Review requested on 6/12/2023. Round 3: Resubmited on 7/3/2023. Accepted on 7/5/2023 by Gerlando Augusto Sampaio Franco de Lima, PhD (Editor). Published on 9/30/2023. Organization responsible for the journal: Abracicon

1. Introduction

In this paper, we follow the arguments mobilized by Burchell, Clubb e Hopwood (1985) to position accounting as a science embedded in political, cultural, historical, social, spatial, economic, and institutional contexts. In this regard, inductive investigations are necessary for an in-depth understanding of the social processes in accounting, amplifying the potential for theories that arise from qualitative approaches through direct phenomena observation (Parker, 2017).

Therefore, inductive investigations contributed to accounting knowledge in the past four decades due to its ability to produce ground-breaking perspectives on the preexisting body of theories (Gurd, 2008). It became a cornerstone when there was little understanding about a particular event or researchers presented different views on the same topic, making it possible to generate alternative theories and propose new insights to existing ones (Parker, 2014, 2017; Lukka & Modell, 2017).

Recognized as an inherently inductive approach, Grounded Theory (GT) (Glaser & Strauss, 1967) allowed accounting researchers to produce theories from the data (Goddard, 2017; Covaleski, Dirsmith & Samuel, 2017) based on systematic procedures that enable the inductive development of theories about events (Strauss & Corbin, 1990). For Glaser (1992), GT is a general methodology that allows, through systematic methods, the generation of theories on any particular field of inquiry.

In GT, theories emerge from the interactive data analysis, scrutinizing the proposition of central concept relationships and the generation of a theoretical explanatory framework. SA instruments support the researcher in developing a structure for interpreting the archives and creating meaning for the topic under study (Parker & Roffey, 1997).

In accounting, authors such as Goddard (2017) argue that GT provides a research alternative with the potential to enable new theories, especially among researchers who seek to understand how it operates contextually. Although GT has become popular in other fields, and the literature recognizes its suitability in accounting research, it is an alternative that receives little attention among researchers (Parker & Roffey, 1997; Elharidy, Nicholson & Scapens, 2008; Gurd, 2008; Ahrens & Chapman, 2006).

There is pioneer research on the use of GT to investigate control and negotiation practices in budgets (Covaleski & Dirsmith, 1983, 1984), accountability (Ahrens, 1996), accounting and budgeting in religious institutions (Lightbody, 2000; Parker, 2001, 2002), and environmental and social reporting (Solomon & Solomon, 2006). There are also highlights in management accounting (Covaleski, Dirsmith, Heian & Saluel, 1998; Elharidy *et al.*, 2008), audit (Beattie, Fearnley & Brandt, 2004), governmental accounting (Goddard, 2004, 2005; Goddard & Mkasiwa, 2015), and nonprofit organizations (Goddard & Assad, 2006). Despite its underuse, all studies reinforce GT's potential for accounting sciences.

The diffusion of GT happened through different approaches over the years (Goddard, 2017). The three main approaches are Barney Glaser's positivist-objectivist, Anselm Strauss' interactionist-interpretivist, and Kathy Charmaz's constructivist (Bryant & Charmaz, 2019). According to Goddard (2017), one of the most prominent discussions of advancing GT in contemporary times is that developed by Adele Clarke, seeking to include a post-modern perspective in GT through Situational Analysis (SA).

The postmodern turn has influenced social science research in several ways. Unlike modernist emphasis on universalism and generalization, the postmodern the analysis shifts to "localities, partialities, positionalities, complications, tenuousness, instabilities, irregularities, contradictions, heterogeneities, situatedness, and fragmentation" in complexity. Furthermore, the researcher stops being an omniscient analyst and positions himself as a recognized participant, highlighting that interpretations are always partial and socially positioned (Clarke 2003, p. 555).

Clarke (2015, 2019) calls the (re)turn of the social, which seeks to develop new ways of engagement between the researcher and social worlds. SA seeks to promote a new way of incorporating data in qualitative research and articulating analytical alternative that is not limited to the micro (individual), meso (social, organizational, and institutional), or macro (broad historical patterns) levels of phenomena, but to the complexities, relationships, and ecologies of the situation regardless of time and spatial location.

SA is an alternative for research in accounting due to an empirically "openness" that allows the use of archives from various sources and is especially suitable for multi-modal projects (Clarke, 2003). Through the development of situation maps, the researcher exercises analyses that do not simplify social practices and that make possible the integrated action of scholars in the evaluation of discursive, historical, cultural, symbolic, spatial, temporal, and institutional aspects of accounting practices (Clarke, 2003, 2005).

This research aims to articulate Adele Clarke's ideas to enable research production with SA and to exemplify and present topics of investigation for its use in studies in accounting. As Goddard (2017), we recognize the potential of SA to advance GT and assist in understanding multifaceted and complex accounting events involving social, political, and organizational actors with different interests and actions in contemporary times.

In addition to this introduction, the paper structure counts on four sections: the first one shows the basic elements of the SA; the second one directs the researcher to the elaboration of the cartographies; the third one exemplifies the application of the SA in an accounting case; and finally, the fourth one presents some research possibilities.

2. Situational Analysis

2.1 Definition and basics of situational analysis

SA is a methodological proposal developed by Adele Clarke to confront the challenges of the postmodern turn. Postmodern social dynamics are concerns because it is challenging to assess complexities without making social practices reductive. In contrast, analytical specialization can make it impossible to carry out studies that account for modern social processes (Clarke, 2003). Thus, SA emerges as an initiative to rethink and expand GT by assigning more attention to social life (Clarke, Friese & Washburn, 2013).

Strauss and Corbin's influence relate to pragmatic philosophy, constructionism, and symbolic interactionism. Kathy Charmaz has influenced by its constructivist stance, extending the interpretive meaning and an inductive/abductive perspective. SA also draws on Anselm Strauss's conception of social worlds/arenas and Michel Foucault's discourse studies, recovering Wright Mills' discussions of a situation analysis and Donna Haraway's perspective on situated knowledge (Clarke, 2019).

Figure 1 presents the Situational Matrix proposed by Clarke (2005, 2007a) and the elements that can be used as empirical evidence for understanding a situation.

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Figure 1. Clarke's situational matrix

Source: Clarke (2005, p. 73, 2007a, p. 434)

SA is suited to various projects, especially those that require the use of multiple data and include multiple archives as evidence, such as "interview, ethnographic, historical, visual, and other discursive materials" (Clarke, 2003, p. 553). The analytical scope of SA is a methodological innovation because it "allows researchers to draw together studies of discourse and agency, action and structure, image, text and context, history and the present moment," giving a collective meaning to investigations by the integrated action of researchers (Clarke, 2003, p. 554).

The researcher must analyze the situation, pointing out variations, differences, positions/relationships taken and developed, and be aware of all the complexity, contradiction, multiplicity, and instability. Instead of searching for regularity, the researcher focuses on the world's multiplicities, ambivalences, and contradictions regarding social complexities. It is an effort that goes beyond an individual-centered perspective (as in ethnography, life histories, and phenomenology), aiming to include broader social implications and interpretation with a comprehensive meaning (Clarke, 2003).

In SA, all actors and discourses are mapped and become a source of investigation regardless of their level of power, which breaks down hierarchies and promotes epistemic diversity (Clarke, 2015, 2019). It is a priority that all elements, positions and voices are articulated, helping the researcher not only to work the data "from the bottom up", but also "from the outside in", showing who is in the center and on the margins of the situation, how relations are established/hierarchized, and the levels of power distributed among the actors (Clarke, 2015, p. 21).

SA also allows for the inclusion of implicated actors, agents silenced or only discursively formed in the situation. Clarke (2015) signals that these individuals are constituted by other actors to meet others' goals. While the silenced agents physically appear in the context, they have less power and are ignored, neglected, and invisibilized. The discursively formed, on the other hand, do not appear in the situation but are mentioned by other participants, usually in a disadvantaged position. Overall, implicated individuals have little opportunity for active participation and self-representation.

The SA considers human and non-human elements indistinctly, enabling the researcher to analyze all that is relevant and assess their interrelationships for a comprehensive understanding of the phenomena. As Clarke (2015, p. 21) points out, "it is not only people who matter in analyzing a situation."

Non-human elements include things, animals, technologies, discourses, cultural objects, media, and animate and inanimate parts of material culture (Clarke, 2015). They can be the result of human action, with the researcher's objective being to understand the production processes, or natural, whose objective is to investigate their formation. Including non-human elements, Clarke *et al.* (2013) break the idea that only humans are an analytical source to be prioritized. For them, posthumanism is a challenge since non-human elements condition situated interrelationships.

As an empirically open method, Clarke (2019) argues that the investigation proceeds through analytical exercises that are organized with the development of three maps: (1) situational maps, (2) social worlds/arenas maps, and (3) positioning maps. They must be constructed as spaces open to modification, reversals, and highlights. The researcher is free to develop articulations and (re)organize the multiple possibilities of distributing the elements in the cartography strategy. This freedom is a way to expand the researcher's analytical capabilities.

Table 1
Definition and purpose of maps in SA

Maps	Conceptualization	Purposes
Situational Maps	Expose the main human, non-human, discursive, historical, sym-bolic, cultural, political, and tem-poral elements relevant to the situa-tion, provoking relational analyses among them.	Provide an overview of the situation, helping the researcher to map out all the material relevant to the analysis. At this stage, the researcher teases out the different possibilities for relationships between elements and reflects on the complexities (material and discursive) that arise from the relationships.
Social Worlds/ Arenas Maps	Trace the collective actors, the key non-human elements, and en-gagement arena(s). It informs or-ganized discourses and negotiations developed. These are the meso-level interpretations of the situa-tion.	Enable a meso interpretation, which encompasses collective action in different social dimensions, such as organizational, institutional, and discursive, in an environment of fluid and continuous negotia-tions. Social worlds create universes of discourse, signaling analytical elements regarding the situa-tion.
Positional Maps	Show the main positions taken (and not taken) in the data con-cerning the discourse axes of varia-tion and difference, concern, and controversy around complicated issues in the situation.	Demonstrate the positions taken on particular is-sues, which can be articulated or contradictory between individuals and collectivities.

Source: adapted from Clarke (2003, 2015, 2019), Clarke and Friese (2007), and Clarke et al. (2013).

Situational maps are the first to be developed and present relevant human, non-human, discursive, historical, symbolic, political, cultural, technological, organizational, social, spatial, and temporal elements (Clarke, 2015, 2019). From the initial data on the situation, the researcher is free to exercise an analytical potential and visualize all elements that may be related to the situation. Preliminary data are contrasted and linked to other elements in the collection and analysis process. It serves as a guide for the researcher to engage in data collection and to reflect on the relationships between them (relational mapping), nothing the complexities that surface based on different angles of perception (Clarke & Friese, 2007; Clarke *et al.*, 2013).

The elements included in the situational maps remain analyzed at later levels, including through the other maps. The initial goal is to articulate how they connect, distribute power, and make evident the implicated actors (Clarke, 2019). Thus, in new maps, elements emerge from the analysis of the situation to articulate, organize, and construct meaning.

By emphasizing the social worlds, the intermediary maps enable the researcher to observe the arenas of engagements, making explicit how they discursively engage and construct negotiations (Clarke, 2003, 2015). Clarke (2015, p. 14) points out that the researcher should not predict the direction of influence between elements but consider them "open and porous." Negotiations happen fluidly, and discourses manifest themselves in "multiple and potentially contradictory" ways. The aim is to map the key collectivities (social worlds, organizations, and institutions) in the arenas and the actions (Clarke, 2019). The researcher must consider the potential of social processes to manifest differently, which can occur individually and collectively across organizations, institutions, and discourses (Clarke, 2015).

On the other side, the positional maps show the positions taken or not, about specific axes of analysis, with the focus of the investigation being the main differences and controversies identified (Clarke, 2003, 2015). Positional maps do not articulate the position of individuals or groups but seek to understand how elements fit into discursive stances on the main issues in the situation. At this point, the researcher articulates positions and contradictions (Clarke, 2015). Analyzing the positions not taken in discursive materials makes it possible to examine the actors involved, evidencing power structures (Clarke, 2019).

The researcher needs to view the maps as analytical exercises that allow for new insights into the data. New insights operate as analytical avenues complementary to traditional GTs, which focus on interpreting the basic social action process (Clarke, 2007a). SA incorporates action as an element of investigation and allows the construction of an analytical framework that is empirically open to incorporate other elements that condition the situation. The situation is the unit of analysis from which the understanding of the inter-relationships among diverse elements emerges from an interpretive priority.

Empirical openness reflected in SA assumes that analytical elements affect each other. The human, non-human, discursive, practical, symbolic, organizational, and institutional aspects can organize themselves with infinite possibilities, establishing multiple relationships. It can still articulate different levels of significance, which demands the openness of the researcher to reflect on the presence/absence of the elements and the different ways of constructing the situation (Clarke, 2007a).

The researcher's memos should support map elaboration. It should be prepared at the beginning of each map and revised after major progress in data collection and analysis progress. This activity particularly influences the development of situational maps and social worlds/arena maps since positional maps depend on articulating a significant portion of data (Clarke, 2015).

As SA is a proposal that directs GT toward social complexities, it is relevant to highlight the main differences between the traditional perspective (Glaser & Strauss, 1967) and the multiple possibilities attributed to the Grounded Theory over the years (Glaser, 1978; Strauss, 1987; Corbin & Strauss, 2008; Charmaz, 2006, 2008). To Clarke e Friese (2007, p. 363), GT "focuses on systematically analyzing qualitative data to elucidate the key forms of action undertaken by participants in a particular situation." For better visualization, Table 2 presents the main changes proposed by Clarke (2003) in the SA formulation.

Table 2

Changes in GT proposed from SA

Disentangles GT from the positivist foundations prevalent in the 1950s and 1960s, emphasizing its post-modern capabilities;
Introduces the ecological root of social worlds, arenas, and negotiations as a complementary conceptual infrastructure to the root of social process and social action, allowing the inclusion of individual-level anal-yses, meso-analyses, and the visualization of social, organizational, institutional, and discursive structures;
Complements GT by introducing analytical alternatives to the basic social process through evaluations that cover: (a) the key elements of the situation, (b) the social worlds and arenas of negotiations at the meso level, and (c) the presentation of the discourse axes focusing on the positions and relations generated in the situa-tion;
Directs the researcher toward provocative theorizing rather than more formal substantive theories;
Enables the development of research with more flexibility, covering the sources of evidence, such as historical, discursive, visual documents, ethnographies, field notes, and other discursive archives.

Source: adapted from Clarke (2003, pp. 558-559)..

Social worlds/arenas are central to SA (Clarke, 2003, 2005). These worlds allow agents to generate shared identities and perspectives that influence individual and collective action (Clarke & Friese, 2007). In the social worlds/arenas, universes of discourse develop, and key stakeholder issues emerge, articulate, negotiate, and reveal an organized social life (Strauss, 1978; Clarke, 2007b; Clarke & Star, 2008). Through social worlds/arenas, it is possible to understand the organization of the negotiations in a situation of action and interaction (Clarke, 2003, 2005; Clarke & Friese, 2007).

The critique developed by Clarke (2005, 2007a) of the conditional matrices proposed by Corbin and Strauss (2008) also significantly influenced the SA situational matrix (see Figure 1). While the conditional matrix considers the elements that influence action as contextual dimensions of the social process, in SA, all components became positioned, provisional, and specified in the situation. While these elements can influence the action in the conditional matrix, in SA, they are constitutive of the action situation itself (Clarke & Friese, 2007). As Clarke and Friese (2007) indicate, all elements are components that generate possibilities for action within the situation.

As a synthesis of changes proposed by Clarke (2003, 2005, 2007a, 2015, 2019) to expand GT, we highlight some contributions in Table 3:

Table 3

SA contributions to GT and expectations of researchers

SA's Contributions to GT
The method counts on the elaboration and use of three analytical maps;
Requires more attention to interpret the differences and the various angles of perception in the data;
Goes beyond the use of interviews to include discourse analysis;
Helps the "silence to speak" by allowing the analysis of the missing positions on the positioning maps;
Includes the non-human elements related to the situation;
Encourages power analysis and promotes epistemic diversity.
Expectation about the researchers with the SA application
Requires enhanced reflexivity about who the researchers are and the relationships with the researched;
Researchers must make explicit their role as an individual in the research project;
Recognition of the political nature of interpretations and possible crises of representation;
Evidence the legitimacy and authority relationships of the researcher and the research;
Position the researcher as an agent who produces partialized knowledge rather than an omniscient analyst.

Source: Clarke (2015, p. 15), and Clarke and Friese (2007, p. 368).

After presenting the main aspects of SA, the next topic focuses on illustrating the construction of analytical maps. Considering data interpretation occurs through cartographies, it is necessary to discuss how one should elaborate the maps to work as analytical tools to achieve study objectives.

2.2 Developing the maps and conducting the situational analysis

Clarke (2003, 2005, 2007a, 2019) proposed SA maps not as final analytical products but as facilitators of reflection and interpretation. Maps enable data to be accessed and interrogated through a GT-based structure. SA is, therefore, a proposal that facilitates the design of analysis exercises, leading to deeper evaluations of archives (Clarke, 2003).

Maps are built using data coded through the coding strategies promoted by GT or by using uncoded data, as long as the researcher has reflected on its importance, avoiding analytical paralysis (Clarke, 2003, 2005). As an open-ended elaboration, maps allow moving through data. Memos help as tools to record and retrieve preliminary impressions of the archives, considering different chronological perspectives (Clarke, 2005).

The researcher's expertise is also emphasized in the evaluation of cartographies, as it enables the proposition of extensive reflections on their theoretical experiences and also better evidence of implicit and silenced elements (Clarke, 2005). As discussed, SA proposes the construction of three maps: (1) situational maps, (2) social worlds/arenas maps, and (3) positional maps, as shown in Figure 2.

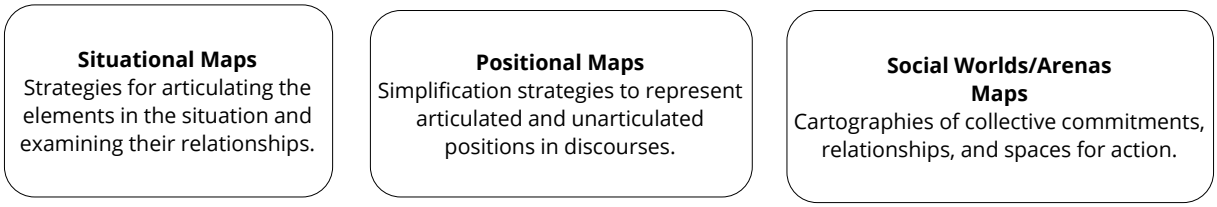

Figure 2. Maps that make up the SA

Source: adapted from Clarke (2005, p. 86).

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Situational maps introduce the SA and should include all human, non-human, discursive, symbolic, material, and historical elements relevant to understanding the situation (Clarke, 2005). The human element can be "individuals, groups, organizations, institutions, subcultures, and so on" and are easily specified. In contrast, the non-human elements condition the interactions and are usually related to actors (Clarke, 2005, p. 87).

It is also important to question the discourses, symbols, concepts, discussions, and ideas that are operating. In SA, discursive and symbolic elements are important and potentially significant evidence in this first stage of mapping (Clarke, 2005). Thus, SA recommends distributing them on an abstract situational map that is intentionally "confusing," as per Figure 3.

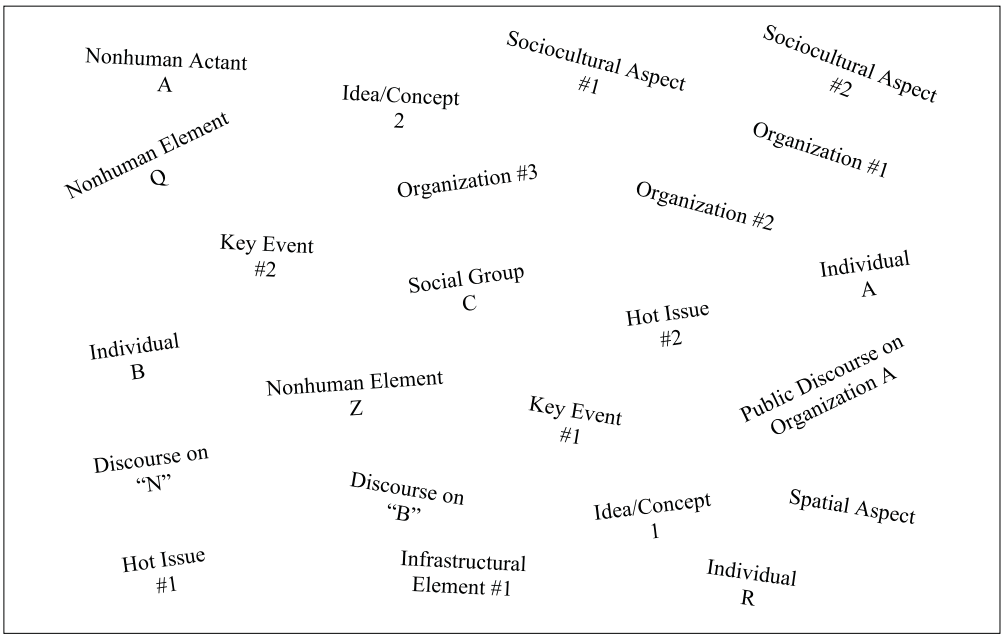

Figure 3. Abstract situational map: messy/working version

Source: adapted from Clarke (2005, p. 88).

Abstract situational maps in their messy/working version are developed for the researcher to have accessible cartography that is easy to manipulate. It is a stage to specify, (re)organize, articulate, and delete elements; it is essential to keep dated copies so for necessary revisions and checking's (Clarke, 2005). According to Uri (2015, p. 140), some questions in making situational maps are cornerstone: (i) "who and what are in this situation?" (ii) "who and what matters in this situation?" and (iii) "what elements make a difference in this situation?"

In addition, the confusing maps serve as the basis for the ordered/working version (see Table 4):

Table 4

Abstract situational map: ordered/working version

INDIVIDUAL HUMAN ELEMENTS/ACTORS e.g., key individuals and significant (unorganized) people in the situation.	**NONHUMAN ELEMENTS/ACTANTS** e.g., technologies; material infrastructures; technical information and/or knowledge; material "things"
COLLECTIVE HUMAN ELEMENTS/ACTORS, e.g., particular groups; specific organizations.	**IMPLICATED/SILENT ACTORS/ACTANTS** As found in the situation.
DISCURSIVE CONSTRUCTIONS OF INDIVIDUAL AND/OR COLLECTIVE HUMAN ACTORS As found in the situation.	**DISCURSIVE CONSTRUCTION OF NONHUMAN ACTANTS** As found in the situation.
POLITICAL/ECONOMIC ELEMENTS e.g., the state; particular industry(ies); local/regional/global orders; political parties; NGOs; politicized Issues.	**SOCIOCULTURAL/SYMBOLIC ELEMENTS** e.g., religion; race; sexuality; gender; ethnicity; nationality; logos; icons; other visual and/or aural symbols.
TEMPORAL ELEMENTS e.g., historical, seasonal, crisis, and/or trajectory aspects.	**SPATIAL ELEMENTS** e.g., spaces in the situation, geographical aspects, local, regional, national, and global spatial issues.
MAJOR ISSUES/DEBATES (USUALLY CONTESTED) As found in the situation, see the positional map.	**RELATED DISCOURSES (HISTORICAL, NARRATIVE, AND/OR VISUAL)** e.g., normative expectations of actors, actants, and/or other specified elements; moral/ethical elements; mass media and other popular cultural discourses; situation-specific discourses.
OTHER KINDS OF ELEMENTS As found in the situation.	

Source: adapted from Clarke (2005, p. 90).

The ordered/working version lets the researcher schematize categories of analysis (Clarke, 2005). This step does not encounter a clear-cut information gathering; however, its limits depend on the researcher's interpretation and sensitivity regarding the situation. Despite the importance of the ordered/working version of the abstract situational map, its elaboration is elective and helps construct new meanings about the elements mapped so far (Clarke, 2005).

Note that abstract situational maps are unlikely to include the infinite elements related to the situation, requiring the researcher to select those relevant for interpretation in the particular case. Here, the aim is to elaborate a provocative interpretation of the categories of analysis and the elements relevant to the project. To achieve this, the use of memos assists in building new ideas and promoting alternative perspectives (Clarke, 2005).

After the analytical/reflective exercise involving the preparation of the abstract maps, the development of the maps of the social worlds/arenas begins. Clarke (2005) points out that they are grounded in the symbolic interactionism promoted by Strauss (1978) and aim to present how social groups organize collective action. This ordering is materialized in universes of discourse, which can demonstrate how they are structured and relate to other social worlds/arenas. According to Uri (2015, p. 140), the guiding questions of these maps are: "what are the patterns of collective commitment?" and "what are the salient social worlds operating here?" (see Figure 4).

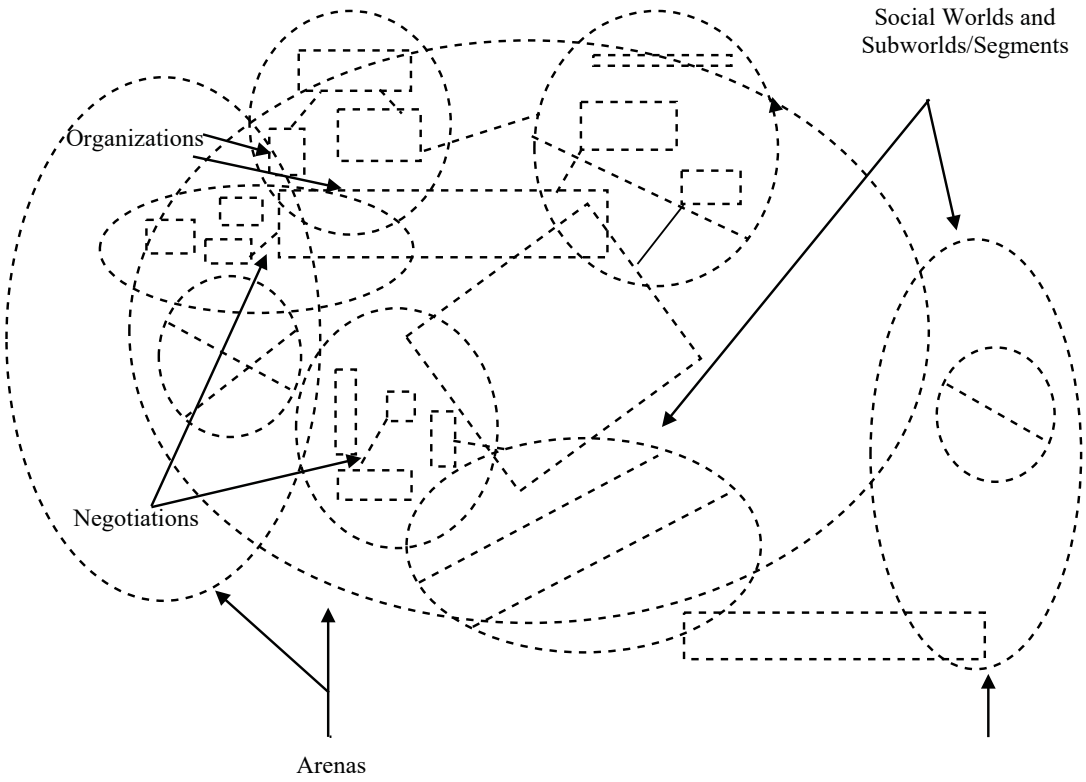

Figure 4. Abstract map of social worlds in arenas

Source: adapted from Clarke (2005, p. 111).

In the social world/arena map, the analyses focus on the meso level. The researcher's attention turns to social action, substituting the interpretation of individual behavior for the commitments established in social worlds/arenas. Actors present themselves as collectivities organized discursively around relations established with other social worlds/arenas (Clarke, 2005).

The researcher must exercise what Clarke (2005, p. 110) calls "collective sociological sense," exploring the commitments developed by the social worlds/arenas in the situation, examining how they structure each other, promote hierarchies, dispute space, and relate to non-human elements. The social worlds may overlap, just as actors circulate in yet another arena, aspects to be evaluated.

As in the abstract situational maps, the intention is not to promote an open discussion of all social worlds/arenas but to help the researcher select which stories are relevant to explore. It is necessary to articulate the main differences, variations, and similarities. The collectivities' behavior can also be contrasted with other social worlds or arenas and articulated with specific issues manifest in the situation (Clarke, 2005).

These worlds derive from "interviews, organizational documents, archives, observations of key actors, secondary data (previous historical and contemporary research on the topic, media imagery and discourses), and so on". It is up to the researcher to select those relevant to the cartography (Clarke, 2005, p. 113). The author must also be aware of absences, reflecting why relevant social worlds/arenas do not loom from the data.

By drawing up the maps, social worlds/arenas can be represented in different ways, expanding/decreasing the arenas, articulating the position of social worlds in more than one reindeer, and presenting the main commitments and discourses between organizations in the same social world or different ones. The researcher is free to develop tools to better represent them by creating codes, selecting colors, and promoting cartography-specific presentations (Clarke, 2005).

As the researcher consolidates the map of the social worlds/arenas based on several materials collected and analyzed, making it possible to develop positional maps. It is the last stage of cartography and aims to demonstrate the leading positions taken (or not) concerning the central topics under investigation. At this point, it is possible to articulate the prominent discursive positions about the research situation (Clarke, 2005).

Positional maps are developed from the main issues on which distinct positions have been observed, and it is up to the researcher to sort and position them on the main axes (Clarke, 2005). At this point, the basic coding enabled by GT and the mappings of the social worlds/arenas assist in opening up the data for positional analysis, revealing heterogeneous positions and their variations to the main discursive axes (see Figure 5).

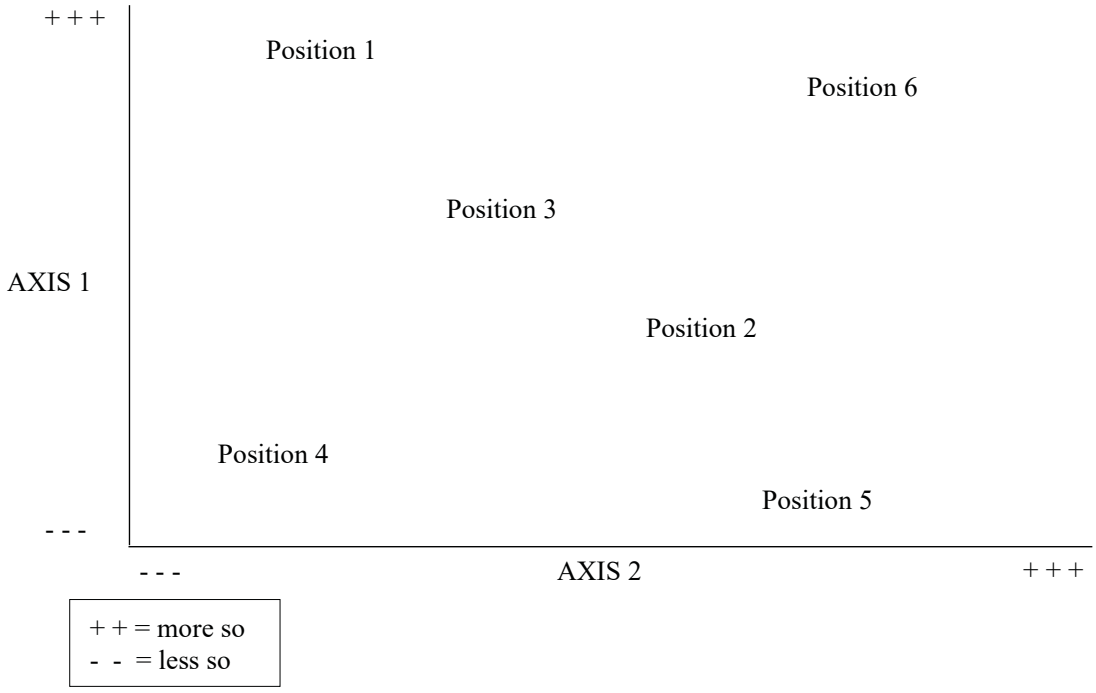

Figure 5. Abstract positional map

Source: adapted from Clarke (2005, p. 129).

The purpose of the positional maps is not to reveal the correct and incorrect conceptions about a given situation because it is not the researcher's role to point out the best discursive positions. The question that drives the mapping of the positions is: "what were the positions on basic issues and topics central to the situation under study?" (Uri, 2015, p. 140). The positions must be represented in their own terms, and it is up to the researcher to distribute them in the cartography, and they can occupy central spaces, be more distant or marginalized. This effort is a distinguishing feature of position maps because it promotes a democratic representation of discourses (Clarke, 2005).

From a postmodern perspective, Clarke (2005) argues that positionings must be disjointed from the elements. The map will focus on discursive positions, and actors, groups, institutions, organizations, and social worlds/arenas can take multiple and contradictory positions on the same issue. Instead of looking for the representation of the participants, the focus will be directed to the different positions, at which point the researcher will explore what Clarke (2005, p. 127) calls the "space between" the actors and the positions.

After discussing how maps are constructed and how researchers should conduct SA, the next topic presents a case where SA can be applied in accounting. Then, some possibilities for using the method are presented. We seek to articulate the concepts presented by Adele Clarke with topics that can be explored to develop research in the field.

2.3 Example of abstract/development map in accounting

From 2008 to 2014, the *International Public Sector Accounting Standards Board* (IPSASB) developed a project to establish the concepts to be applied in *International Public Sector Accounting Standards* (IPSAS). The purpose was to publish a Conceptual Framework (CF) that would guide the general-purpose accounting reporting of public sector entities globally (IPSASB, 2014).

For the elaboration of the CF, the IPSASB held public consultations for interest groups to submit opinions on topics of the exposure drafts, such as (a) scope, objective, and users of the CF; (b) definition and recognition of the elements of the statements; (c) measurement bases of the accounting elements; and (d) bases for the presentation of financial and non-financial information (Bartoluzzio, Rodrigues, Tavares & Freitas, 2020).

By opening the drafting stages of the CF through public consultation, the standard setter allowed stakeholders to express themselves on the core topics of the standard, making the process accessible to different governmental traditions while encouraging the adoption of internationally harmonized accounting standards. In addition to meeting the needs of users of the information produced by governments, adopting international standards would expand the transparency, credibility, and disclosure of information, as well as aid comparability between countries (IPSASB, 2014).

One alternative to understanding how the drafting of the CF by the IPSASB happened, which includes the multiple participations and forms of organization among the elements in the situation, is SA. As an example, an abstract situational map (see Figure 6) will be shown for the positioning of human and non-human elements in the cartography, and an ordered/working version for the generation of analysis categories that can assist in the interpretation of the phenomenon.

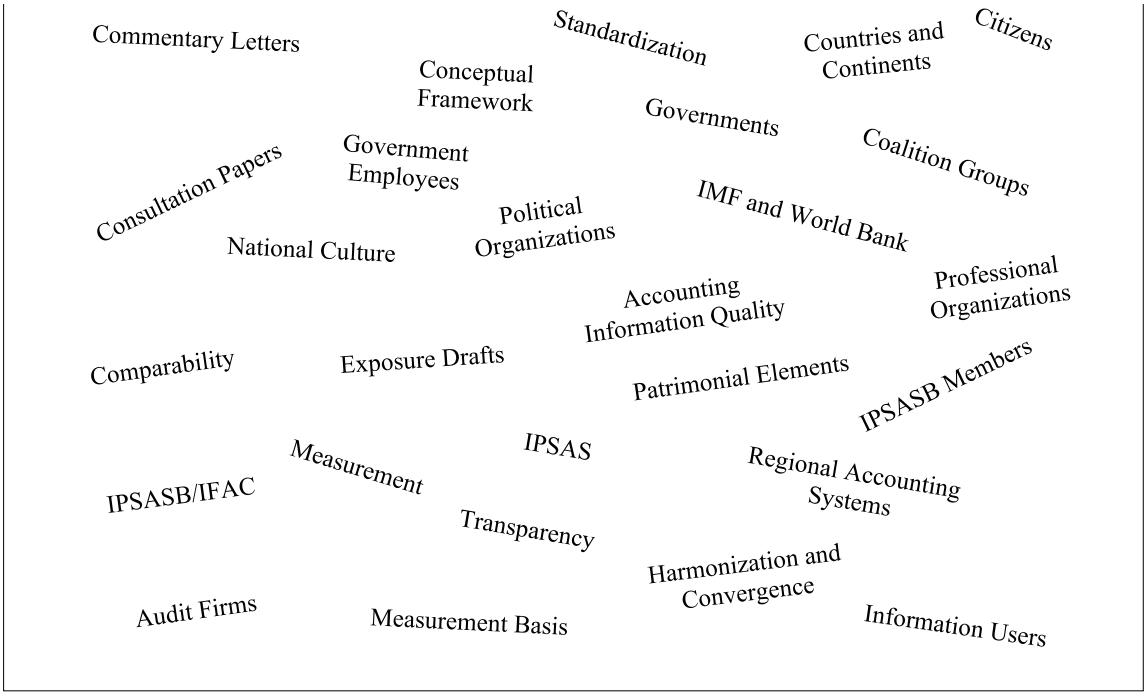

Figure 6. Abstract situational map (messy/working version) of the conceptual framework for the public sector

Source: elaborated by the authors.

To build the abstract situational map, the researcher must focus on the relevant elements for data collection and analysis. In addition to those specified by the IPSASB during CF development, one must pay attention to symbolic, political, cultural, technological, social, organizational, spatial, temporal, and discursive aspects of the situation (Clarke, 2019). By positioning all the elements in the cartography, the researcher is encouraged to reflect on the relationships that can be established between them, analyzing the complexities from different angles of perception (Clarke & Friese, 2007).

As an example, some relational analyses of the elements positioned in the cartography can be cited: (1) openness of countries to internationalization; (2) different cultural, social, and governmental traditions; (3) openness of countries to harmonization to accounting standards in the public sector; (4) level of participation of global powers and peripheral nations; (5) conflicts of the CF with contextually adopted accounting practices; (6) interest of international organizations such as IPSASB/IFAC, IMF, World Bank, and auditing firms; (7) forms of participation/articulation of non-anglophone countries; (8) organization of information users and coalition groups; (9) geographical position of IPSASB members, among others.

As the researcher progresses in collecting the data, new categories of analysis may emerge. At this point, the abstract/ordered situational map assists in distributing elements among categories that can help systematize interpretations (Clarke, 2005), specifying how they can assist in understanding the CF formulation (see Table 5).

Table 5

Abstract situational map (ordered/working version) of the CF for the public sector

INDIVIDUAL HUMAN ELEMENTS/ACTORS Citizens, politicians, government representatives, public officials, IPSASB committee members, and users of accounting information in the public sector.	**NONHUMAN ELEMENTS/ACTANTS** Comment letters, exposure drafts, consultation papers, news linked in alternative media and/or on the board's website, and financial donations from professional institutions or governments to the IPSASB.
COLLECTIVE HUMAN ELEMENTS/ACTORS IPSASB, IFAC, political organizations, coalition groups, government organizations, educational institutions, IMF, World Bank, auditing firms, professional associations, and civil society groups.	**IMPLICATED/SILENT ACTORS/ACTANTS** Countries with least-developed countries; Non-anglophone countries; Countries with less developed public accounting systems.
DISCURSIVE CONSTRUCTIONS OF INDIVIDUAL AND/OR COLLECTIVE HUMAN ACTORS Social worlds about the importance of standardization; Social worlds on disclosure, transparency, and comparability of public sector information; Social worlds about the quality of information disclosed by governments; Social worlds on the relevance of harmonization and convergence to international standards in the public sector.	**DISCURSIVE CONSTRUCTION OF NONHUMAN ACTANTS** Relevance of accounting information in the public sector; Importance of the definition and recognition of the equity elements of the financial statements of governments; Need to define the measurement bases of the asset elements in the public sector; Concepts guiding the presentation of information in accounting reports published by governments;
POLITICAL/ECONOMIC ELEMENTS Democracy level; Openness of countries to internationalization; Dependence of countries on the IMF and World Bank	**SOCIOCULTURAL/SYMBOLIC ELEMENTS** Cultural, social and governmental traditions of the countries; Accounting practices already adopted contextually; Political openness to change.
TEMPORAL ELEMENTS This initiative is part of the project developed by the IPSASB between 2008 and 2014 that aimed to formalize the guiding concepts for the information to be included in general-purpose reports in the public sector.	**SPATIAL ELEMENTS** Influence of the global north to detriment of the peripheral countries; Closeness/distance between the most and least influential countries; Ways of participation of Latin American, African, and Oceania countries; Geographic position of IPSASB members.
MAJOR ISSUES/DEBATES (USUALLY CONTESTED) Harmonization of countries to international standards in the public sector as an alternative that increases credibility, comparability, comprehensibility, and transparency, enabling governments to disclose more complete accounting information.	**RELATED DISCOURSES (HISTORICAL, NARRATIVE, AND/OR VISUAL)** Internationalization of government transactions; informational needs of the users of the information provided by the public sector; and the distance of the information provided by governments from private sector information.

Source: elaborated by the authors.

With the construction of the abstract/ordered map, the human, non-human, sociocultural, symbolic, temporal, spatial, discursive, political, and economic elements are positioned into prior/partialized categories of interpretation (Clarke, 2005). Through the procedures proposed by GT, the researcher develops relational analyses that capture the collectivities' engagement throughout the exposure drafts proposed in the development of the CF, a stage in which the maps of the social worlds/arenas are built, and the main discursive axes are articulated in the positional map, aiming to understand in a postmodern perspective its elaboration by the IPSASB.

2.4 Articulating the situational analysis with research opportunities in accounting

Based on the articulation of the guiding elements of the SA, Table 6 was developed seeking to evidence possibilities for research in accounting. Projects can comprehensively use SA or employ concepts suitable for executing some steps. In addition to alternatives for applying elements of the method, the materials analyzed throughout this study were indicated for a complementary dialogue with Adele Clarke's works.

Table 6

Opportunities for research in accounting with SA

Situational Analysis	Recognize that accounting information is a structuring part of postmodern/posthumanist dynamics. The researcher denies the search for regularity, rationality, and stability of accounting practices to focus on social multiplicities, ambivalences, and complexities, recognizing the importance of human and non-human elements in understanding the phenomena that influence accounting;
	Employ SA as an alternative that goes beyond the limited assessment of accounting practices at the micro, meso, or macro levels to focus on the complexities of situations without reducing social practices by including discursive, historical, cultural, symbolic, spatial, institutional, and temporal elements.
Epistemic Diversity	Use SA as an alternative that recognizes that accounting information prioritizes specific voices and stratifies those that should be reflected in its documents. The researcher can reveal who is at the center and the margins of situations and which voices have space in conventional accounting archives;
	Assigning a comprehensive meaning to the dynamics that happen in the social context and affect organizations, which encompasses an intra-organizational analysis, through traditional accounting information, but which incorporates social, cultural, discursive, spatial, temporal, political, and economic elements.
Implicated Actors	Investigate the existence of implicated actors in accounting information since SA can be used to expose actors who are silenced and or who appear only discursively, whether in traditional accounting statements or more comprehensive corporate reports, such as sustainability ones;
	Evaluate accounting information following relevant social events to understand how organizations present and relate to actors with low self-representation capacity in their reports.
Situational Maps	Use situational maps as a methodological alternative that expands the notion of empirical evidence beyond conventional accounting information, assisting in the development of interpretations that incorporate broader data about situations;
	Develop cartographies employing situational maps for the construction of counter accounts or shadow accounts to counter traditional accounting information by critically analyzing the situations.
Social Worlds/ Arenas Maps	Address how accounting information is constituted as non-human elements able to structure relationships in social worlds/arenas;
	To demonstrate how accounting information enables the discursive organization of collectivities in the social worlds/arenas, seeking to understand how they are committed, structured, promote hierarchies, and dispute spaces in the broader social structures, shaping the accounting phenomenon.
Positional Maps	Explore how organizational information structures discourses in specific situations in which the accounting phenomenon is enmeshed in disputes with positions to be clarified;
	Articulate the discursive positions in accounting reports with other more comprehensive sources of information, such as discursive materials from the media and other communication vehicles, seeking to reveal silences and enter into the complexity from multiple sources of evidence.

Source: elaborated by the authors.
Note: Begin methodological immersion by Clarke (2003, 2005, 2007a, 2015, 2019) and Clarke and Friese (2013).

Besides the research possibilities, we also point out that SA can be used with other qualitative methods. GT itself, especially those of constructivist base, ethnographies, narratives, interviews, discourse analysis, action research, participant observation, and visual methods, among others, are methodological possibilities to be articulated for researchers to analyze, question, and problematize complex and multifaceted dynamics in a postmodern perspective.

Finally, even though SA contributes to grounded research and accounting, some limitations must be stressed. Researchers using SA deal with multiple data and multiple information layers, challenging the ability to delineate, delimit, and synthesize the data and its interpretations throughout the research. (Uri, 2015).

The analyst deals with information that leads in many directions, distracting him from the central situation of interpretation, which requires the use of constraints to maintain analytical focus. On the other extreme, establishing boundaries can impair the composition of the data, leading to the loss of important information. To avoid this limitation, choices should focus on the project's goal, which requires reflexivity from the researcher about the paths taken throughout its execution (Uri, 2015).

Another limitation is that although the postmodern perspective considers the world "complex, dynamic and multidimensional," the data is still presented in static, flat maps. The analyst faces difficulties in displaying social complexities in cartographies limited to circles, arrows, and positions, sometimes producing in confusing maps. Some data are still difficult to articulate, such as images and text, which demand creativity to represent the multidimensionality of phenomena (Uri, 2015, p. 149).

3. Conclusion

This paper has articulated Adele Clarke's main ideas for enabling research based on SA, as well as illustrated topics of investigation for its use in accounting studies. As mentioned, the relevance of SA lies in its capacity to enhance the GT for the complexities of postmodernity, which reinforces its concern in not treating phenomena in a reductionist way while structuring an analytical framework that enables the interpretation of social processes.

Through SA, researchers can structure projects that relate action and structure, discourse and agency, image, text, and context, as well as encompass the notion of empirical evidence through the inclusion of archives from a range of sources, such as documents, interviews, ethnographies, historical, visual, and discursive.

With SA, projects promote epistemic diversity, portray actors with low capacity for self-representation, and recognize the relevance of human and non-human elements in social dynamics regardless of the level at which they are located. The analytical exercise made possible by maps provides the necessary autonomy for researchers to explore the multiple ways data can be positioned and related in cartographies, helping to visualize collective action in social worlds/arenas and discursive positions on the guiding issues of the situation. As Adele Clarke signals, attention must turn to postmodern complexities, directing the researcher to investigate the contradictions, multiplicities, and instabilities of social relations.

In this direction, the potential of SA in accounting is emphasized. Aligned with the literature that recognizes the significance of epistemological and methodological diversity in accounting studies (Chua, 1988, 2019; Parker & Roffey, 1997; Ahrens & Chapman, 2006; Elharidy *et al.*, 2008; Gurd, 2008; Lourenço & Sauerbronn, 2016; Goddard, 2017; Lukka & Modell, 2017; Covaleski *et al.*, 2017; Jack & Saulpic, 2019), we seek to expand the possibilities of alternative research through a more subjective and critical view of reality, seeking meanings, beliefs, and positionalities underlying situations in which accounting is imbricated. The example and proposed research opportunities from SA can be explored in this regard.

We believe that the multiplicity of dynamics with which accounting is associated demands theoretical and methodological alternatives that broaden the analytical possibilities of the researcher and encompass the variety of social phenomena that affect/are affected by accounting information. We hope to contribute to new studies challenging the status quo, evidencing aspects not yet explored in complex situations in post-modernity.

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Revista de Educação e Pesquisa em Contabilidade
Journal of Education and Research in Accounting

Periódico Trimestral, digital e gratuito publicado pela Academia Brasileira de Ciências Contábeis | Available online at www.repec.org.br

REPeC, Brasília, v. 17, n. 3, art. 3, p. 289-308, Jul./Sep. 2023 | DOI: http://dx.doi.org/10.17524/repec.v17i3.3225 | ISSN 1981-8610

CEOs' Use of Social Media and Earnings Management

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Abstract

Objective: To analyze the relationship between CEOs' use of LinkedIn to disclose corporate information and the practice of earnings management.

Method: A survey was conducted with Brazilian companies integrating the IBrX100. Ordinary Least Squares regressions were performed, and the analysis period corresponded to the length of CEOs' working in the company.

Results: The findings showed a positive relationship between the CEOs' use of LinkedIn and the practice of earnings management through accruals. However, this relationship was not identified for earnings management through real activities. The sensitivity test indicated that CEOs' use of LinkedIn is positively related to AEM practices – both to increase and to reduce the profits of the companies addressed here.

Contributions: This study identifies that social media can mask management practices to reduce the quality of accounting information, corroborating the opacity hypothesis. This hypothesis predicts that reputable and more powerful CEOs are negatively associated with earnings quality. In addition, it contributes by showing that the corporate use of social media can go beyond the disclosure of information to affect the quality of accounting information.

Keywords: Social Media; LinkedIn; CEO; Results Management.

Published in Portuguese and English. Original Version in Portuguese.

Round 1: Received in 12/16/2022. Review requested on 3/7/2023. Round 2: Resubmited on 4/13/2023. Accepted on 4/17/2023 by Vinícius Gomes Martins, PhD (Assistant editor) and by Gerlando Augusto Sampaio Franco de Lima, PhD (Editor). Published on 9/30/2023. Organization responsible for the journal: Abracicon.

Introduction

This study investigates whether CEOs using social media to disclose corporate information is related to decision-making about earnings management practices. CEOs are the prominent corporate leaders responsible for a large part of organizational decision-making, including earnings management practices, which may distort financial accounting information in the capital market (Wu et al., 2016). The role of social media goes beyond the mere dissemination of news, as they allow financial market participants to interact; hence, social media is a promising communication tool (Miller & Skinner, 2015).

In this sense, studies have related the corporate use of social media platforms to disclose financial results and their effects on companies. Evidence indicates that the corporate use of social media improves trading volume, enables greater liquidity and performance (Blankespoor et al., 2018), influences the investors' decision-making (Arnaboldi et al., 2017), enables direct communication with stakeholders (Chahine & Malhotra, 2018), and reaches a broader audience, causing more significant impact on the market (Jung et al., 2018; Teoh, 2018).

In addition to companies using social media, managers also adopt these platforms for corporate disclosure (Capriotti & Ruesja, 2018). CEOs communicating through their personal accounts may facilitate the dissemination of organizational information and interaction with the company's stakeholders (Huang & Yeo, 2018). CEOs who are corporately active on social media may be perceived as more friendly and attentive (Bai et al., 2019) and are likely to create social bonds with other users interested in the company (Elliott et al., 2018), e.g., shareholders, investors, and analysts. Thus, they build a reputation in these media with the stakeholders of the organizations in which they operate. This study focuses on the CEOs' use of social media. It seeks to contribute to the literature by investigating the effects of such communication on the quality of profits, specifically through earnings management practices.

According to Dechow et al. (2010), the higher the quality of profits, the more relevant the information on financial performance characteristics for decision-making. Therefore, the quality of reported earnings is associated with decision-makers' motivations (Shiah-Hou, 2021). CEOs are responsible for corporate results and decisions that affect shareholders and other stakeholders (Alkebsee et al., 2021). Some studies have shown that more powerful CEOs are more likely to make corporate decisions for personal benefit (Baldenius et al., 2014; Abernethy et al., 2015; Lisic et al., 2016), as may be the case of earnings management practices.

Two hypotheses are highlighted regarding CEOs' power: that concerning opacity and the one concerning transparency. The first indicates that more powerful CEOs tend to more frequently manage results and produce a dark environment (Shleifer & Vishny, 1989; Stoughton & Talmor, 1999; Aboody & Lev, 2000), while the second favors a more transparent environment, as a powerful CEO is not concerned with hiding any unexpected results (Bartov & Mohanram, 2004; Abernethy et al., 2015; James et al., 2017). In addition to greater power, a CEO's reputation may also be decisive for accounting practices and favor the hypothesis of opacity/transparency; a CEO's attitude during his/her tenure may affect his/her reputation in the market. A CEO's reputation is considered the totality of lasting and important images for stakeholders based on the CEO's perceived performance, ability, and values (Francis et al., 2008). Considering the literature addressing the CEOs' increased corporate use of social media (Capriotti & Ruesja, 2018) to disseminate organizational information related to their management (Huang & Yeo, 2018), we infer that this behavior may be a way for these managers to build and maintain their reputation in the market. Thus, the premise is that the greater the use of media such as LinkedIn, the greater a CEO's reputation in the financial market.

Therefore, CEOs with a highly favorable reputation may use social media to communicate that they are approachable, more attentive, and friendly to mask accounting practices that reduce the quality of earnings, which is consistent with the opacity hypothesis. Such a hypothesis leads to the assumption of a negative relationship between CEOs' use of social media and earnings quality. In such a scenario, a CEO with a highly favorable reputation is likely to use social media to maintain his/her existing reputation with his/her company's stakeholders in the face of practices that reduce the quality of accounting information.

On the contrary, CEOs with good reputations may also use social media to communicate and maintain a direct relationship with their companies' stakeholders, providing a new source of information to investors, reducing information asymmetry, and maximizing earnings quality, which is under the transparency hypothesis. In this case, CEOs with a highly favorable reputation do not see the need to mask their practices because they use social media to disseminate good management practices aimed at earning quality and greater transparency.

In this sense, this study is intended to expand the literature on social media and earnings quality by addressing the relationship between CEOs' disclosure of information on their personal social media accounts and accounting practice decisions concerning earnings management. Specifically, we assess the presence and interactions of CEOs on LinkedIn to verify whether the CEOs' communication and engagement create a positive image for those interested in the organization. In this case, such an image can be used to mask earnings management practices to present more satisfactory results to stakeholders. On the other hand, it may also promote a more transparent environment through a new data source. Thus, the following research question is presented: **What is the relationship between CEOs' use of social media and the practice of earnings management?** Thus, the objective is to analyze the relationship between CEOs' use of LinkedIn social media to disclose corporate information and earnings management practices.

The use of social media has become frequent, both among individuals and in the corporate environment. Thus, the importance of studies aiming to verify how the use of these tools reflects on the capital market (Arnaboldi et al., 2017; Jung et al., 2018; Teoh, 2018) and, consequently, in the quality of profits is evident. Hence, this study's relevance is that it addresses a factor seldom explored in the literature but may affect the quality of accounting information, characterized by CEOs' use of LinkedIn to disclose corporate information.

In general, the literature addressing the use of social media in the corporate environment has focused on companies' disclosure. By examining disclosures from a CEO's perspective, this study contributes with an analysis of the role of another actor involved in the corporate use of social media, who can play a complementary role in a company's disclosure. Regarding earnings management, this study mainly contributes to those interested in organizations by seeking evidence on CEOs' behavior on social media and its relationship with earnings management practices.

2 Literature Review and Hypothesis Development

Social media are increasingly being used in the corporate environment. Empirical evidence shows the potential benefits for companies as a result of using these tools (Blankespoor et al., 2018; Chahine & Malhotra, 2018; Zhang, 2015), which are linked to the technological nature, real-time communication, low cost, and the possibility of interaction. The characteristics of social media have attracted more and more users; among them, CEOs, who can strategically use it to gain an advantage, such as disclosing corporate information, directly communicating with their followers, and increasing their visibility. Together, these factors may contribute to a CEO's image and build his/her reputation.

CEOs play an essential role, as they are responsible for the decision-making process in their companies, including decision-making concerning earnings management practices. Such practices reflect on the quality of profits and, consequently, influence the decision-making of other market agents (Wu et al., 2016). The literature presents evidence regarding the relationship between traditional media coverage and earnings management.

Conceptually, Comiran et al. (2018) discuss that media coverage can affect a company's incentives for earnings management in two ways. First, the media can play a vigilante role (Miller, 2006; Kuhnen & Niessen, 2012; Dai et al., 2015), and second, the effect of media coverage may be an incentive for higher levels of earnings management, due to the companies' greater visibility and, consequently, the intention or need to report higher profits (Dyck & Zingales, 2002; Scharand & Zechman, 2012; Hribar & Yang, 2016).

This study analyzes social media, which, unlike traditional media, has no intermediaries – that is, the person responsible for publications is the user himself/herself. In this environment, CEOs can build a direct relationship with a company's stakeholders and establish a good (or bad) reputation in the market. Additionally, they may act opportunistically to mask practices and manipulate users or create a more transparent environment to communicate with their companies' stakeholders.

Earnings management concerns the incorrect representation of managers about a company's performance in its financial reports to change accounting numbers that are the basis of reported results (Healy & Wahlen, 1999). This practice can occur in two ways: through real activities or discretionary accruals (Graham et al., 2005; Roychowdhury, 2006; Zang, 2007). The first involves intentional operational practices, such as cutting or increasing discretionary expenses increasing production or sales through abnormal discounts, among others (Roychowdhury, 2006). Earning management by discretionary accruals occurs from accounting choices linked to accruals arising from the accrual basis (Richardson et al., 2004).

Studies indicate that CEOs personify the organization and act as high-level corporate spokespersons, with the responsibility of communicating the vision of their organizations (Park & Berger, 2004; Ranft et al., 2006). Ranft et al. (2006) consider that a successful CEO not only increases public identification with his/her organization but is also capable of creating a favorable corporate reputation and establishing positive relationships with stakeholders, contributing to the company's results.

In addition, evidence shows that CEOs' presence and engagement in social media is a sign of innovation and can improve the reputation of companies (Weber Shandwick, 2012). Therefore, Weber Shandwick (2012) argues that "social CEOs," i.e., those with a well-established reputation in social media, can involve their stakeholders in genuine conversations and represent a new type of corporate leader.

Men and Tsai (2016) sought to understand the importance of this involvement by exploring how and why audiences engage with corporate CEOs on social media. Their findings indicate that CEO engagement with the public positively and significantly affected the perceived CEO's authenticity and accessibility. Such characteristics positively influence the confidence and satisfaction levels of the audience interacting with them through the media. The authors also found that CEOs public engagement on social media directly influenced the quality of relationships between organizations and their audiences.

Additionally, findings show empowerment as one of the factors explaining the CEOs' engagement in social media (Boyd, 2008; Tsai & Men, 2013), as the use of social media enables them to exert influence and impose excellence on a particular audience (Wang & Fesenmaier, 2003). Thus, this study considers the corporate use of social media to empower CEOs and, consequently, build their reputation with their stakeholders.

Studies relating CEOs' role and earnings quality identify two hypotheses. The first, opacity, suggests that more powerful CEOs are incentivized to seek personal benefit (Shleifer & Vishny, 1989; Stoughton & Talmor, 1999; Aboody & Lev, 2000). Thus, CEOs would make the information environment less transparent and with more significant information asymmetry (Bartov & Mohanram, 2004; Abernethy et al., 2015; James et al., 2017). The opacity hypothesis, therefore, predicts that more powerful CEOs would be negatively associated with earnings quality (Shiah-Hou, 2021).

The second hypothesis, that of transparency, suggests that more powerful CEOs are not concerned with masking information about their behavior, as they believe that they will not be replaced by less powerful CEOs (Stein, 2003). Therefore, they have less incentive to hide unsatisfactory performance in order to present greater information transparency (Zhao & Chen, 2008; Armstrong et al., 2012; Jiraporn et al., 2014). Thus, the transparency hypothesis predicts that CEOs' practices minimize information asymmetry and enable higher earnings quality (Shiah-Hou, 2021).

Evidence links CEOs' power with the opacity and transparency hypotheses through three sources: structural, property, and expert power (Shiah-Hou, 2021). Within this study's scope, we consider that similar to more powerful CEOs, those with good reputations may also act according to the opacity or transparency hypothesis. Specifically, the relationship between CEOs' reputation and earnings quality may be motivated by three aspects: 1) the users of financial statements consider CEOs' reputation a key factor for the quality of financial reports (Francis et al., 2008); 2) a CEO's concern with his/her career influences decisions regarding accounting practices disclosed in financial reports (Graham et al., 2005); and 3) highly reputable managers use accounting practices, such as earnings management, to maintain their reputation for delivering profits to the market (Malmendier & Tate, 2009).

In light of the above, there is one explanation for the relationship between a CEO's reputation and earnings quality, suggesting that the more favorable a CEO's reputation, the less likely s/he will be to take actions that result in poor financial reporting. Furthermore, the CEO's reputation is tied to the company's reputation, and in this sense, companies with good earnings quality are associated with lower capital costs. Hence, given the previous discussion, CEOs with a better reputation would opt for better accounting criteria to report better earnings quality (Francis et al., 2008; Graham et al., 2005), consistent with the transparency hypothesis.

However, a CEO's reputation may also be related to lower earnings quality. For Malmendier and Tate (2009), a consequence of CEOs' good reputation is that investors and analysts expect an increase in the company's future performance. Such a fact may lead CEOs to decide on lower-quality accounting practices, mainly when the results expected by the company's stakeholders are not achieved. In this case, the CEO's behavior would confirm the opacity hypothesis.

CEOs are generally believed to have incentives to make accounting choices, and they may provide information with lower or higher earnings quality depending on their intentions and how other market agents see them.

Thus, CEOs' use of social media enables them to be perceived as friendlier, more attentive, and have a more favorable reputation, allowing them to establish relationships with their companies' stakeholders. Therefore, social media interaction is believed to reveal the CEOs' intentions concerning accounting practices. Hence, this strategy enables the increase or decrease of the quality of earnings through earnings management by accruals and/or by real activities, either confirming the hypothesis of opacity or transparency. Hence, the following research hypothesis is proposed based on the literature discussed thus far. The sign of this relationship is not predicted, which may be associated with the opacity or transparency hypothesis:

H1: The CEOs use of LinkedIn to disclose corporate information is significantly related to the practice of earnings management.

3. Methodological Procedures

This study's population comprises Brazilian publicly-held companies integrating the Brazil Index or IBrX100. This index was chosen because it lists the 100 most tradable and representative assets in the Brazilian stock market (Brasil, Bolsa, Balcão, 2021). Companies from the financial sector were excluded, given the sector's specific characteristics and differentiated accounting standards. Additionally, companies with two assets in the Brazil Index remained with only one, excluding repeated data. Finally, the sample consisted of companies that presented data for calculating the variables used in the earnings management models.

First, we verified whether the CEOs of the respective companies displayed profiles on LinkedIn and whether they published information about their companies in their personal account. LinkedIn was chosen because the initial survey showed that 53% of the CEOs of the companies in the IBrX100 had an active account on this social media; participation on Twitter was just 9%.

Next, data were collected by applying filters with keywords related to the organization in which each CEO worked. The words searched concern the companies' information, such as name, profit, performance, growth, result, merger, acquisition, and incorporation.

The analysis period for each company ranges from 1 to 10 years, depending on the length of time the last CEO worked in the company, according to the survey conducted in January 2021. Data were analyzed per year. Table 1 presents the population and study's sample.

Table 1
Population and Sample

Items	Population	Sample
Companies	100	87
CEOs with a LinkedIn account	53	46
CEOs publishing corporate information on LinkedIn	48	43
Number of Followers on LinkedIn	1,438,204	652,515
Number of Publications on LinkedIn	1,575	1,358
Number of Likes on LinkedIn posts	1,043,881	847,467
Number of comments on LinkedIn Posts	39,583	34,569

Source: study's data.

Note that 87 companies were analyzed; a zero score was assigned to social media variables in companies whose CEOs did not have a LinkedIn profile. As shown in Table 1, approximately half of the companies in the sample (43) had a CEO with an active LinkedIn profile publishing corporate information on this social media. Among the analyzed social media variables, the number of followers stands out; on average, each CEO on LinkedIn had more than 15,000 followers. The number of followers justifies the high number of likes and comments shown in Table 1.

Next, Table 2 presents the variables used in the study, their descriptions, how they were collected, and their respective sources.

Table 2
Variables used in the study

Type of variable	Accruals	Description	Collection	Source
Dependent Variables				
Earnings Management by Accruals	AEM	Discretionary accruals operationalized in absolute value	*Refinitiv*®	Pae (2005)
Earnings Management by Actual Activities	REM	Abnormal cash flow, abnormal production costs, and abnormal discretionary expenses		Roychowdhury (2006)
Independent Variables				
Followers	SEG	Logarithm of the number of CEO's followers on LinkedIn	LinkedIn	Elaboradas pelos autores
Posts	PUB	Logarithm of the number of posts concerning the CEO's company on LinkedIn		
Likes	CUR	Logarithm of the number of likes on posts related to the CEO's company on LinkedIn		
Comments	COM	Logarithm of the number of comments on posts related to the CEO's company on LinkedIn		
Control Variables				
Market-to-book	MTB	Company market value divided by book value	*Refinitiv*®	Comiram et al. (2018)
Company's size	TAM	Natural logarithm of total assets at the end of period *t*		

Source: study's data.

The earnings management by accruals (AEM) model corresponds to that of Pae (2005), which aims to increase the predictive power of the Jones Model (1991) and Modified Jones models (Dechow et al., 1995), by including variables that show the operating cash flow and accrual reversal, according to Equation 1.

$$TA_{it} = \alpha + \beta_1 1/Ativo_{i,t-1} + \beta_2 \Delta REC_{i,t} + \beta_3 IMOB_{i,t} + \beta_4 FCO_{i,t} + \beta_5 FCO_{i,t-1} + \beta_6 TA_{i,t-1} \varepsilon_{i,t}$$

Equation 1

where:
TA_{it} = Total Accruals, measured by the variation in working capital, scaled by the total assets in *t-1* of company *i* in period *t1;*
Ativo = Total assets of company *i* in period *t-1*;
$\Delta REC_{i,t}$ = Variation in revenue of company *i* in period *t,* scaled by ;
$IMOB_{i,t}$ = is the gross fixed assets scaled by ;
$FCO_{i,t}$ = operating cash flow of company *i* in period *t,* scaled by ;
$FCO_{i,t-1}$ = operational cash flow of company *i* in period *t-1*, scaled by ;
$TA_{i,t-1}$ = Total accruals, measured by variation in working capital, scaled by total assets in *t-1;*
$\varepsilon_{i,t}$: is the error of the regression o (proxy for earnings management by discretionary accruals).

The model by Roychowdhury (2006) was used for the earnings management model based on real activities (REM). Thus, REM was estimated using operating cash flow, sales, general and administrative expenses, and production level, as shown in Equations 2, 3, and 4.

$$\frac{CFO_{it}}{Ativo_{i,t-1}} = \alpha + K_1 \frac{1}{Ativo_{i,t-1}} + K_2 \frac{REC_{i,t}}{Ativo_{i,t-1}} + K_3 \frac{\Delta REC_{i,t}}{\Delta\, Ativo_{i,t-1}} + \varepsilon_{it}$$

Equation 2

where:
CFO_{it} = Operating Cash Flow of company *i* in period *t*;
$Ativo_{i,t-1}$ = Total assets of company *i* in period *t-1*;
$REC_{i,t}$ = Sales of company *i* in period *t*;
$\Delta REC_{i,t}$ = Variation in sales of company *i* in period *t-1* for period *t*;
ε_{it} = regression error (proxy for earnings management by operating cash flow).

$$\frac{PROD_{it}}{Ativo_{i,t-1}} = \alpha + K_1 \frac{1}{Ativo_{i,t-1}} + K_2 \frac{REC_{i,t}}{Ativo_{i,t-1}} + K_3 \frac{\Delta REC_{i,t}}{\Delta\, Ativo_{i,t-1}} + K_3 \frac{\Delta REC_{i,t}}{\Delta\, Ativo_{i,t-1}} + \varepsilon_{it}$$

Equation 3

where:
$PROD_{it}$ = Costs of goods sold plus the variation in the inventories of company *i* in period *t*;
ε_{it} = regression error (proxy for earnings management by production costs).

$$\frac{DD_{it}}{Ativo_{i,t-1}} = \alpha + K_1 \frac{1}{Ativo_{i,t-1}} + K_2 \frac{REC_{i,t}}{Ativo_{i,t-1}} + \varepsilon_{it}$$

Equation 4

where:
DD_{it} = Discretionary expenses corresponding to the sum of advertising, research and development, sales, and general and administrative expenses of company *i* in period *t*;
ε_{it} = regression error (proxy for earnings management by discretionary expenses).

The three measurements of earnings management by real activities were combined into an aggregated metric, according to Comiram et al. (2018), to identify the overall effect of this management practice. The REM metric corresponds to *REM1 = – Ab_DD + Ab_PROD – Ab_CFO.*

Note that the earnings management by accruals models and real activities were operationalized by year and sector for all companies in Brasil, Bolsa, Balcão (B3) from 2011 to 2020. Next, the earnings management results from the companies composing the sample were separated considering the length in which the last CEO worked in the company.

Regarding the market-to-book (MTB) control variable, companies with a higher market value are more likely to have more public information about their financial position. However, the managers of companies with higher market value may also have more incentives for earnings management. Thus, the relationship between MTB and earnings management can be positive or negative.

As for the company's size control variable (TAM), a negative relationship with earnings management is expected. Such a negative relationship is based on the fact that larger companies have fewer incentives to manipulate results due to political costs (Gu et al., 2005).

The variables were first Winsorized at the 1% level for data analysis. Additionally, the logarithm was used for LinkedIn's social media variables for standardization purposes; thus, variables PUB, CUR, COM, and SEG correspond to the logarithm of the number of posts, likes, comments, and followers, respectively. Regarding earnings management, the absolute value of discretionary accruals was used, as the objective was to test the relationship between the CEOs' use of social media and earnings management, regardless of whether this factor influenced an increase or decrease in profits. Additionally, discretionary accruals were separated into positive and negative as an additional test.

The Shapiro-Wilk normality test showed that the residuals did not present a normal distribution ($Z = 6.51$; $p<0.000$). Next, Pearson and Spearman correlations were applied. Finally, OLS (Ordinary Least Squares) regressions with robust standard errors (with White correction) and sector fixed effect control were performed using the STATA software to meet this study's objective. Equation 5 corresponds to this study's model.

$$GR_{it} = \alpha + \beta_1 PUB_{i,t} + \beta_2 CUR_{i,t} + \beta_3 COM_{i,t} + \beta_4 SEG_{i,t} + \beta_5 MTB_{i,t} + \beta_6 TAM_{i,t} + efeito\_fixo\_setor + \varepsilon_{i,t}$$

Equation 3

Note that the GR corresponds to the earnings management models, by accruals and real activities. The variables of interest are those of social media, which correspond to PUB, CUR, COM, and SEG. Furthermore, MTB and TAM, control variables, correspond to market-to-book and size. Regressions were performed with and without control variables to test the direct relationship between the variables of interest and the dependent variable. Additionally, separate regressions were performed for each social media variable, because, if analyzed together, they would present a multicollinearity problem.

Robust regression was performed because the White test was significant ($P = 27.91$; $p<0.000$), indicating the presence of heteroscedasticity. Despite the residuals' non-normality, this assumption of the OLS linear regression was relaxed when considering the Central Limit Theorem due to the number of observations. Additionally, the multicollinearity between the variables was tested using the Variance Inflation Factor (VIF) test, and the autocorrelation of the residuals was tested using the Durbin-Watson test, the results of which are presented in the results analysis section.

4. Results Analysis and Presentation

First, we present the descriptive statistics of the variables used in this study. Next, the Pearson and Spearman correlation matrix and the regressions' results intended to meet this study's objective are presented.

The variables used to calculate earnings management and the control variables, market-to-book and company size, were Winsorized to 1%. The logarithm was used for the independent variables, followers, posts, likes, and comments for standardization purposes. Table 3 presents the variables' descriptive statistics, which comprises the mean, standard deviation, 25th percentile, median and 75th percentile.

Table 3
Descriptive Statistics

Panel A –Total Sample					
Variable	**Mean**	**Standard deviation**	**Percentile 25th**	**Median**	**Percentile 75th**
Total Sample					
AEM	0.031	0.025	0.008	0.025	0.048
REM	0.198	0.260	0.041	0.110	0.242
MTB	3.270	2.737	1.325	2.373	4.317
TAM	23.345	1.432	22.589	23.326	24.286
Panel B – Companies with CEOs with a LinkedIn account					
Variable	**Mean**	**Standard deviation**	**Percentile 25th**	**Median**	**Percentile 75th**
SEG	12487.95	11846.01	3241.00	9956.00	17604.00
PUB	12.12	26.24	0	1	13
CUR	6656.27	17907.05	0	25	3733
COM	278.51	706.06	0	0	170

Legend: AEM = Earnings management by Accruals; REM = Earnings management by Actual Activities; SEG = Logarithm of the number of followers on LinkedIn; PUB = Number of posts on LinkedIn; CUR = Number of likes on LinkedIn; COM = Number of comments on LinkedIn; MTB = market-to-book; TAM = Size.
Source: study's data.

Table 3, Panel A, shows that, on average, the companies in the sample more frequently presented earnings management by real activities than by accruals. Regarding the control variables, note that the companies in the sample have, on average, a market value three times higher than their equity value, as evidenced by the market-to-book.

Table 3, Panel B presents the descriptive statistics only for companies whose CEOs have a LinkedIn profile, with social media variables. In general, active CEOs and their followers appear to use all forms of interaction on LinkedIn social media. There is a high variability concerning the number of followers, posts, likes, and comments, indicated by a standard deviation higher than the mean. Additionally, the percentiles indicate that some CEOs have social media but do not post publications or have likes or comments on their pages.

Next, Table 4 presents the correlation matrices in Pearson's lower triangle correlation and Spearman's upper triangle.

Table 4
Spearman's and Pearson's Correlations

Variable	**AEM**	**REM**	**SEG**	**PUB**	**CUR**	**COM**	**MTB**	**TAM**
AEM	1	0.208*	0.070	0.081	0.064	0.065	0.067	-0.148*
REM	0.219*	1	0.196*	0.022	0.061	0.047	0.175*	-0.143*
SEG	0.061	0.127*	1	0.599*	0.665*	0.650*	0.012	-0.025
PUB	0.066	0.024	0.545*	1	0.919*	0.916*	-0.048	0.166*
CUR	0.075	0.045	0.637*	0.889*	1	0.973*	-0.015	0.134*
COM	0.073	0.054	0.610*	0.907*	0.982*	1	-0.063	0.134*
MTB	0.137*	0.275*	0.051	-0.037	-0.005	-0.008	1	-0.276*
TAM	-0.125*	-0.146*	0.013	0.126*	0.127*	0.129*	-0.242*	1

Legend: AEM = Earning Management by Accruals; REM = Earnings Management by Actual Activities; SEG = Logarithm of the number of followers on LinkedIn; PUB = Logarithm of the number of posts on LinkedIn; CUR = Logarithm of the number of likes on LinkedIn; COM = Logarithm of the number of comments on LinkedIn; MTB = market-to-book; TAM = Size; Level of significance: * p<0.5.
Source: study's data.

Table 4 shows that management by accruals (AEM) does not significantly correlate with any of the social media variables, indicating that the use of social media is not correlated with AEM. However, regarding earnings management by real activities (REM), a positive and significant correlation is found with the variable logarithm of the number of followers (SEG). In a preliminary analysis, this result suggests that the greater the use of social media, the greater the earnings management by real activities.

As for the other variables used as controls in this study, the correlation results indicate that market-to-book (MTB) and company size (TAM) were respectively positively and negatively correlated with AEM. The same behavior was found for the REM variable. Note that size was negatively correlated with REM and AEM, suggesting that larger companies less frequently manage results through accruals or real activities.

Table 5 presents the results of the relationship between CEOs' corporate use of LinkedIn social media, measured through the logarithm of the number of followers, posts about their companies, likes, and comments concerning posts with earning management by accruals. It should be noted that the assumptions of autocorrelation of residues and multicollinearity of variables were tested using the Durbin-Watson and VIF tests and did not present problems, as shown in Table 5.

Table 5
Earnings Management by Accruals and the Corporate use of Social media

Variables	Dependent variable: Earnings Management by Accruals (AEM)							
	Mod 1 Coef. (Est. *t*)	Mod 2 Coef. (Est. *t*)	Mod 3 Coef. (Est. *t*)	Mod 4 Coef. (Est. *t*)	Mod 5 Coef. (Est.*t*)	Mod 6 Coef. (Est.*t*)	Mod 7 Coef. (Est.*t*)	Mod 8 Coef. (Est. *t*)
Constant	0.0113** (1.97)	0.0729*** (3.25)	0.0122** (2.15)	0.0813*** (3.65)	0.0120** (2.10)	0.0871*** (3.63)	0.0120** (2.11)	0.0810*** (1.04)
SEG	0.0008*** (2.83)	0.0007*** (2.67)	-	-	-	-	-	-
PUB	-	-	0.0019* (1.81)	0.0022** (2.09)	-	-	-	-
CUR	-	-	-	-	0.0007* (1.82)	0.0008** (2.11)	-	-
COM	-	-	-	-	-	-	0.0010* (1.72)	0.0012** (1.98)
MTB	-	0.0006 (1.31)	-	0.0007 (1.43)	-	0.0007 (1.39)	-	0.0007 (1.39)
TAM	-	-0.0025*** (-3.03)	-	-0.0028*** (-3.40)	-	-0.0028*** (-3.40)	-	-0.0028*** (-3.38)
EF Sector	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sig.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R^2	27.79	29.80	26.80	29.29	26.76	29.26	26.68	29.14
R^2 aj.	25.71	27.31	24.68	26.78	24.65	26.75	24.57	26.63
VIF	1.13	1.13-1.52	1.03	1.04-1.53	1.03	1.04-1.54	1.03	1.04-1.53
DW	2.007	2.002	2.012	2.009	2.004	2.001	2.006	2.004
N	322	322	322	322	322	322	322	322

Legend AEM = Earnings Management by Accruals in absolute values; SEG = Logarithm of the number of followers on LinkedIn; PUB = Logarithm of the number of posts on LinkedIn; CUR = Logarithm of the number of likes on LinkedIn; COM = Logarithm of the number of comments on LinkedIn; MTB = market-to-book; TAM = Size; VIF = Variance Inflation Factor; DW = Durbin-Watson; N = number of observations. Significance levels: * p<0.1, ** p<0.05, *** p<0.01.
Source: developed by the authors.

Table 5 shows that all regression models were significant. When the direct relationship between followers, posts, likes, and comments with earnings management by accruals is verified, the explanatory power of the models ranges from 24.57% to 25.71%. When the control variables are included, there is an increase in explanatory power of about 2% in all models.

The relationship between the CEOs' use of LinkedIn social media to publish information and earnings management through accruals (AEM) was confirmed. The positive sign indicates that the use of social media is related to more frequent accrual earnings management practices. Note that all social media variables showed a significant relationship, suggesting that, in addition to the CEOs' corporate posts, followers' responses to information published are also related to more frequent AEM practices.

These results are consistent with the literature addressing CEOs' use of social media, as it allows interaction with the company's stakeholders to establish ties and allows these managers to be perceived as more attentive and friendly (Bai et al., 2019; Elliott et al., 2018). Together, these factors strengthen the CEOs' reputation and may be linked to their choices of accounting practices, as earnings management by accruals evidenced in this study. This finding suggests that CEOs may act opportunistically when using social media to divert stakeholders' attention from earnings management practices to increase or reduce profits.

In economic terms, an increase of one standard deviation in the followers variable (SEG) is followed by an increase in the mean by 11.78% in the AEM variable (Table 3) [(4.566*0.0008)/0.031][1]. Regarding the posts variable (PUB), it appears that an increase of one standard deviation is associated with an increase of approximately 7% in the mean of the AEM variable (Table 3) [(1.141*0.0019)/ 0.031][1]. Finally, as for the likes (CUR) and comments (COM), an increase of one standard deviation in these variables is associated with an increase of 7.89% [(3.495*0.0007)/0.031][1] and 7,25% [(2.248*0.0010)/0.031][1] in the mean of MSA variable (Table 3).

As for the control variables, all models presented the same results regarding the sign; however, only size (TAM) was significant in relation to earnings management by accruals. This finding corroborates the literature (Gu et al., 2005), indicating that larger companies have fewer incentives to manipulate earnings due to the political costs involved.

This evidence confirms the opacity hypothesis, suggesting that more powerful and reputable CEOs tend to promote a less transparent information environment (Bartov & Mohanram, 2004; Abernethy et al., 2015; James et al., 2017); The corporate use of LinkedIn may contribute to this scenario, by allowing AEM practices to be masked. These findings do not allow rejecting hypothesis H_1 of this study concerning AEM, as they confirm that the use of LinkedIn social media by CEOs to disclose corporate information is positively related to the practice of earnings management.

In summary, the results suggest that the greater a CEO's engagement on LinkedIn, especially concerning the number of followers, the more frequent the accrual earnings management practices. This finding may also be linked to CEOs' particular interests. Hence, using a personal LinkedIn profile to publish corporate information may be a way of deceiving stakeholders about practices that reduce the quality of accounting information.

As an additional test to the results shown in Table 5, regressions without treatment of outliers were performed. The results confirm the evidence regarding the number of followers and likes; however, posts and comments did not show a significant relationship. Control variables indicate the same sign and significance with and without outlier treatment in all models.

1 Non-tabulated data concerning the total sample. Standard deviation of the logarithm of the number of followers: 4.566. Standard deviation of the logarithm of the number of posts: 1.141. Standard deviation of the logarithm of the number of likes: 3.495. Standard deviation of the logarithm of the number of comments: 2.248

A sensitivity test was performed to confer robustness to the results shown in Table 5. Hence, the study sample was allocated among the companies that managed results by accruals in order to increase or decrease profits. This test aimed to verify whether there was a difference between the use of LinkedIn by CEOs whose companies manage results through accruals, to increase or decrease results. Table 6 presents the results of this test.

Table 6

Earning management by accruals +/- corporate use of social media.

Variables	Dependent variable: Earnings Management by Accruals (AEM)							
	Positive Accruals				Negative Accruals			
	Mod 9 Coef. (Est. *t*)	Mod 10 Coef. (Est. *t*)	Mod 11 Coef. (Est. *t*)	Mod 12 Coef. (Est. *t*)	Mod 13 Coef. (Est.*t*)	Mod 14 Coef. (Est.*t*)	Mod 15 Coef. (Est.*t*)	Mod 16 Coef. (Est. *t*)
Constant	0.0397 (0.93)	0.0607 (1.46)	0.061 (1.48)	0.0.0602 (1.46)	0.0701 (2.44)	0.0766*** (2.69)	0.0757*** (2.61)	0.0747*** (2.60)
SEG	0.0010*** (2.38)	-	-	-	0.0005 (1.38)	-	-	-
PUB	-	0.0035* (1.76)	-	-	-	0.0025 (1.77)	-	-
CUR	-	-	0.0010** (1.96)	-	-	-	0.0008 (1.37)	-
COM	-	-	-	0.0017** (1.91)	-	-	-	0.0012 (1.28)
MTB	-0.0004 (-0.59)	-0.0003 (-0.45)	-0.0003 (-0.49)	-0.0003 (-0.46)	0.0014** (2.28)	0.0018** (2.56)	0.0018** (2.50)	0.0018** (2.50)
TAM	-0.0014 (-0.86)	-0.0022 (-1.40)	-0.0022 (-1.43)	-0.0022 (-1.41)	-0.0020* (-1.87)	-0.0022** (-2.09)	-0.0022** (-2.01)	-0.0021** (-2.00)
EF Sector	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sig.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R^2	27.25	26.25	26.48	26.39	34.71	35.19	34.75	34.64
R^2 aj.	21.28	20.20	20.45	20.35	30.33	30.84	30.37	30.26
VIF	1.18-1.83	1.05-1.73	1.06-1.73	1.06-1.73	1.20-1.47	1.10-1.50	1.10-1.52	1.10-1.51
DW	1.982	2.018	2.016	2.015	2.188	2.203	2.186	2.191
N	146	146	146	146	176	176	176	176

Legend AEM = Earnings Management by Accruals in absolute values; SEG = Logarithm of the number of followers on LinkedIn; PUB = Logarithm of the number of posts on LinkedIn; CUR = Logarithm of the number of likes on LinkedIn; COM = Logarithm of the number of comments on LinkedIn; MTB = market-to-book; TAM = Size; VIF = Variance Inflation Factor; DW = Durbin-Watson; N = number of observations. Significance levels: * p<0.1. ** p<0.05, *** p<0.01.
Source: developed by the authors.

Table 6 shows that the regression models were significant, and all regression assumptions, Variance Inflation Factor, and Durbin-Watson presented results within the expected.

Regarding positive accruals, the variables followers, posts, likes, and comments showed a positive and significant relationship with AEM. These results indicate that CEOs using LinkedIn for corporate purposes adopt accrual earnings management practices to increase profits.

The same result was not found concerning negative accruals, since the positive relationship found was not significant. Such evidence suggests that LinkedIn is used by the CEOs of companies that manage results only to increase their profits, not to decrease them. This finding may indicate that CEOs see the need to convey only a positive view of their performance as managers to their stakeholders. Such evidence reinforces the opacity hypothesis, as it would promote a less transparent information environment (Bartov & Mohanram, 2004; Abernethy et al., 2015; James et al., 2017). Therefore, possibly one of the objectives of CEOs to use social media is to divert the attention of those interested in the company and mask earnings management practices through accruals.

Furthermore, the control variables used in the positive accruals regression models were not significant. The market-to-book control variable showed a significant positive relationship for negative accruals, suggesting that companies with a higher market value tend to manage earnings through accruals to reduce profits more frequently. Such findings differ from previous studies in the Chinese and American contexts since Wu et al. (2016) and Shiah-Hou (2021) show negative relationships between MTB and the practice of accrual management. The findings related to the size control variable corroborate the literature (Gu et al., 2005) by showing a negative and significant relationship. Such a finding suggests that larger companies tend to perform accrual earnings management practices less frequently to reduce profit values.

Additionally, regression models (Table 5) were performed using McNichols' (2002) model of earnings management by accruals as the dependent variable to confer greater robustness to the findings. This model considers current, past, and future operating cash flows, fixed assets, and revenue variation. The un-tabulated results were presented according to the main analysis, showing the same relationships regarding significance and sign. These findings reinforce that managers may use social media to mask accrual earnings management practices.

Next, Table 7 presents the results of the relationship between earnings management by real activities and CEOs' corporate use of social media.

Table 7

Earnings management by real activities and Corporate use of Social Media

Variables	Dependent variable: Earnings Management by Actual Activities (REM)							
	Mod 17 Coef. (Est. *t*)	Mod 18 Coef. (Est. *t*)	Mod 19 Coef. (Est. *t*)	Mod 20 Coef. (Est. *t*)	Mod 21 Coef. (Est.*t*)	Mod 22 Coef. (Est.*t*)	Mod 23 Coef. (Est.*t*)	Mod 24 Coef. (Est. *t*)
Constant	0.0057*** (2.80)	0.5453** (2.04)	0.0882*** (2.72)	0.592** (2.28)	0.0861*** (2.62)	0.611** (2.47)	0.0253*** (4.78)	0.6142** (2.38)
SEG	0.0005* (1.80)	0.0005* (1.67)	-	-	-	-	-	-
PUB	-	-	0.0087 (0.68)	0.0109 (0.85)	-	-	-	-
CUR	-	-	-	-	0.0045 (0.95)	0.0054 (1.14)	-	-
COM	-	-	-	-	-	-	0.0080 (1.08)	0.0093 (0.212)
MTB	-	0.0098 (1.42)	-	0.0102 (1.44)	-	0.0102 (1.43)	-	0.0101 (1.43)
TAM	-	-0.0196* (-1.85)	-	-0.0213** (-2.09)	-	-0.0221** (-2.18)	-	-0.0223** (-2.20)
EF Setor	Sim	Sim	Sim	Sim	Sim	Sim	Sim	Sim
Sig.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R^2	30.12	31.99	29.42	31.54	29.63	31.81	29.75	31.95
R^2 aj.	28.10	29.57	27.38	29.11	27.60	29.39	27.73	29.53
VIF	1.13	1.13-1.52	1.03	1.04-1.53	1.03	1.05-1.54	1.03	1.04-1.54
DW	2.1533	2.105	2.129	2.083	2.132	2.090	2.128	2.086
N	322	322	322	322	322	322	322	322

Legend AEM = Earnings Management by Accruals in absolute values; SEG = Logarithm of the number of followers on LinkedIn; PUB = Logarithm of the number of posts on LinkedIn; CUR = Logarithm of the number of likes on LinkedIn; COM = Logarithm of the number of comments on LinkedIn; MTB = market-to-book; TAM = Size; VIF = Variance Inflation Factor; DW = Durbin-Watson; N = number of observations. Significance levels: * p<0.1, ** p<0.05, *** p<0.01.
Source: developed by the authors.

As shown in Table 7, both models were significant, and all regression assumptions were met. The explanatory power of the models ranged between 27.38% and 29.57%.

Analyzing the relationship between the CEOs' corporate use of LinkedIn and earnings management by real activities revealed different results than those previously identified (AEM). Table 7 shows that only Model 17 presents a positive and significant relationship, at the 10% level, between the variable number of followers and earnings management by real activities. These findings suggest that CEOs with more followers – therefore, with greater media visibility – tend to perform earnings management through real activities (REM).

Only one of the social media variables (the number of followers) is positively and significantly related to REM. This finding may be linked to the fact that this type of management is more difficult for the market to perceive. Thus, CEOs may deem it unnecessary to mask this practice through the corporate use of tools linked to social media, such as, for example, the number of posts. Additionally, this result reinforces the view that CEOs may use social media to, among other reasons, mask earnings management practices by accruals, as these are more easily perceived by those using accounting information, which would justify such an action.

The results in Table 7 also differ regarding the effect of traditional media coverage. Comiran et al. (2018) found a negative relationship between traditional media coverage and REM, indicating that media attention attenuates the management of real activities (Comiran et al., 2018). Therefore, we may assume that CEOs' REM behavior is mitigated by traditional media coverage, but social media visibility would boost such behavior.

As for the control variables, only the results related to size confirm the findings in Table 5. Thus, consistent with the study by Gu et al. (2005), the findings indicate that larger companies have fewer incentives to manipulate earnings.

Thus, the results presented in Table 7 show that hypothesis H_1 cannot be rejected for REM since CEOs' use of LinkedIn to disclose corporate information when measured by the number of followers, was significantly related to the practice of earnings management by real activities.

In general, the results show, through the significant and positive relationship between the CEOs' use of LinkedIn to disclose corporate information and, mainly, for the practice of earnings management through accruals, that, while these technological platforms are used to inform, share opinion, maintain direct and real-time communication (Huang & Yeo, 2018; Miller & Skinner, 2015), they may also be used to mask management practices intended to decrease the quality of accounting information, at least in the sample addressed here. Therefore, this study corroborates the opacity hypothesis, which predicts that reputable and more powerful CEOs are negatively associated with earnings quality (Shiah-Hou, 2021).

Such findings can warn the market's participants, such as investors and shareholders, who use social media to be informed about these organizations' results. Hence, it is necessary to consider that information directly disclosed by CEOs can affect organizations and their reputations. Thus, they are incentivized to spread positive information, which can often be related to poor earnings quality.

5. Conclusions

This study investigated whether CEOs' use of social media to disseminate corporate information is related to decision-making on earnings management practices. Therefore, publicly traded companies integrating the IBrX100 were analyzed, considering the length in which the last CEO worked in each company, according to a survey conducted in January 2021.

Based on this study's main findings, the conclusion is that the use of LinkedIn by the CEOs of the companies analyzed here is positively related to earnings management through accruals and real activities. Therefore, hypothesis H_1 failed to be rejected. Furthermore, all media variables addressed here were positively and significantly related to AEM practices, suggesting that, in addition to the CEOs' posts, their followers' reactions to such posts also relate to more frequent AEM practices. However, regarding REM, only the variable number of followers was positively and significantly related; this finding indicates that the greater the visibility a CEO has on LinkedIn, the greater the REM practices. In addition to the primary analysis, the sensitivity test indicated that, in general, CEOs' use of LinkedIn is positively related to AEM practices only to increase the profits of the companies in the sample.

In summary, the evidence found in this study is consistent with the opacity hypothesis, in which managers with more power and reputation use accounting practices to manage earnings and, consequently, reduce the quality of accounting information. In this sense, LinkedIn's technological environment can be considered a viable channel to mask such practices and maintain active and direct communication with those interested in an organization.

This study's results contribute to the literature investigating the corporate use of social media by addressing the influence of media on the corporate environment, with uses that go beyond the dissemination of information. Additionally, when approaching such disclosures from the point of view of organizations' CEOs, it presents another perspective to investigate the influence of social media on the quality of accounting information, which has predominantly focused on the publication of companies. Additionally, the results show that social media, such as LinkedIn, can mask both AEM and REM practices.

This study has some limitations, such as the non-generalization of results, since only data belonging to companies listed in the IBrX100 were confronted with the use of LinkedIn. Future studies can expand this population – such as, for example, including all publicly traded companies listed on B3 – and consider other social media.

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Journal of Education and Research in Accounting

Periódico Trimestral, digital e gratuito publicado pela Academia Brasileira de Ciências Contábeis | Available online at www.repec.org.br

REPeC, Brasília, v. 17, n. 3, art. 4, p. 309-328, Jul./Sep. 2023 | DOI: http://dx.doi.org/10.17524/repec.v17i3.3264 | ISSN 1981-8610

The Contributions of the ANPCONT Congress to Studies on Public Sector Accounting

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Abstract

Objective: The contribution of the ANPCONT Congress to research in Public Sector Accounting (PSA) was investigated. This paper presents the characteristics of the studies discussed in PSA's thematic fields of study, the process by which these studies are converted into publications, and the characteristics of the papers published.

Method: The ProKnow-C method was used to analyze the bibliographic material, specifically the stages concerning the bibliographic portfolio selection and systemic analysis. Six analytical lenses were applied in the systemic analysis: topic, paradigm, theory, method, field, and conversion rates.

Results: The studies on PSA obtained a lower conversion rate than the general rate identified in previous studies. A more significant number of studies presented in a given edition did not necessarily result in more studies converted into publications. The New Public Management paradigm, the quantitative approach, and the documentary design were the most predominant among studies; economic theories were also widely adopted; cities were the preferred unit of analysis; and topics such as efficiency and fiscal management predominated.

Contributions: The low rate at which such studies are published in scientific journals and the characteristics of those converted into publications encourage a reflection among researchers, field coordinators, and the organizers of scientific events. Addressing post-NPM paradigms may lead to a more significant plurality of themes, theories, and methods, enabling a greater alignment with international trends.

Keywords: ANPCONT Congress; Accounting Applied to the Public Sector; Scientific Congresses; Systematic review; ProKnow-C.

Published in Portuguese and English. Original Version in Portuguese.

Round 1: Received in 2/10/2023. Review requested on 4/11/2023. Round 2: Resubmited on 5/2/2023. Accepted on 6/19/2023 by Robson Zuccolotto, PhD (Editor assistant) and by Gerlando Augusto Sampaio Franco de Lima, PhD (Editor). Published on 9/30/2023. Organization responsible for the journal: Abracicon.

1. Introduction

Like other scientific events, congresses are opportunities to improve scientific knowledge and research methods (Dallabona et al., 2011). Hence, it is a context conducive to the innovation, production, and communication of knowledge (Zhuang et al., 2020), enabling the exchange of knowledge and clarification of doubts, discussion of ideas, and improving methodologies. Congresses are also an essential stage in the scientific process, where scientific articles are improved before being submitted for publication (Matos et al., 2012).

Given the connection between accounting and the social context, accounting research aims to contribute to the improvement of institutions and society. Thus, scientific events play an important role in the development of studies in the field, facilitating the exchange of knowledge between academia, society, and institutions (Lopes & Beuren, 2017).

There is a growing interest in research in the PSA field in Brazil, mainly due to recent reforms in local accounting standards intended to harmonize with international standards (Monteiro, 2018).

Research in Public Sector Accounting (PSA) aims to provide information about entities in the public sector that is useful for accountability and decision-making (Conselho Federal de Contabilidade [CFC], 2016). Research in the Management and Public Governance field is vital for institutions and society, considering a growing appreciation of principles such as transparency, equity, accountability, social responsibility, and continuity of the State, aiming at its development and its people (Oliveira et al., 2013). There is a growing interest in research in the PSA field in Brazil due to recent reforms in local accounting standards aimed at harmonizing with international standards (Monteiro, 2018).

The ANPCONT Congress, promoted by the *Associação Nacional dos Programas de Pós-Graduação em Ciências Contábeis* (ANPCONT) [National Association of Graduate Programs in Accounting Sciences], is one of the most important events in Brazil, in terms of socialization and dissemination of scientific research in the Accounting field. It aims to establish a relationship between academic studies and their application in organizations, thus disseminating the various approaches to Accounting Sciences research (Ribeiro, 2017). Held since 2007, ANPCONT established, from the 2015 edition onwards, Public Sector Accounting as a thematic field shared with the Third Sector. Starting in 2021, Public Sector Accounting received greater attention as a thematic field exclusively dedicated to the topic (Associação Nacional dos Programas de Pós-Graduação em Ciências Contábeis [ANPCONT], 2022).

The importance of such an event for Accounting Sciences in Brazil is confirmed by several studies that investigated the studies disseminated in its editions. These investigations involved different approaches, such as the process of building knowledge about teaching and learning in Accounting (Santos et al., 2013), the disclosure of accounting information (Lopes & Beuren, 2017), qualitative research in accounting (Pereira et al., 2019); and global analysis of the studies presented at ANPCONT from 2007 to 2016 (Ribeiro & Ribeiro, 2019).

Despite the relevance of research in Public Sector Accounting, more studies are needed to analyze the characteristics of related studies presented at the ANPCONT Congress. Such a gap is relevant because this is one of the leading Brazilian events focused on the development of Accounting Sciences; it recently reached 15 editions. Hence, assessing how the event influences scientific PSA studies is timely, considering these studies are discussed and refined in this congress and later published in scientific journals. Such is not a perspective the studies previously mentioned have addressed, not even Schmitz et al. (2015), who investigated the rate at which the studies presented at the ANPCONT, USP, and EnANPAD congresses are converted in publications in scientific journals.

Therefore, this study aims to investigate how the ANPCONT Congress contributes to PSA, given the growing importance of the public sector as a field of accounting research in Brazil. Therefore, this paper presents the characteristics of the studies presented at the congress in the PSA thematic field and innovates by identifying how these studies are converted into publications in scientific journals and their characteristics, including their impact. Assessing the rate at which studies are converted into publications and comparing the characteristics of published studies with studies discussed in the conference might provide relevant information for researchers, thematic field coordinators, and the organizers of national scientific events interested in research in the PSA field.

2. Literature Review

2.1 Public sector accounting: an overview

The public sector has undergone reforms aimed at improving efficiency, strengthening accountability, improving the quality of information provided to managers and the quality of decision-making and performance, strengthening transparency and social control (Monteiro, 2018). As noted by O'Flynn (2007), these reforms became known in the literature as New Public Management (NPM). NPM meant a progressive transition from traditional public administration to an administration inspired in the private sector (Hyndman & Liguori, 2016).

These reforms revolve around six dimensions: privatization, marketization, decentralization, output orientation, and high-quality systems (Hyndman & Liguori, 2016). From the NPM perspective, citizens are the consumers of public services (Abellán-Lopez et al., 2020); hence, it is based on the *homo economicus* assumption, i.e., people are rational, informed, and maximize the utility of their choices according to a cost-benefit analysis (Abellán-Lopez et al., 2020).

NPM has led to important changes in accounting regarding budgeting and performance measurement systems in the public sector, aiming to improve management and accountability (Hyndman & Liguori, 2016). One of the most evident changes in PSA due to this paradigm concerns creating specific standards for the public sector and international harmonization (Monteiro, 2018). Governments that adhere to NPM ideas generally adopt accrual accounting (as opposed to cash accounting), financial statements for the public sector modeled after those prepared by companies in the private sector, decentralized budgets with a focus on the performance of output-oriented spending (Hyndman & Liguori, 2016). The calculation of costs of individual services and goals supporting a rational choice also tends to be emphasized in NPM-based accounting systems (Hyndman & Liguori, 2016). However, these movements are not homogeneous across countries, as different phases of development give rise to distinct types of accounting practices (Van Helden & Uddin, 2016).

As a result, internationally, PSA research has experienced a "golden age" under the NPM approach, as there is a growing number of studies addressing accounting from the lens of reforms brought about by this paradigm (Steccolini, 2019). Meanwhile, this topic has recently experienced quantitative growth (Farias et al., 2017).

As a result, both international and Brazilian studies have analyzed PSA research. Jacobs (2012) explored the use of theories on this topic and found that a third of the papers did not adopt an explicit theoretical framework. The theoretical approaches most frequently used were neo-institutional and economical, and inspirations were drawn from organizational and political theory, while the sociological approaches by Habermas, Foucault, Latour, Giddens, and Bordieu are evident. Furthermore, many of the studies addressed mixed theoretical frameworks in a multi-method approach to deal with the contextual and institutional complexity of the public sector (Jacobs, 2012).

Lapsley and Miller (2019) examined the literature on PSA between 1998 and 2018. They identified prominent approaches or theories in studies on public sector reforms: NPM, governmentality, reform processes, Actor-Network Theory, and Institutional Theory (Lapsley & Miller, 2019). Van Helden et al. (2021) reviewed articles on PSA published in the Journal of Accounting in Emerging Economies and concluded that most studies are dominated by accounting reforms inspired by NPM. Still concerning the NPM paradigm, adopting International Public Sector Accounting Standards is highlighted as a relevant topic for emerging and low-income countries (Polzer et al., 2021). However, most studies in this scenario are still exploratory and only rely on secondary data (Polzer et al., 2021). Topics such as accounting standards applied to the Brazilian public sector and the Fiscal Responsibility Law are emphasized in Brazilian theses and dissertations, while economic theories such as Agency Theory and Public Choice Theory have been the choice for the theoretical framework (Farias et al., 2017).

When dealing with post-NPM paradigms, Bracci et al. (2019) conducted a literature review to investigate the role and impact of accounting in the literature addressing the Public Value theory. The results revealed a lack of empirical studies and few studies in accounting. Hence, researchers in the field need to reach a deeper level of understanding of the concept, creation, and measurement of public value (Bracci et al., 2019), which, according to Bryhinets et al. (2020), represents a modern paradigm in which the involvement of interested parties in decision-making is encouraged. In this vein, Steccolini (2019) understands that even though the NPM paradigm encouraged a golden age for PSA research, it may also represent a golden cage in case contemporary themes in public management, such as coproduction, hybridization, public value, and democratic participation advance.

2.2 Related Studies

As mentioned in the introduction, several studies analyzed the papers presented at ANPCONT congresses. Firstly, Santos et al. (2013) investigated the process of building knowledge on teaching and learning in Accounting by analyzing the papers presented at the USP and ANPCONT congresses between 2007 and 2011. Their results showed a growing tendency in the number of papers on the topic in both editions included in the period. Regarding the methods, there was a predominance of questionnaires, followed by surveys and field research.

Schmitz et al. (2015) verified the rate at which the papers presented at ANPCONT, USP, and EnANPAD conferences are converted into publications in Qualis Capes- classified journals. The authors found that 592 of the 1,482 papers were published in scientific journals – most of which were classified in the upper strata of Qualis Capes –and were concentrated in a few journals. The authors concluded that studies in the accounting field are restricted to a few agents, as they are concentrated around an elite of researchers, universities, and journals, thus providing strong endogeneity.

Lopes and Beuren (2017) analyzed the characteristics of research on accounting disclosure shared at the ANPCONT Congress between 2007 and 2016. The results show that accounting disclosure was more frequently addressed from 2009 onwards, coinciding with convergence to international standards, and as for the foundation theories most frequently adopted, disclosure, agency, legitimacy, stakeholders, and the institutional and political economy of accounting stood out. Regarding the methodology, content analysis combined with statistical tools was the most frequently used.

Pereira et al. (2019) analyzed the association between qualitative research methodologies and their use in papers presented at the ANPCONT Congress between 2007 and 2016 to identify which methods were adopted by Brazilian accounting researchers. The results showed that the Controlling and Management Accounting field is associated with case studies, and the fields of Education and Research in Accounting, Accounting for External Users, and Financial Credit and Capital Markets are associated with documentary and bibliographic research. Furthermore, the authors found a tendency towards an increase in studies with a qualitative approach, even though quantitative studies still predominated in the period.

Ribeiro and Ribeiro (2019) analyzed scientific production profiles, characteristics, and behavior in the studies presented at the ANPCONT Congress from 2007 to 2016. Regarding the institutions, USP, UFMG, UFPB, and FURB stood out in the production of papers, degrees, and betweenness. As for the themes, corporate governance, cost management, disclosure, management accounting, investment, budgeting process, results management, accounting information, international accounting, and public management stood out.

These related studies are useful to identify differences and similarities in the papers addressing Public Sector Accounting and presented at the ANPCONT Congress, which is this study's objective. Additionally, previous studies were the basis for determining the methodological procedures detailed in the following section.

3. Methodological Procedures

This study analyzed the studies presented at the ANPCONT Congress from 2015 to 2021. This timeframe was chosen because, from the congress' 9th edition onwards, which occurred in 2015, ANPCONT attributed greater importance to research on Public Sector Accounting by highlighting it as a thematic field, thus indicating a particular interest and support for research in this field. Moreover, analyzing specific thematic areas decreases subjectivity when determining the bibliographic portfolio.

To achieve this study's objectives, the ProKnow-C (knowledge development process – constructivist), a knowledge construction methodology structured in four stages, was used: 1) selection of the bibliographic portfolio that will enable the literature review; 2) bibliometric analysis; 3) systemic analysis of the bibliographic portfolio; and 4) the establishment of the research objectives (Afonso et al., 2011). Steps 1 and 3 will be applied to meet this study's objectives.

The bibliographic portfolio is selected in stage 1, considering the papers discussed in the CPT and CSP thematic fields at the ANPCONT Congress. Note that, between 2015 and 2020, the CPT (2015 to 2019) and CSP (2020) fields also received studies conducted in other fields, such as the third sector, cooperatives, and religious organizations. Hence, these papers required an analysis. Hence, the papers' titles and/or abstracts were verified, and any papers not addressing PSA were removed from the bibliographic portfolio.

After defining the bibliographic portfolio, the studies selected were systemically analyzed. The ProKnow-C method includes a critical analysis based on explicit selection and analysis criteria (Marafon et al., 2012). Considering that the ProKnow-C method has specific analysis lenses related to Performance Assessment (Marafon et al., 2012), systemic analysis lenses were developed following the objectives defined for this investigation.

These lenses are presented in Table 1. The following aspects are worth noting: the topics were identified based on analyzing the most recurrent keywords in studies listed in the bibliographic portfolio (Kumar, 2020; Polzer et al., 2021). Regarding the paradigms, we verify whether the papers (in the titles, abstracts, keywords, and theoretical references) were related to the paradigms of Traditional Public Administration, New Public Management, New Public Governance, or Public Value (Bryhinets et al., 2020). As for the method, we analyzed the i) research strategy, ii) data collection technique, and iii) research approach (Pereira et al., 2019) based on the methodology or methodological procedures presented in each paper.

Table 1
Lenses of Systemic Analysis

Lenses	Question	References
Topic	What are the main topics addressed in the papers presented at the ANPCONT congress in the Public Sector Accounting field?	Ribeiro and Ribeiro (2019); Van Helden et al. (2021)
Paradigm	Which public administration paradigms are the papers presented at the ANPCONT Congress in the Public Sector Accounting field based on?	Hyndman and Liguori (2016); Bryhinets et al. (2020)
Theory	What theories were adopted by the studies presented at the ANPCONT Congress in the Public Sector Accounting field?	Farias et al. (2017); Lopes and Beuren (2017); Van Helden et al. (2021)
Method	What are the methodological characteristics of the papers presented at the ANPCONT Congress in Public Sector Accounting field?	Farias et al. (2017); Pereira et al. (2019); Van Helden et al. (2021)
Unit of Analysis	In what contexts were the studies presented at the ANPCONT Congress in the Public Sector Accounting fields conducted?	Farias et al. (2017); Bracci et al. (2019); Polzer et al. (2021)
Conversion	What are the characteristics of the studies presented at the ANPCONT Congress in the Public Sector Accounting field published in scientific journals?	Schmitz et al. (2015)

Source: Study's data.

The studies were first identified by searching the titles of the papers in the bibliographic portfolio on Google Scholar to analyze the characteristics of the studies that were converted into publications in scientific journals. When a paper was not found, the first author's Lattes CV was consulted to confirm whether the study had been published.

The following bibliometric characteristics were analyzed to assess the contribution of the ANPCONT Congress for papers on the PSA field to be published: i) the number of studies converted into a definitive, absolute publication according to the year when the event occurred (Schmitz et al., 2015); ii) the journal in which the paper was published (Schmitz et al., 2015), iii) its impact according to the Qualis-CAPES classification in the fields of Public and Business Administration, Accounting Sciences, and Tourism (Schmitz et al., 2015); and iv) the publication's impact according to the absolute number of citations in Google Scholar (Polzer et al., 2021). We chose to identify the journal stratum based on the classification of periodicals from 2013 to 2016, as the classification concerning the 2017-2020 period presented preliminary results in the analysis.

The characteristics of the studies that were eventually published were verified based on the five previous lenses to allow an analysis of the differences between the studies presented in the Congress' different editions *vs.* studies published in journals. Thus, the methodology adopted is intended to express the contributions of the ANPCONT Congress to research in the PSA field from the time a specific thematic field was created (2015), to reveal the profile of the studies accepted in the congress (analysis through the first five lenses of systemic analysis) and verify the congress' impact on the development of knowledge in the field (lenses to verify the rate at which the studies are converted into publications in scientific journals and the characteristics of these published studies based on the first five lenses).

4. Analyses and Discussion

Based on the procedures chosen for this investigation, the bibliographic portfolio was initially selected (Step 1). A total of 210 papers presented in the thematic fields dedicated to PSA were identified. Of these, 26 were removed from the portfolio because they dealt with topics unrelated to the public sector: 23 concerned the Third Sector, two concerned cooperatives, and one was conducted in publicly-held companies under regulation. Hence, 184 papers remained in the bibliographic portfolio. Table 2 presents the distribution of studies on the PSA field according to year.

Table 2
Studies presented in each of the Congress' editions.

	2015	2016	2017	2018	2019	2020	2021	Total
PSA Studies	19	17	34	19	29	34	32	184
Total Studies	123	165	247	115	164	281	221	1316
%	**15.45%**	**10.30%**	**13.77%**	**16.52%**	**17.68%**	**12.10%**	**14.48%**	**13.98%**

Source: study's data.

There has been a tendency towards an increase in the absolute number of presentations on PSA since ANPCONT created a specific field for the topic. However, over the years, the proportion of total papers presented at the Congress remains similar to that of papers on PSA. Therefore, the PSA field follows the upward trend seen among studies in Brazilian congresses in the Accounting Sciences field, which has already been indicated by Santos et al. (2013). Below are the results obtained from the systemic analysis stage.

4.1 Systemic Analysis

4.1.1 Lens 1: Topic

The most recurring keywords in the bibliographic portfolio were analyzed to identify the topics most frequently addressed by the studies in the PSA field presented at the ANPCONT Congress; 676 keywords were identified. Figure 1 displays a cloud formed with these keywords.

Figure 1. Keywords cloud: studies presented at ANPCONT

Source: study's data; illustration generated at https://wordsift.org/

In addition to the keywords that characterize the topic (Public Accounting; Public Sector; Accounting Applied to the Public Sector), there is a prominence of topics focused on cities, with 40 related occurrences indicating a preference of researchers in the field for sub-national entities. As for the tools, the analysis indicates a preference for budget (24 occurrences), which constitutes the main instrument for controlling public resources and, thus, materializes not only technical decisions but also political ones. This factor plays a leading role in Brazil as a tool for controlling public resources at all levels of government from the beginning of the process of national public finances organization (Pires & Motta, 2008).

Regarding the topics, a comparison between the most recurrent keywords with those related to the paradigms of traditional public administration, New Public Management (NPM), and New Public Governance (NPG) (Hyndman & Liguori, 2016) showed a prominence of keywords linked to the NPM paradigm. Thus, the topics focused on efficiency (16 related keywords) stand out, referring to aspects such as "public spending" (9) and "Data Envelopment Analysis (DEA)" (8). Still concerning the NPM paradigm, topics on management (35) are emphasized, among which a focus on fiscal management (12) predominates, followed by auditing (9), which is confirmed by keywords such as "court of accounts" (8).

Regarding the NPG paradigm, topics related to transparency (26 occurrences), accountability (11), and social control (6) are highlighted. As for the traditional paradigm, topics involving the Fiscal Responsibility Law (10), internal controls (9), and corruption (5) stand out in the period. Furthermore, the keywords show an emphasis on the theory of political cycles or electoral cycles (13).

Based on the keywords associated with public administration paradigms given by Hyndman and Liguori (2016), 41% of the keywords indicated in the studies were related to previously mentioned paradigms. This analysis indicates a predominance of the NPM paradigm in PSA studies disseminated at the congress (24% of keywords), followed by NPG (12%) and the traditional paradigm (6%). A relative analysis over the period indicates a more pronounced downward trend in discussions concerning the traditional paradigm, a broad predominance of topics concerning NPM throughout the series, and a modest upward trend in discussions linked to the NPG.

Farias et al. (2017) analyzed dissertations and theses performed between 2008 and 2015 in the PSA field in Brazil. They identified that the most recurrent themes were Brazilian Accounting Standards Applied to the Public Sector (21.8%), Fiscal Responsibility Law (14.9%), Costs (12.6%), and Budgetary Control (12.6%). Note that there are relevant differences between the topics covered in dissertations and theses and those discussed in the congress' editions in contiguous periods.

4.1.2 Lens 2: Paradigm

This lens was used to understand which public administration paradigms are the most frequently addressed by the studies in the PSA field discussed at the ANPCONT Congress. Hence, the studies included in the bibliographic portfolio were analyzed to identify direct mentions of these paradigms: Traditional Public Administration, NPM, NPG, or Public Value. The most significant portion (167) of the 184 studies does not mention a public administration paradigm (90.76%); 17 (9.2%) studies directly mention one of these paradigms. Table 3 summarizes the main findings.

Table 3
Analysis of the paradigms Involving Public Administration

Paradigm	2015	2016	2017	2018	2019	2020	2021	Total
NPM		1	3	1	3	2	2	12
NPM+New Public Service		1						1
Public			1					1
NPM+NPG					1			1
NPG						1		1
Public Value							1	1
Not mentioned	19	15	30	18	25	31	29	167

Source: study's data

The results reinforce the dominance of the NPM paradigm in PSA studies recently discussed at the ANPCONT congress (70.6% of the studies in which a paradigm was identified), named in the studies as New Public Management (8), New Public Management (3), or New Public Administration (1). It is a post-bureaucratic paradigm that advocates flexibility, efficiency, and citizen-oriented as a consumer of public services (Abellán-López et al., 2020). NPM assumes the existence of *homo economicus,* in which individuals are believed to be rational, informed, and able to maximize the utility of their choices according to a cost-benefit analysis (Abellán-López et al., 2020).

This result shows that the NPM paradigm in PSA discussions follows the trend at an international level (Lapsley and Miller, 2019; Steccolini, 2019). Furthermore, two studies are simultaneously based on two public administration paradigms, and two post-NPM paradigms (NPG and Public Value) were found in more recent studies.

4.1.3 Lens 3: Theory

Here, this lens was used to determine which theories supported the studies in the PSA field presented at the editions of the ANPCONT Congress. Note that no foundation theories were identified in 113 (61.4%) of the 184 studies, a percentage higher than that found by Lopes and Beuren (2017) when addressing studies presented at the same event on accounting disclosure (51%).

The lack of a formal theory in PSA research is not a novelty, as shown by Jacobs (2012); however, the percentage of papers identified in this investigation is higher than that previously found. Note that, in line with Jacobs (2012), at this stage, the studies published in international reference journals contrast with studies in progress discussed at an academic conference.

Table 4 highlights the foundation theories most frequently adopted by the studies presented at the ANPCONT Congress.

Table 4
Foundation theories

Theory	2015	2016	2017	2018	2019	2020	2021	Total
Political Cycle Theory		1	1	1	3	1	6	13
Institutional Theory		2	2	1		2	2	9
Agency Theory	1				2	2	4	9
Public Choice Theory	1		1	1	2	2		7
Theory of Fiscal Federalism					3	1		4
Others		1	4	8	4	8	4	29
Not mentioned	17	13	26	8	15	18	16	113

Source: study's data.

The findings reveal that economic theories predominated in the studies on the PSA field discussed in the latest editions of the ANPCONT Congress. Economic theories have been among the most frequently adopted in PSA (Jacobs, 2012), including by Brazilian theses and dissertations (Farias et al., 2017). This finding agrees with evidence about the predominance of approaches related to the NPM paradigm since this paradigm has institutional economics as one of the main backgrounds (Lapsley & Miller, 2019). In addition to the recurrent presence of agency theory and public choice theory, in this study, attention is drawn to the theory of political cycles, also highlighted in Lens 1, and with greater prominence than theses and dissertations (Farias et al., 2017).

The institutional theory is in the background, but it is indicated as the most recurrent in the development of international research in PSA (Jacobs, 2012; Van Helden & Uddin, 2016; Van Helden et al., 2021). The other theories, which total 24, were mentioned only once in each of the seven editions analyzed. Also noteworthy is that 17 studies mention more than one foundation theory (7.6% of the portfolio), a phenomenon found in high-impact international studies (Jacobs, 2012; Lapsley & Miller, 2019).

On the other hand, a lack of the Actor-Network Theory and Foucault's governmentality in the PSA studies discussed at the event is worth noting, which are also absent in theses and dissertations (Farias et al., 2017), considering that international impact research in this field has recurrently used these approaches (Jacobs, 2012; Lapsley & Miller, 2019).

4.1.4 Lens 4: Methods

This lens aimed to identify the methodological characteristics of the studies in the PSA field discussed at the ANPCONT Congress in terms of study design, data collection procedures, and approach. Table 5 presents the most recurrent strategies.

Table 5
Studies' designs

Design	2015	2016	2017	2018	2019	2020	2021	Total
Documentary	13	14	21	16	23	27	21	135
Survey			3	2	3	2	6	16
Case Study	4	2	3		1	1	1	12
Content Analysis			4		1		2	7
Bibliographic/Documental	1	1	3					5
Others	1			1	1	4	2	9

Source: study's data.

As for the design adopted, a preference for documentary research (72.8%) was found. Such a preference is likely explained by the fact that the public sector produces and publishes large amounts of documents and data; hence, there are research opportunities. Such a predilection for documentary studies is similar to what Pereira et al. (2019) note in most of the thematic fields of the ANPCONT Congress, followed by Brazilian dissertations and theses on PSA, as observed by Farias et al. (2017). On the other hand, these results differ from those found in international studies published in high-impact journals, in which case studies are the most frequent (Van Helden & Uddin, 2016; Van Helden et al., 2021).

Regarding the data collection procedures most frequently adopted, the documentary procedure stands out (133 articles; 72.3%), followed by questionnaires (16 articles; 8.7%) and the bibliographic procedure (12 articles; 6.5%)—seven papers (3.8%) combined two or more data collection techniques. Regarding the studies' approaches, a predominance of studies with a quantitative approach (120; 65.2%) was found, while 39 (21.2%) exclusively adopted the qualitative approach and 13 (7.1%) applied a quantitative-qualitative approach.

Therefore, the notion that researchers in the PSA field presenting their studies at the ANPCONT congress prefer to resort to documentary data (mainly secondary data) is reinforced, which is in line with what is found in theses and dissertations (Farias et al., 2017) and in the event's other thematic fields (Pereira et al., 2019), and international reviews (Van Helden & Uddin, 2016; Van Helden et al., 2021). Consequently, the quantitative approach is the most predominant, converging with the Brazilian studies but differing from the international studies mentioned here.

4.1.5 Lens 5: Unit of Analysis

This lens supported understanding the contexts in which the studies in the PSA field presented at the ANPCONT Congress were conducted. Table 6 summarizes the primary units of analysis used for the investigations.

Table 6
Primary units of analysis: studies presented at ANPCONT

Empirical context	2015	2016	2017	2018	2019	2020	2021	Total
City/Cities	10	5	18	12	13	16	14	88
State/States	1	4	7	3	2	6	5	28
IES	3		1	2	5		4	15
Country/Countries/Federal Union	2		3	1	3	4	2	15
Accounting Courts		3	2			1		6
Hospitals					2		1	3

Source: study's data

Note that governments are the context most frequently addressed by these investigations, among which cities stand out, addressed in 47.8% of studies in the PSA field, followed by states (15.2%) and countries (8.2%). The results show a great interest among researchers in subnational entities, reinforcing what was found in Lens 1, especially regarding cities. This predominance is corroborated by Farias et al. (2017), who also identified cities as the preferred unit of analysis in Brazilian dissertations and theses on the PSA field (32.1%). On the other hand, the focus on cities clashes with trends found in international literature reviews addressing PSA, based on high-impact papers and journals, which indicate less focus on local governments and more intensive targeting of central governments (Bracci et al., 2019; Polzer et al., 2021).

As for specific entities, HEIs stood out as the ones raising the most interest of researchers, also verified by Farias et al. (2017), with 19.2% of theses and dissertations in the PSA field based on HEIs. Additionally, the courts of accounts show a decreased interest over time, while hospitals emerged as a high-interest context in more recent editions. Note that ten studies in the portfolio are conceptual studies or literature reviews.

Based on the previous discussion, the units of analysis of greatest interest in the PSA field follow the trends noted by Lapsley and Miller (2019) in contemporary publications in the leading accounting journals that have published studies on the topic, i.e., universities, government, audit, and healthcare.

4.1.6 Lens 6: Conversion

This lens identifies the main characteristics of the studies in the PSA field presented at the ANPCONT Congress, which were converted into journal publications (42). The analysis began by identifying the rate at which the studies are published in scientific journals, presented in Figure 2.

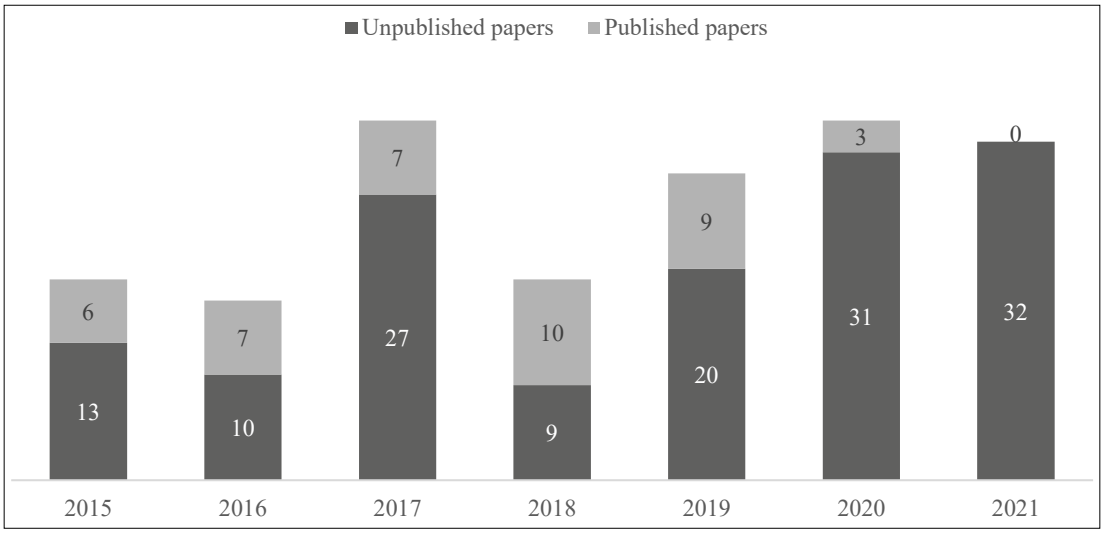

Figure 2. Papers published in periodicals

Source: study's data.

The proportion of papers published in journals rose between 2015 (31.6%) and 2016 (41.2%), registering a percentage drop in 2017 (20.6%), until reaching its peak, both in percentage and absolute number, in 2018 (52.63%). A significant drop in percentage points (31%) was found in 2019. An analysis of this period indicates that a more significant number of studies presented in a given edition does not necessarily translate into more papers being converted into definitive publications, especially when the 2016 and 2018 editions were compared to the 2017 and 2019 ones.

The percentage of papers published in 2020 was only 8.82%, while no papers were published in 2021. This discrepancy is likely explained by the fact that most papers presented in these editions are still being improved, adapted, or submitted to a journal for publication. This adjustment period may have been extended given the potential difficulties faced during the Covid-19 pandemic (Lisboa et al., 2023). Additionally, in the case the papers were already submitted to journals, the time between submission and acceptance must be considered – which, in the primary Brazilian journals, takes 259 days on average (Coelho et al., 2018), in addition to the time required for publication.

Schmitz et al. (2015) identified that 39.9% of the studies presented at the ANPCONT, EnANPAD, and USP events from 2007 to 2012 were converted into definitive publications. Specifically, 39.4% of the papers presented in the editions of the ANPCONT Congress and analyzed here were published in scientific journals. This study found that a lower percentage of papers on PSA (22.8%) were converted into publications, even when disregarding 2020 and 2021 (33%). Despite the contribution of the ANPCONT Congress to disseminate scientific research in the PSA field, this finding suggests an incremental difficulty for PSA researchers in converting their papers presented at the event into a publication in scientific periodicals.

Table 7 shows the journals that published more than one PSA paper presented at the congress analyzed here. Note that the periodicals in Table 7 concern both the accounting and public administration fields (maintained by Fundação Getulio Vargas), with an emphasis on two periodicals classified in stratum A2.

Table 7
Journals with the largest number of publications.

Periodical	Qualis	Total
Advances in Scientific and Applied Accounting (ANPCONT)	A2	4
Revista Catarinense da Ciência Contábil (CRCSC)	B2	4
Revista Ambiente Contábil (UFRN)	B3	3
Revista de Administração Pública (FGV)	A2	2
Revista de Administração, Ciências Contábeis e Sustentabilidade (UFCG)	B2	2
Cadernos de Gestão Pública e Cidadania (FGV)	B2	2

Source: study's data.

It is worth noting that only Advances in Scientific and Applied Accounting appear in this study and that of Schmitz et al. (2015). This study indicates that PSA studies are more successful in being published in journals other than those that generally publish more papers presented at the ANPCONT congress, among which *Revista de Educação e Pesquisa em Contabilidade* (B1), *Contabilidade Vista & Revista* (A2), and *Revista Base* (B1).

Regarding impact, 11 studies were published in journals classified as B2 (26.2%), 10 in A2 journals (23.8%), 10 in B3 journals (23.8%), three in B1 journals (7.1%), two in B4 journals (4.8%). One was published in a journal classified in the highest stratum, A1 (2.4%), while five studies were published in journals not classified in Qualis-CAPES (11.9%). Compared to Schmitz et al. (2015), studies on PSA gained greater prominence in periodicals classified at level "A," while they were less frequently published in B1 periodicals and more frequently in unclassified journals.

Still on the impact of publications, 31 (73.8%) of the 42 papers published received at least one citation. The publications received 222 citations in the Google Scholar database (an average of 5.3 citations per paper). Six papers received more than ten citations; four were published in A2 and two in B2 journals. Considering that 98% of the papers were published from 2016 onwards (29% in 2020 and 14% in 2021), the studies on PSA presented at the ANPCONT congress and published have impacted this research field in recent years.

Figure 3 presents the analysis regarding keywords to identify the studies converted into publications; 152 terms were identified.

Figure 1. Keywords cloud: publications

Source: study's data; illustration generated at https://wordsift.org/.

The analysis of keywords reinforces the focus of the studies on cities, including the rate at which they are converted into a definitive publication. Furthermore, the findings indicate that the papers addressing NPM-related topics have been more successful in publishing. Of the 66 keywords associated with public administration paradigms, 48 (72.7%) are related to NPM, corresponding to 32% of the total keywords. Among the NPM-related topics, those involving "efficiency" (9 related keywords), which is associated with aspects such as "Data Envelopment Analysis (DEA)" (5) and "public spending" (3), and management topics (14 related keywords) with emphasis on fiscal management (5) were more successful.

In converting the papers into definitive publications, there is a particular emphasis on topics involving the theory of political or electoral cycles (5 occurrences). However, the absence of foundation theories in most papers (64.2%) has not hindered publication.

Still on the topics, the same favorable behavior was not identified among the studies dealing with budget (5 studies, compared to 24 occurrences at the congress' editions). Furthermore, studies on topics related to the NPG were not converted into definitive publications (6% of total keywords), which is likely explained by the fact that a relevant portion was discussed in more recent congresses.

Finally, Figure 3 shows an unexpected emphasis on the hospital field. Four keywords were identified among the publications (compared to seven that appear in the studies presented at the congress), showing that studies conducted in this field are being converted into a publication. This fact becomes relevant because all studies on this topic were discussed between 2019 and 2021.

As for the methods, the analysis of research designs shows a predominance of documentary research in the published papers, as 35 (83.3%) studies adopted this design. A comparison of the distribution of studies presented at the event shows that case studies were more successful in being converted into definitive publications (3 studies; 7.1%). At the same time, survey studies (1 study; 2.4%) and content analysis (no studies) were less successful in being converted into publications.

As a result, the studies published in scientific journals show a predominance of the quantitative approach (29; 69%), converging to 65% of the papers presented at the ANPCONT Congress and comprising the bibliographic portfolio and documentary studies (36; 85.7%), while only one published paper collected data using a questionnaire (2.4%).

The units of analysis are presented in Table 8.

Table 8
Primary units of analysis: published papers

Unit of analysis	2015	2016	2017	2018	2019	2020	Total General
City/Cities	4		5	6	4		19
State/States		2	1	1			4
IES				1	2		3
Country/Countries/ Federal Union	1			1		1	3
Courts of Accounts		2					2
Federal University Hospitals					2		2

Source: study's data.

A comparison of the units of analysis most frequently addressed in the definitive publications with those in the studies on the PSA field presented at the ANPCONT Congress reveals that cities, states, and HEIs remain the most recurrent units of analysis in both samples, though studies focusing on cities predominate.

A total of 21.6% of the studies whose units of analysis were cities were converted into a publication. This proportion is similar to the general rate at which the studies identified in this study are converted into a publication. This analysis reinforces evidence that topics involving the analysis of hospitals (especially teaching hospitals) have been well received by journals. On the other hand, studies focusing on states have not been as successful (14.3% were converted into a publication).

5. Conclusions

This thematic review sought to investigate the contribution of the ANPCONT Congress to research in the PSA field. Therefore, this study presents the characteristics of the studies addressing the PSA thematic areas and presented at the congress. ANPCONT is important because it promotes the exchange of experiences, knowledge dissemination, and new research ideas. Additionally, this study shows that the congress directly contributes to the studies being converted into definitive publications and highlights the characteristics of the papers published in scientific journals.

This study revealed that, although the studies converted into definitive publications impact citations and deserve to be published in high-quality journals, a lower conversion rate was found among the studies presented at the congress compared to the general conversion rate found by previous studies. Additionally, a more significant number of studies presented at a given event does not necessarily translate into a higher conversion rate.

The discussions held at the ANPCONT congress in the PSA field favored research based on the NPM paradigm, corroborated by evidence obtained in the analysis of themes, paradigms, and theories. Additionally, studies based on this paradigm have been well received at the congress – and even reflect research preferences in PSA among the Brazilian accounting graduate programs –the results show that the journals show the same receptivity. Thus, the ANPCONT congress has significantly contributed to PSA research conducted under this paradigm.

Considering the predominance of NPM and the recent quantitative growth of PSA studies presented at the congress, this behavior likely reflects that PSA research is also experiencing a "golden era" in Brazil (Steccolini, 2019). In the studies discussed at the events, the NPM paradigm recurrently addresses themes such as efficiency and fiscal management, in addition to economic-oriented theories, such as agency theory, the theory of public choices, and, above all, the theory of political cycles.

This review brings several contributions to Brazilian researchers in the PSA field. Firstly, it highlights that ANPCONT is a favorable scenario for discussing studies under the NPM paradigm. Additionally, it shows opportunities concerning units of analysis besides the government, such as universities, auditing, and hospitals, which have been addressed by international studies in the PSA field and by studies presented at ANPCONT conferences, appearing to be promising to promote greater inclusion in journals.

Nonetheless, even though the NPM paradigm promotes a "golden era" for PSA research, it may lead it to a "golden cage" (Steccolini, 2019). Given the broad predominance of NPM in PSA research shared at the ANPCONT congress, such a risk must be observed in Brazilian research, considering that discussions about post-NPM paradigms in recent events are still incipient.

Therefore, based on the evidence presented here, researchers in the PSA field are suggested to expand the approach to these paradigms, which could give rise, on the Brazilian scene, to a greater plurality of theories and research methods; the insertion of theories already widely addressed in the international context, such as Foucault's Actor-Network Theory and governmentality; and a greater use of simultaneous theories to address the same problem. Furthermore, based on the low rate at which the papers presented at the congress are converted into publications in scientific journals, we recommend investigating the reasons research in this field has not achieved higher convertibility rates.

Another result that draws attention is that a more significant number of studies presented in a given congress edition does not necessarily translate into more studies being converted into journal publications. This finding contributes to organizers of scientific events and leaders of thematic fields, as, in addition to raising reflections on alternatives for the studies discussed at the congress to proceed to submission in high-quality journals, it may encourage analyses of this nature in other thematic fields, to verify whether these results remain consistent or it is an isolated phenomenon.

We acknowledge that the paradigms and theories were identified through a textual search in the papers, which imposes limitations on the method. The timeframe, including the years from 2015 to 2021, restricts the identification of a general overview of the contributions of the ANPCONT Congress to the PSA field throughout all its editions, considering that studies on PSA may also be present in the Management Accounting and Financial Accounting fields. However, this an advantageous approach because it helps to resolve any subjectivity when determining the bibliographic portfolio and emphasizes the contributions by recognizing the importance of this field to the creation of specific thematic fields, enabling a more contemporary approach to discussions on PSA in this important congress, encouraging reflections on the current state of art of PSA research in the Brazilian context.

We also recognize that by restricting the analysis to the ANPCONT Congress, results cannot be extended to other important Brazilian scientific events in the field. Nonetheless, it brings evidence regarding the characteristics of the papers presented in one of the most important and expressive scientific events in the accounting field in Brazil (Matos et al., 2012; Ribeiro, 2017). Additionally, it provides relevant clues about how Brazilian research on PSA has progressed so that Brazilian scientific events can promote the development of qualified scientific production in the field. Therefore, similar approaches considering other relevant events, such as the USP Congress, are welcome to provide more evidence.

The reflection proposed here is expected to support the advancement of research projects on PSA and contribute to the knowledge in the field, favoring the society that relies on public sector organizations to promote collective well-being and benefits when the PSA field of study progresses as an instrument for accountability, accountability, and decision-making.

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Journal of Education and Research in Accounting

Periódico Trimestral, digital e gratuito publicado pela Academia Brasileira de Ciências Contábeis | Available online at www.repec.org.br

REPeC, Brasília, v. 17, n. 3, art. 5, p. 329-352, Jul./Sep. 2023 | DOI: http://dx.doi.org/10.17524/repec.v17i3.3251 | ISSN 1981-8610

The Effects of Alternative Work Arrangements on Technostress and Work-Home Balance: a study on job satisfaction during the Covid-19 pandemic

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Abstract

Objective: This study aimed to analyze the influence of alternative work arrangements (AWAs) on work-home balance (WHB) and technostress (TS). The effect of WHB and TS on the job satisfaction of accountants and employees of accounting and auditing companies in Brazil was also verified.

Method: The target population was accounting professionals and employees of auditing companies in Brazil that adopted alternative work arrangements during the COVID-19 pandemic. This study addressed 394 individuals, but the final sample comprised 276 participants whose responses were analyzed using structural equations (PLS-SEM).

Results: The results show that AWAs positively affect technostress, negatively impacting job satisfaction. However, the impact on WHB was not statistically significant. Finally, the results indicate a positive relationship between WHB and job satisfaction.

Contributions: From a theoretical point of view, these results contribute to discussions on the impact of technology and AWAs among accounting and auditing companies in Brazil. Authors have investigated this effect in other countries; however, the topic has been addressed neither in Brazil nor in the pandemic context. As for the practical aspects, this study is the first to discuss the context of Brazilian companies that adopted AWAs during the pandemic, considering the urgent need of employers and employees to adapt.

Keywords: Alternative Working Arrangements; Job Satisfaction; Technostress; Work-Home Balance.

Published in Portuguese and English. Original Version in Portuguese.

Round 1: Received in 1/20/2023. Review requested on 3/13/2023. Round 2: Resubmited on 4/12/2023. Review requested on 28/5/2023. Round 3: Resubmited on 6/30/2023. Accepted on 8/20/2023 by Vinícius Gomes Martins, PhD (Assistant editor) and by Gerlando Augusto Sampaio Franco de Lima, PhD (Editor). Published on 9/30/2023. Organization responsible for the journal: Abracicon.

1. Introduction

Technological advancements impact companies, bringing opportunities and challenges that involve how people perform their tasks and where they perform them (Okhuysen et al., 2013; Spreitzer, Cameron & Garrett, 2017). Thus, activities previously conducted through operational processes in addition to the analysis of physical documents were streamlined by online platforms and may now be performed by employees across various locations worldwide (Spreitzer, Cameron & Garrett, 2017).

Such advancements also led organizations to expand the adoption of alternative work arrangements (AWAs) (Okhuysen et al., 2013, Spreitzer, Cameron & Garrett, 2017). AWAs include flexible working hours, telecommuting, part-time jobs, and continuing education leaves (Johnson, Lowe & Reckers, 2008).

In this context, the technological advancements and increased participation of women in the job market in recent decades have led accounting and auditing organizations to intensify the provision of AWAs to their employees (Almer, Cohen & Single, 2003; Gallhofer, Paisey, Roberts & Tarbert, 2011; Lee & Jeong, 2017; Boyer-Davis, 2019), considering that women are more likely to face work-family trade-offs (Gallhofer et al., 2011; Fraga, Antunes & Rocha-de-Oliveira, 2020).

Scandura and Lankau (1997) added that employees working in organizations that provide AWAs, regardless of gender and whether they participate in the arrangement, report higher levels of job satisfaction and organizational commitment. Almer and Kaplan (2002) surveyed another group of accountants working under AWAs and found that they also enjoyed higher levels of job satisfaction.

In addition to the technological boost and incentives for companies to provide alternative work arrangements based on the previously mentioned benefits, it is worth noting that, since 2020, AWAs have increased in popularity due to the social isolation measures imposed by the Covid-19 pandemic, especially the working-from-home format. Such an increase may be considered beneficial to workers, considering increased job satisfaction; a portion of the literature argues that AWAs are an opportunity for professionals to reconcile their family and professional lives (Clark, 2000; Johnson, Lowe & Reckers, 2008; Spreitzer, Cameron & Garret, 2017).

However, another portion of the literature points out the disadvantages of combining AWAs and technology, as the boundaries between the professional and home domains may become blurry (Boyer-Davis, 2019; Anderson & Smith, 2019). Therefore, as opposed to the benefits expected from AWAs, especially in the working-from-home format, conflicts between work and home may occur due to the pressure to continue performing work tasks beyond regular working hours (Spreitzer, Cameron & Garret, 2017; Boyer-Davis, 2019; Anderson & Smith, 2019). Such a lack of work-home balance (Schieman, Glavin & Milkie, 2009; Boyer-Davis, 2019) is one of the leading factors for turnover among accounting and auditing professionals; hence, despite the increased availability of AWAs, these organizations' turnover rates are above the average of other sectors (Boyer-Davis, 2019).

Furthermore, such pressure and constant changes may lead to technostress, defined as an inability to deal with technology (Brillhart, 2004; Tarafdar, Tu, Ragu-Nathan & Ragu-Nathan, 2007; Brod, 1984; Durndell & Haag, 2002; Chua, Chen & Wong, 1999; Boyer-Davis, 2019). Technostress impacts productivity and job satisfaction and may lead to burnout (Tarafdar, Tu, Ragu-Nathan & Ragu-Nathan, 2011; Boyer-Davis, 2019).

Based on the previous discussion and the assumption that AWAs were adopted on a large scale during the pandemic without granting employees the power of choice, the following research question arises: What is the effect of AWAs on work-home balance and technostress, considering the job satisfaction of workers in Brazilian accounting and auditing offices during the Covid-19 pandemic?

This study's objective was to analyze the influence of AWAs on work-home balance and technostress and the effect of WHB and technostress on the job satisfaction of Brazilian accountants and employees of accounting and auditing companies. Scales already validated in the literature were used to measure the study's variables: alternative work arrangements (Johnson, Lowe & Reckers, 2008); work-home balance (Clark, 2002); technostress (Ragu-Nathan, Tarafdar & Ragu-Nathan, 2008); and job satisfaction (Spector, 1985).

This study addressed 394 respondents, but the final sample comprised 276 individuals whose responses were analyzed and tabulated using structural equations (PLS-SEM). The results show that AWAs contribute to technostress, negatively impacting job satisfaction. However, no statistically significant results regarding its impact on work-home balance were found. Additionally, in line with the literature, the findings indicate a positive relationship between work-home balance and job satisfaction.

This study's relevance lies in its theoretical point of view, which contributes to advancing discussions on the impacts of technology and AWAs on accounting and auditing companies in Brazil. Authors have investigated this effect in other countries, such as Dambrin and Lambert (2008), Johnson, Lowe, and Reckers (2008), Lupu (2012), Haynes (2017), Boyer-Davis (2019), and Anderson and Smith (2019); none of these studies addressed the topic in Brazil or in the pandemic context though, when such arrangements became unavoidable.

From a practical point of view, this study was the first to discuss the context of Brazilian companies that adopted AWAs during the pandemic due to the urgent and inescapable need for employers and employees to adapt. In this context, factors such as having a work-from-home setup, gender, and the number of children, among others, may impact the level of job satisfaction of employees working under AWAs. This study's contribution to organizations concerns the need for companies to devise new employee contract models, measure productivity, and determine working hours to avoid future labor liabilities, job dissatisfaction, and exhaustion, which might impact an organization's profitability and survival.

2. Theoretical Framework

2.1 AWAs and technostress

Alternative work arrangements include flexible working hours, telecommuting, part-time jobs, and continuing education leave (Johnson, Lowe, & Reckers, 2008). Such models have been more widely discussed since 1990, mainly due to technological advances (Hunton & Harmon, 2004).

Studies addressing AWAs attempted to understand workers' motivations for choosing such arrangements (Hall, 1990; Kossek, Barber & Winters, 1999). In this context, gender was highlighted as an important factor for employees to choose flexible arrangements; the increased participation of women in the job market led to greater availability of AWAs in accounting and auditing companies (Almer & Kaplan, 2002; Frank & Lowe, 2003; Johnson et al., 2008; Cohen et al., 2018).

Part of the literature considers that the main benefits of AWAs include less stress and lower levels of burnout (Johnson, Lowe & Reckers, 2008; Kossek & Ozeki, 1999; Baltes, Briggs, Huff, Wright & Neuman, 1999; Scandura & Lankau, 1997). Sturman and Walsh (2014) also argue that employees working under AWAs experience lower stress levels than full-time workers.

On the other hand, part of the literature argues that technological pressures may increase the emergence of burnout among employees working under AWAs due to more frequent phone calls, e-mails, WhatsApp messages, and virtual meetings that may culminate in excessive working hours to fulfill tasks (Clark, 2000; Tarafdar, Tu, Ragu-Nathan & Ragu-Nathan, 2011; Guidi, 2015; Boyer-Davis, 2019; Anderson & Smith, 2019; Pfeffer, 2018). Authors also argue that this scenario results in technostress, defined as the inability to deal with technology (Brod, 1984; Durndell & Haag, 2002; Chua, Chen & Wong, 1999; Boyer-Davis, 2019).

Tarafdar et al. (2007) developed a survey through which they identified five factors leading to technostress, concluding that users of information technology tend to increase the pace of work and workload (techno-overload); remain connected for long periods, thus disturbing the work-home balance (techno-invasion); spend more time learning and adapting to new technologies (techno-complexity); feel insecure about losing their jobs (techno-insecurity); and feel uncomfortable with constant technological changes (techno-uncertainty). Boyer-Davis (2019) highlights that these factors lead employees working under AWAs to a perception that their jobs are very demanding and difficult.

Thus, the study's first hypothesis is:

H1: Alternative work arrangements positively influence technostress.

2.2 AWAs and work-home balance

Clark (2000) developed the theory of the work-home boundaries. This theory suggests that all employees with formal jobs must learn to balance work outside the home with their family lives (Boyer-Davis, 2019; Anderson & Smith, 2019). Work-home balance concerns being satisfied and enjoying good functioning at work and home, and experiencing minimal conflict between these spheres (Clark, 2000). Work-home balance contributes to job satisfaction, leading to a feeling of well-being (Grzywacz, Butler & Almeida, 2009; Boyer-Davis, 2019), and involves managing and respecting the limits that demarcate work-home territories so that the domain of home ends where the domain of work begins, as these constructs are distinct (Clark, 2000; Guidi, 2015).

Obtaining such a balance is a challenge, and its absence may negatively impact productivity and job satisfaction, leading to turnover (Guidi, 2015; Boyer-Davis, 2019; Anderson & Smith, 2019). Hall (1990) notes that both men and women with children face challenges to balance their careers with family life. The author predicts that AWAs may contribute to this balance and benefit workers with similar work and family configurations, individuals prioritizing family over work, and those more intensively influencing and controlling the family environment.

Research suggests that AWAs increase job satisfaction and promote greater commitment and productivity (Baltes, Briggs, Huff, Wright & Neuman, 1999; Scandura & Lankau, 1997; Boyer-Davis, 2019). Studies have also found a significant relationship between AWAs among accounting professionals and work-life balance (Cohen, Dalton, Holder-Webb & McMillan, 2018; Almer, Cohen & Single, 2003; Dalton, Cohen, Harp & McMillan, 2014; Johnson, Lowe & Reckers, 2008). For example, Gallhofer et al. (2011) verified the lifestyle of accountants in Scotland and their motivations for choosing to work under AWAs. They concluded that women are more likely to choose alternative work arrangements as such arrangements enable them to spend more time with their families. Another study by Buchheit, Dalton, Harp, and Collingsworth (2016) investigated the availability of AWAs in the four largest auditing companies in the world. It indicated that women more frequently adhere to this working model.

However, Adisa, Aiyenitaju, and Adekoya (2021), a study conducted in England, highlighted the effects of remote work during the Covid-19 pandemic, targeting British women. They warn that AWAs resulted in role conflict, negatively impacting work-home balance during the pandemic. They also note that AWAs replaced the usual working arrangements and family life dynamics since both take place in people's homes.

Hunton and Harmon (2004) had already proposed that a model was needed to assess the effectiveness of teleworking among accounting professionals, assuming that the motivation to work under such an arrangement is, among other factors, a clear work policy that reconciles people's motivations and the organization's objectives. Furthermore, Spreitzer, Cameron, and Garret (2017) emphasize that employees must have the power to choose whether to work under AWAs. They also warn of the harmful impacts of forcing employees to work under such an arrangement, especially those with low qualifications. In this context, it is worth highlighting that during the COVID-19 pandemic, working under AWAs was mandatory for accountants and professionals from auditing companies.

Thus, the second hypothesis is proposed:

H2: Alternative work arrangements negatively influence work-home balance.

2.3 The effect of technostress on job satisfaction

Greenhaus, Collins, and Shaw (2003) warned that the advancement of technology has blurred the boundaries between work and personal life, as employees feel pressured to be virtually connected to their workplaces after working hours to continue to carry out their tasks. In this context, the pressures to maintain the productivity levels required by employers may interfere with the time employees dedicate to their homes (Clark, 2000; Tarafdar, Tu, Ragu-Nathan & Ragu-Nathan, 2011; Guidi, 2015; Boyer-Davis, 2019; Anderson & Smith, 2019).

Alleyne (2012) found evidence that job dissatisfaction is a consequence of technostress, leading to low productivity and turnover intention. Studies also highlight that employees experiencing technostress may be impatient, moody, anxious, tired, confused, unable to concentrate, pessimistic, and even depressed (Saganuwan, Ismail & Ahmad, 2015; Boyer-Davis, 2019).

Boyer-Davis (2019) studied the impact of technostress on job satisfaction among accounting professionals, highlighting that the technological demands applied to accounting professionals are unprecedented, a factor that influences high turnover rates in the sector, which are higher than the average of other segments.

Therefore, the following hypothesis is also tested in this study:

H3: Technostress negatively impacts job satisfaction.

2.4 The effect of work-home balance on job satisfaction

The feeling of a lack of work-home balance is often perceived in phrases heard in everyday life in the corporate world, such as: "working 24/7" or "25-hour shift" (Jackson & Fransman, 2018). The universe of education professionals in South Africa was investigated in a sample of 252 respondents, and the authors found evidence that work-home balance predicts job satisfaction. The sample showed evidence that work-home balance is more important to job satisfaction than financial well-being.

Other studies have already reported a positive association between work-home balance and reduced absenteeism, improved productivity, and higher employee retention (Chimote & Srivastava, 2013). Job satisfaction leads to positive attitudes toward a career (Pirbasti et al., 2014; Pires & Andrade, 2022), is related to financial and non-financial benefits, career growth, working conditions, recognition, and promotion (Benz & Frey, 2008; Boyer-Davis, 2019).

Provided that workers are committed to fulfilling their tasks within the agreed deadline, alternative working arrangement models tend to not negatively affect productivity or employee performance (Hall, 1990; Boyer-Davis, 2019; Anderson & Smith, 2019). In this sense, organizational commitment concerns an employee's degree of attachment to his/her job (Greenberg, 2005; Mowday, Steers & Porter, 1979; Boyer-Davis, 2019), which promotes a connection leading to productivity, involvement, and loyalty towards the company, consequently, contributing to job satisfaction (O'Reilly, 1989).

Therefore, the following research hypothesis is proposed:

H4: Work-home balance positively impacts job satisfaction.

Figure 1 shows the conceptual model proposed in this study, considering the aspects discussed in this section.

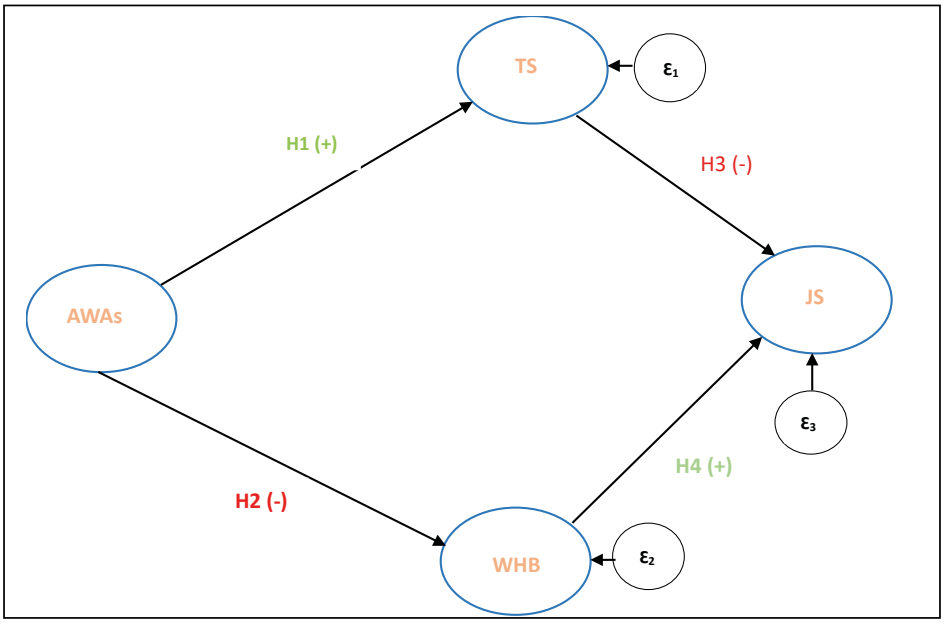

Figure 1. Conceptual Model

Note: AWAs represent alternative work arrangements; TS represents technostress; WHB represents work-home balance; and JS represents job satisfaction
Source: developed by the authors.

3. Methodology

3.1 Research delimitation and data collection

A quantitative study with a cross-sectional design, using primary data, was conducted to analyze the influence of AWAs on work-home balance and technostress, considering the job satisfaction of Brazilian accountants and auditing employees during the social distance measures imposed during the COVID-19 pandemic. The target population comprised accounting professionals and employees of auditing companies in Brazil that adopted alternative work arrangements during the COVID-19 pandemic. The study field was Brazil, which adopted the teleworking system due to the Covid-19 pandemic. The non-probabilistic sampling was adopted; an accessible sample was addressed to reach the largest number of accounting and auditing professionals working under AWAs during the pandemic, available and willing to participate in this study.

A questionnaire based on already validated scales was sent/disclosed to this audience with the support of Regional Accounting Councils and higher education institutions. The study was also disseminated through social networks like Facebook, Instagram, and LinkedIn. The questionnaire contained a control question, which assessed whether the participant worked under a flexible arrangement during the pandemic. A pre-test was conducted with 16 participants before sending the definite questionnaire to minimize potential measurement errors arising from the participants' potential difficulties in answering the form.

3.2 Measuring the constructs and sample size

Four latent variables were measured in this study: alternative work arrangements (AWAs), technostress, work-home balance (WHB), and job satisfaction (JS). Validated scales were used to make such measurements.

The "alternative work arrangements" construct was measured through 18 statements proposed by Johnson, Lowe, and Reckers (2008). The Ragu-Nathan, Tarafdar, and Ragu-Nathan (2008) scale was adopted to measure technostress. This 20-statement scale indicates that five first-order constructs trigger stress: techno-overload, techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty. Work-home balance was measured using Clark's scale (2002), which consists of 50 statements; finally, the Spector scale (1985), with 36 statements, measured job satisfaction.

All statements concerning each construct were rated on a five-point Likert scale, ranging from 1 [totally disagree] to 5 [totally agree]. The questionnaire also included questions addressing the participants' sociodemographic profile: sex, age, income, marital status, the number of people in the household, number of children, commuting time, whether the participant had a workspace at home, and whether their salaries were reduced during the pandemic.

The G-Power software was applied to determine the minimum sample size; an 80%CI was adopted, as Hair Jr., Ringle, and Sarstedt (2014) recommended. The model comprises four constructs; job satisfaction is the latent variable with the largest number of arrows and has two predictors. Hence, this variable determined the minimum sample size calculated in G-Power, i.e., 68 respondents. However, Ringle, Silva, and Bido (2014) recommend that three times the sample size should be considered to ensure greater confidence in the results, which would result in 204 respondents. Thus, 394 people completed the validated questionnaire from July 2021 to December 2022; however, as 118 respondents did not meet the criterion concerning the control question, 276 observations remained, which exceeded the 204 recommended for the estimated model.

3.3 The model's validation and estimation techniques

Based on the partial least squares (PLS) estimator, the structural equation modeling technique was used to estimate the relationships based on coefficients (Ringle, Silva & Bido, 2014). The bootstrapping procedure was also conducted with 5,000 resamples to ensure greater reliability of the results (Haukoos & Lewis, 2005). The psychometric properties of the proposed model were assessed by verifying convergent validity and discriminant validity, which ensure the necessary conditions for reliable predictions and, consequently, the usability of the metrics and the model (Hair Jr., Ringle & Sarstedt, 2014).

According to Hair Jr., Risher, Sarstedt, and Ringle (2019), convergent validity verifies the level of association of indicators within each construct, as the factors must converge to their own construct. The first analysis of such validity is conducted by checking factor loadings to answer whether the indicators are, in fact, capable of measuring the metrics proposed. Hair Jr. et al. (2019) state that such a measure must be greater than 0.5 for this psychometric characteristic to be met. The authors also indicate three metrics to verify convergent validity: the average variance extracted, which must present values above 0.5; composite reliability, which must be greater than 0.7; and Cronbach's Alpha, which must be above 0.7.

Discriminant validity, in turn, aims to ensure that the scales differ from the remaining (Fornell & Larcker, 1981). Hair Jr. et al. (2019) note that all values of the average variance extracted (AVE) for each construct must be greater than the variances shared between them to confirm the model's discriminant validity. The same criterion must be met for external loadings. The second criterion is the Heterotrait-Monotrait ratio (HTMT), which, according to Henseler, Ringle, and Sarstedt (2015), must be below 0.85 to indicate that this psychometric property is met.

The structural equation model was estimated in two different ways: first, without control variables, and later, using control variables to explain each of the constructs. The following were used as control variables:

- $gender_i$: nominal qualitative variable, a dummy that assumes 1 if woman and 0 otherwise – female participants are expected to present greater adherence to AWAs. Johnson et al. (2008) state that women are more likely than men to prefer alternative work arrangements.
- Age_i : ordinal, qualitative variable that assumes the following categories: "below 20", "between 21 and 30", "between 31 and 40", "between 41 and 50", "between 51 and 60", "above 60", which were respectively assigned numbers 1, 2, 3, 4, 5 and 6. Hence, the higher the number, the older the participant; younger individuals are expected to have greater access to technology and consequently less frequently experience technostress. This notion is in line with Da Silveira (2010), who discusses the difficulty of older individuals in adapting to technology.

- $married_i$: nominal qualitative variable, a dummy that assumes 1 if married and 0 otherwise – married individuals are expected to share the same space at home to work under AWAs, impacting WHB (Barros e Silva, 2010).
- $children_i$: variable that represents the number of children – 4 was assigned for individuals with 4 or more children. Likewise, married individuals with children are expected to share their space at home to work under AWAs, which impacts WHB (Barros e Silva, 2010).
- $income_i$: ordinal qualitative variable, which assumes the categories "up to 1 times the minimum wage (MW)", "between 2 and 3 times the MW", "between 4 and 5 times the MW", "between 5 and 10 times the MW" and "above 10 times the MW", which were respectively assigned numbers 1, 2, 3, 4 and 5. According to Barros and Silva (2010), higher-income individuals are more likely to have a better-structured workspace at home to work under AWAs.
- $commuting_i$: ordinal qualitative variable with the categories "up to 30 minutes", "between 31 minutes and 1 hour", "between 1 and 2 hours", and "above 2 hours", to which numbers 1, 2, 3, and 4 were respectively assigned. Individuals who take longer to commute to work are expected to prefer AWAs. Coelho et al. (2022) investigated the advantages and disadvantages of remote work in the public sector, and less time spent commuting to work was among the positive aspects of remote work.
- $WFH\ setup_i$: nominal qualitative variable, a dummy that assumes 1 if the respondent has a work-from-home setup and 0 otherwise. Individuals with a well-structured setup to work under AWAs are expected to enjoy greater WHB (Barros and Silva, 2010).
- $pay\ cut_i$: nominal qualitative variable, a dummy that assumes value 1 if the respondent had his/her salary reduced and 0 otherwise. The reduction of salaries was allowed during the pandemic, potentially impacting job satisfaction during the period.

4. Analysis Of Results

This study aimed to verify whether alternative work arrangements indirectly affect job satisfaction, considering technostress and work-home balance. Hence, a descriptive, cross-sectional study with a quantitative approach to primary data was adopted.

4.1 Sample characterization and constructs' descriptive analysis

The final sample comprised 276 respondents, whose sociodemographic profile is presented in Table 1.

Table 1
Sample's Characterization

Variable	Group	Total Observations	Percentage	Accumulated
Sex	Men	141	0.51	0.51
	Women	135	0.49	1.00
Age	Below 20	0	0.00	0.00
	Between 20 and 30	56	0.20	0.20
	Between 31 and 40	84	0.30	0.51
	Between 41 and 50	77	0.28	0.79
	Between 51 and 60	45	0.16	0.95
	Above 60	14	0.05	1.00
Marital Status	Single	83	0.30	0.30
	Married	169	0.61	0.91
	Divorced	18	0.07	0.98
	Other	6	0.02	1.00
No. children	0	108	0.39	0.39
	1	70	0.25	0.64
	2	69	0.25	0.89
	3	22	0.08	0.97
	4 or more	7	0.03	1.00
Income	Up to 1 times the MW	2	0.01	0.01
	Between 2 and 3 times the MW	39	0.14	0.15
	Between 4 and 5 times the MW	60	0.22	0.37
	Between 5 and 10 times the MW	78	0.28	0.65
	Above 10 times the MW	97	0.35	1.00
Commuting	Up to 30 min	136	0.49	0.49
	Between 31 min and 1 hour	79	0.29	0.78
	Between 1 and 2 hours	46	0.17	0.95
	Above 2 hours	15	0.05	1.00
WFH setup	Yes	182	0.66	0.66
	No	94	0.34	1.00
Pay cut	Yes	64	0.23	0.23
	No	206	0.75	0.98
	Maybe	6	0.02	1.00

Note: "Sex" concerns the participant's sex; "Age" concerns the participant's age; "Marital status" concerns the participant's marital status; "No. children" concerns the participant's number of children; "Income" concerns the participant's family income; "Commuting" concerns how long the participant takes to commute to work; "WFH setup" shows whether the participant has a workstation at home; and Pay cut shows whether the participant had a salary reduction during the pandemic.
Source: developed by the authors.

Among the respondents, 51% were male. Regarding age, the following group ages were the most frequent: between 31 and 40 (30%) and between 41 and 50 (28%). There were no individuals under 20, and a few respondents were older than 60 (only 5%).

Most respondents were married, but the number of children was heterogeneous; most respondents did not have children. As for income, the highest concentration of respondents is among those earning more than 10 times the minimum wage (35%).

Regarding the time spent commuting to work, most respondents spent less than 30 minutes when they needed to commute to work. A percentage of 23% of respondents underwent a salary reduction during the pandemic, and 34% reported having no space at home specifically designed for performing work tasks and keeping work and personal lives separated, blurring the boundaries between work and home.

Table 2 provides information on the constructs' descriptive statistics:

Table 2
Constructs' Descriptive Statistics

Variable	Sample	Mean	Coef. var	Minimum	1st quartile	Median	3rd quartile	Maximum
AWAs	276	2.693	0.337	1	2	2.667	3.333	5
TS	276	2.491	0.390	1	1.667	2.444	3.111	5
WHB	276	2.744	0.315	1	2.125	2.750	3.375	5
JB	276	3.987	0.196	1	3.429	4	4.714	5

Note: AWAs concerns alternative work arrangements; TS concerns stress arising from technology; WHB refers to work-home balance; and JS represents job satisfaction.
Source: developed by the authors.

The results concerning the constructs' descriptive statistics reveal that the technostress statements present the lowest level of agreement, i.e., a relatively low level of technostress during the pandemic. However, this variable has the highest coefficient of variation, indicating considerable heterogeneity between the responses. These results indicate that the sample of accounting and auditing professionals experienced different impacts from AWAs on technostress during the pandemic.

The statistics on work-home balance showed the highest level of agreement, showing that, on average, the respondents oscillate between a feeling of indifference and agreement with the statements concerning the construct associated with work and family relationships. This metric is still the most homogeneous among respondents, indicating no significant fluctuations in opinions regarding work-home balance.

4.2 Convergent validity

The convergent validity of the constructs and respective factors were first analyzed to verify the psychometric aspects. Table 3 shows the metrics used in such validation.

Table 3
Psychometric Aspects – Convergent Validity

Construct		Statement	Factor loading	AVE	Cronbach's alpha	Spearman Correlation	Composite Coefficient
Alternative working arrangements (AWAs)	AWA11	Working under an alternative work arrangement will harm an individual's career and/or promotional aspirations.	0.722	0.578	0.854	0.857	0.891
	AWA12	Individuals working under alternative work arrangements can generally have their promotions delayed and their salary range reduced.	0.775				
	AWA13	Supervisors are likely to view individuals employed under alternative work arrangements as less dedicated and committed to their jobs than those working under traditional full-time work arrangements.	0.769				
	AWA14	Supervisors are more likely to provide lower evaluations and recommend fewer promotions to individuals employed under alternative work arrangements compared to those working under traditional full-time work arrangements.	0.827				
	AWA15	Individuals employed under alternative work arrangements are likely to feel some resentment from colleagues and other team members.	0.699				
	AWA16	Female supervisors are more likely than male supervisors to support individuals who are employed under alternative work arrangements.	0.763				

Construct		Statement	Factor loading	AVE	Cronbach's alpha	Spearman Correlation	Composite Coefficient
Technostress (TS)	**TS4**	I have a higher workload because of increased technology complexity.	0.630	0.570	0.905	0.911	0.922
	TS6	I have to sacrifice my vacation time and weekends to keep myself up to date about new technologies.	0.658				
	TS8	I do not know enough about this technology to handle my work satisfactorily.	0.802				
	TS9	I need a lowng time to understand and use new technologies.	0.835				
	TS10	I do not find enough time to study and update my technology skills.	0.744				
	TS11	I find recruits to this organization know more about computer technology than I do.	0.746				
	TS12	I often find it too complex for me to understand and use new technologies.	0.821				
	TS13	I feel a constant threat to my job security due to new technologies.	0.781				
	TS15	I am threatened by coworkers with newer technology skills.	0.753				
Work-home balance (WHB)	**WHB3**	I discuss my family obligations with supervisor.	0.698	0.552	0.907	0.923	0.908
	WHB4	I discuss demands on me at home with supervisor.	0.724				
	WHB5	I talk about my current family activities at work.	0.753				
	WHB6	I share pleasant things that happened at home with others at work.	0.713				
	WHB8	I talk with others at work about what kind of day I had at home.	0.705				
	WHB10	My supervisor listens when I talk about my family.	0.793				
	WHB11	My supervisor acknowledges that I have obligations as a family member.	0.787				
	WHB12	My family contacts me while I am at work.	0.766				
Job Satisfaction (JS)	**JS3**	My supervisor is quite competent in doing his/her job.	0.637	0.568	0.893	0.892	0.901
	JS7	I like the people I work with.	0.802				
	JS17	I like the things I do at work.	0.693				
	JS25	I enjoy my co-workers.	0.803				
	JS27	I feel a sense of pride in doing my job.	0.757				
	JS30	I like my supervisor.	0.815				
	JS35	My job is enjoyable.	0.751				

Note: AVE concerns Average Variance Extracted.
Source: developed by the authors.

Regarding the factor loadings analysis, values below 0.5 were found. Thus, the procedure recommended by Hair Jr et al. (2019) was adopted:

(i) statements with negative loadings were removed, and the new loadings were reassessed, which resulted in factor loadings below the ideal;

(ii) as the validity criterion was not validated, loadings that remained below 0.5 were removed so that all factor loadings were above 0.5. However, an analysis of the average variance extracted showed that it did not correspond to the criterion described by Hair Jr et al. (2019), as it was also below 0.5; hence, an additional step was taken;

(iii) External loading criterion and the average extracted variance were validated after excluding the statements with factor loadings below 0.6.

Table 3 presents the statements that remained in the constructs. Regarding alternative work arrangements, 12 statements were removed, and 6 remained; 11 statements were excluded from technostress, and 9 remained; 42 statements were excluded from work-home balance, leaving 8; and finally, regarding job satisfaction, 29 statements were excluded, remaining 7.

After such exclusions, all statements were above 0.5. Thus, convergent validity was confirmed as the variables' factor loadings were higher in their own construct compared to the factor loadings of the same variable in other constructs (Hair Jr. et al., 2019).

According to the criterion of Fornell and Larcker (1981), convergent validation, which assesses the degree of correlation between measures of the same concept, occurs when the constructs' average variance extracted (AVE) is higher than 0.5. Table 3 shows all values above 0.5, confirming the constructs' validity. The constructs' items were also assessed using Cronbach's Alpha coefficient. In this aspect, all constructs presented values above 0.7, the minimum needed to ensure validity. Composite reliability was also checked for all constructs, which presented values above 0.7 and indicated strong internal consistency. Thus, all the measures used represent the constructs to which they refer.

4.3. Discriminant validity

Table 4 shows the first discriminant validity analysis based on the cross-loadings criterion.

Table 4
Psychometric Aspects – Discriminant Validity (Cross-loadings)

Construct	Statements	AWAs	TS	WHB	JS
Alternative work arrangements (AWAs)	**AWAs11**	**0.722**	0.258	0.043	0.008
	AWAs12	**0.775**	0.261	0.014	-0.023
	AWAs13	**0.769**	0.315	0.004	-0.074
	AWAs14	**0.827**	0.299	0.085	-0.005
	AWAs15	**0.699**	0.366	-0.034	-0.225
	AWAs16	**0.763**	0.354	-0.067	-0.049
Technostress (TS)	**TS4**	0.244	**0.630**	-0.112	-0.175
	TS6	0.362	**0.658**	-0.047	-0.177
	TS8	0.294	**0.802**	-0.084	-0.222
	TS9	0.276	**0.835**	-0.003	-0.205
	TS10	0.246	**0.744**	0.027	-0.140
	TS11	0.252	**0.746**	0.027	-0.117
	TS12	0.293	**0.821**	-0.006	-0.172
	TS13	0.378	**0.781**	-0.012	-0.189
	TS15	0.388	**0.753**	0.024	-0.222
Work-home balance (WHB)	**WHB3**	0.231	0.161	**0.698**	0.133
	WHB4	0.175	0.145	**0.724**	0.159
	WHB5	0.131	0.067	**0.753**	0.186
	WHB6	-0.154	-0.043	**0.713**	0.341
	WHB8	0.084	0.111	**0.705**	0.197
	WHB10	-0.054	-0.124	**0.793**	0.345
	WHB11	-0.099	-0.194	**0.787**	0.424
	WHB12	0.073	0.077	**0.766**	0.240
Job Satisfaction (JS)	**JS3**	-0.030	-0.108	0.343	**0.637**
	JS 7	-0.013	-0.157	0.284	**0.802**
	JS17	-0.023	-0.111	0.201	**0.693**
	JS25	-0.071	-0.176	0.328	**0.803**
	JS27	-0.060	-0.181	0.215	**0.757**
	JS30	-0.193	-0.311	0.361	**0.815**
	JS 35	-0.022	-0.179	0.236	**0.751**

Source: developed by the authors.

Table 4 shows that the factor loadings of the statements included in each construct are greater than those of the other statements within each construct in question. In other words, the statements belonging to a specific metric are more closely linked to that metric than any other metric adopted in this study, an aspect necessary for discriminant validity.

Table 5 shows the verification of discriminant validity based on the criterion of Fornell and Lacker (1981) and the HTMT criterion of Henseler, Ringle, and Sarstedt (2015). The Table also highlights the constructs' descriptive statistics.

Table 5
Psychometric Aspects – Discriminant Validity (Fornel and Lacker / HTMT)

	Fornel and Lacker				HTMT - Henseler, Ringle and Sarstedt (2015)			
	AWAs	TS	WHB	JS	AWAs	TS	WHB	JS
AWAs	0.760							
TS	0.415	0.755			0.449			
WHB	0.004	**-0.027**	0.743		0.194	0.175		
JS	-0.091	**-0.244**	**0.386**	0.754	0.129	0.254	0.366	

Note: AWAs represent alternative work arrangements; TS represents stress arising from technology; WHB represents the work-home balance; and JS represents job satisfaction.
Source: developed by the authors.

Discriminant validity was verified by the two criteria presented in the Table. The square root of the average variance extracted from each construct is greater than the correlation with the others. Furthermore, the Heterotrait-Monotrait (HTMT) correlation was lower than 0.85 in all cases. These results indicate that these constructs do not mix information from other constructs.

4.4. Analysis of the structural model and testing of the hypotheses proposed

Table 6 highlights the results found for estimating the structural model and evaluating the validity of the hypotheses based on the literature.

Table 6
Estimation of the Structural Model and Hypothesis Testing

Panel A: Estimated relationships							
	Analysis w/o control variables			Analysis w/ control variables			
	TS	WHB	JS	AWAs	TS	WHB	JS
Direct effects							
AWAs	0.415***	0.004			0.385***	0.041	
TS			-0.234***				-0.288***
WHB			0.384***				0.359***
Indirect effects							
AWAs			-0.095***				-0.096**
AWAs (via technostress)			-0.097***				-0.111***
AWAs (via WHB)			0.001				0.015
Controls							
gender				0.077	0.086	0.167	0.201
age				0.003	0.296***	-0.321***	0.075
married				0.095	-0.029	-0.012	-0.276**
children				-0.130	-0.035	0.122	0.106
income				0.172***	0.011	0.176**	0.211***
commuting				-0.070	0.001	0.034	-0.054
WFH setup				-0.240	0.060	0.096	-0.182
Pay cut				0.069	0.085	0.139	0.027

Panel B: Hypotheses validation			
Hypotheses	**Relationship that assesses the hypothesis**	**Expected relationship**	**Result**
H1	AWAs >>> TS	+	Validated
H2	AWAs >>> WHB	-	Not validated
H3	TS >>> JS	-	Validated
H4	WHB >>> JS	+	Validated

Note: AWAs represent alternative work arrangements; TS represents technostress; WHB represents work-home balance; and JS represents job satisfaction. Coefficients marked with an asterisk (*) are statistically significant at 10%; Coefficients marked with two asterisks (**) are statistically significant at 5%; Coefficients marked with three asterisks (**) are statistically significant a 1%.
Source: developed by the authors.

The results shown in Table 6 indicate that three of the four hypotheses proposed here, H1, H3, and H4 were validated. The results regarding such validations occur regardless of the use of control variables.

Regarding the effect of alternative work arrangements on technostress, such an effect is statistically significant with 99% confidence. This coefficient is positive, which indicates that, on average, individuals working under an alternative work arrangement are more stressed due to technology-related issues.

The findings enabled validating H1, i.e., there is a positive effect of alternative work arrangements on technostress. This hypothesis' validation is in line with the literature showing that technological pressure may lead to professional exhaustion, given long working hours, an excessive number of phone calls, e-mails, text messages, and virtual meetings (Clark, 2000; Tarafdar, Tu, Ragu-Nathan & Ragu-Nathan, 2011; Guidi, 2015; Boyer-Davis, 2019; Anderson & Smith, 2019; Pfeffer, 2018). The findings also corroborate studies addressing the inability to deal with technology as a facilitator of technostress (Brod, 1984; Durndell & Haag, 2002; Chua, Chen & Wong, 1999; Boyer-Davis, 2019).

The relationship between alternative work arrangements and work-home balance is not statistically significant. This finding indicates that, on average, working under an alternative work arrangement does not necessarily affect work-home balance. This result indicates that the second hypothesis (H2), according to which alternative work arrangements would negatively affect the work-home balance, was rejected.

The findings contradict the literature that indicates a relationship between alternative work arrangements and work-life balance (Cohen, Dalton, Holder-Webb & McMillan, 2018; Almer, Cohen & Single, 2003; Dalton, Cohen, Harp & McMillan, 2014; Johnson, Lowe & Reckers, 2008). A potential explanation for this contradiction lies in what Hunton and Harmon (2004) state about the need to develop models to assess the effectiveness of teleworking among accounting professionals. Furthermore, note that AWAs were adopted after social distancing measures imposed during the pandemic, which suddenly changed the work environment and demanded working tasks to be performed from home. Hence, the fact that people did not have a workspace at home may have affected the test. Coelho et al. (2022) note that not taking breaks between tasks and not having proper infrastructure to work from home, social isolation, monotony, and excessive workload were negative factors influencing those working under flexible arrangements during the COVID-19 pandemic.

Regarding the estimated effect of technostress on job satisfaction, this relationship is statistically significant with 99% confidence, and it is determined by a negative coefficient, indicating that, on average, a higher level of technostress reduces the job satisfaction of accounting and auditing professionals. This result validates H3, according to which technostress negatively impacts job satisfaction. These findings align with the literature stating that the technological demand placed on accounting professionals is unprecedented, leading to job dissatisfaction (Boyer-Davis, 2019). An important aspect is that technostress works as a transmission channel between alternative work arrangements and job satisfaction, a channel that reduces satisfaction when under an alternative work arrangement.

Boyer-Davis (2019) argues that accounting professionals working under AWAs are more subject to uncertainty regarding the use of new technologies and more insecure about the maintenance of their jobs. The author notes that these workers need to perform their tasks faster than their counterparts, which has physical and emotional implications, thus impacting the quality of life at work.

A positive and statistically significant relationship with 99% confidence was found regarding the association between work-home balance and job satisfaction. Hence, on average, individuals experiencing a greater balance between home and work are more satisfied with their jobs. These results validate H4, according to which work-home balance positively influences job satisfaction. These findings align with the literature that reports a positive association between work-home balance and job satisfaction, reflected in lower absenteeism, improved productivity, and reduced turnover rates (Chimote & Srivastava, 2013).

An important factor to emphasize is that, although work-home balance positively impacts job satisfaction, this metric does not work as a channel that permeates the relationship between alternative work arrangements and job satisfaction, as alternative work arrangements do not significantly impact work-home balance. This finding contradicts the literature addressing AWAs, as the mainstream literature advocates increased work-life balance (Boyer-Davis, 2019).

As for the control variables, only income affects AWAs. This is a positive and statistically significant relationship, indicating that, on average, individuals with greater purchasing power more frequently prefer alternative work arrangements. This finding corroborates Barros and Silva (2010), who state that one of the disadvantages of teleworking is a lack of adequate home infrastructure, which might be associated with the individuals' purchasing power.

The individuals' age is the only control variable statistically associated with technostress. The positive coefficient indicates that, on average, the older the individual, the more intense technostress is. This result is in line with the findings of Da Silveira (2010), in which the difficulties and restrictions faced by older adults are addressed.

As for the WHB construct, both age and income impact it. The coefficients indicate that older and lower-income individuals find it more challenging to balance the boundaries of work and home. These findings are corroborated by Barros e Silva (2010) and Da Silveira (2010) since individuals with better financial conditions have a better structure to work from home, and older individuals face more challenges adapting to technologies.

Regarding the job satisfaction construct, it was negatively affected by the respondents' marital status. Married individuals are less satisfied with their jobs when working under AWAs. Such a factor is possibly associated with the need to share the same space to work from home, which corroborates the findings of Coelho et al. (2022) regarding the advantages and disadvantages of public employees under alternative work arrangements during the COVID-19 pandemic.

The income variable positively affected job satisfaction, suggesting that people with greater purchasing power tend to be more satisfied when under AWAs. This finding is in line with Barros and Silva (2010).

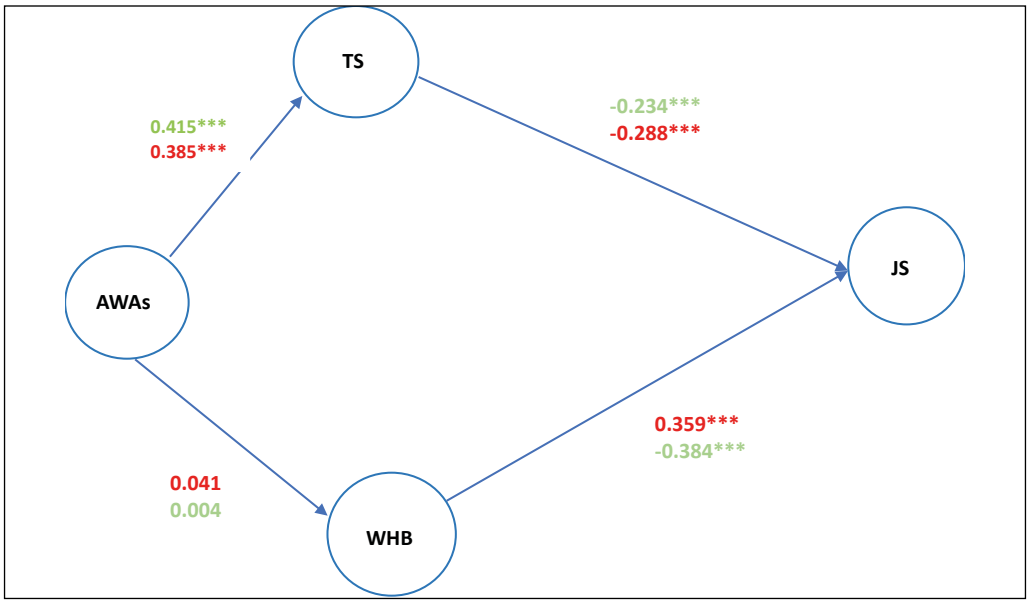

Figure 2 – Estimated Conceptual Model.

Note: AWAs represent alternative work arrangements; TS represents technostress; WHB represents work-home balance; and JS represents job satisfaction. Red coefficients are those associated with the model without control variables; the green coefficients are associated with the model with control variables. Coefficients marked with one asterisk (*) are statistically significant at 10%; coefficients marked with two asterisks (**) are statistically significant at 5%; coefficients marked with three asterisks (***) are statistically significant at 1%.

Source: developed by the authors.

5. Final Considerations

This study aimed to identify the effect of alternative work arrangements on technostress and work-home balance and the effect of WHB and technostress on the job satisfaction of accounting professionals and employees of Brazilian auditing companies. This study was conducted during the COVID-19 pandemic when AWAs were necessary to comply with social distancing measures.

The results validate three of the four hypotheses proposed here. H1 was validated in agreement with part of the literature, showing that AWAs are positively associated with technostress. This condition increased during the pandemic due to the urgent need to adapt to remote work, especially the working-from-home format. Note that remote work was imposed during the pandemic without companies or employees being prepared to adapt to the technological requirements. Furthermore, many workers experienced work overload, as meetings were scheduled during off-hours.

In this sense, H3 was validated, as this study shows that technostress negatively impacts job satisfaction. As predicted by the literature addressing AWAs among accounting and auditing organizations in Brazil, such a factor may affect productivity and turnover intention as it has implications related to health, safety, and quality of life at work.

Contrary to the literature's predictions, H2 was not validated, as no statistical significance was found between AWAs and work-home balance. Some factors may have contributed to this result. For example, women more frequently choose alternative work arrangements to balance family and career demands. However, this option typically results from a trade-off between family and career and under conditions where such an option is not imposed. Therefore, considering that AWAs were compulsory during the pandemic and there was no time for companies and employees to prepare a proper workplace to work from home, the effect of AWAs on WHB was likely impacted.

However, in line with the literature, significant statistical evidence was found that work-home balance positively impacts job satisfaction; thus, H4 is validated. Despite the pandemic context and imposed AWAs, the respondents' perception is that clear boundaries separating work and home positively impact job satisfaction.

This study has some limitations, including that it addresses professionals who needed to adapt to alternative work arrangements without the power to choose. In this sense, future studies are suggested to observe the post-pandemic period to verify potential changes in the perception of accountants and those working in accounting and auditing companies.

Furthermore, future research could also explore the issue of the female gender (as women tend to adhere to AWAs more frequently) and the potential changes in the post-pandemic period. It is also suggested to analyze the context of other professionals – e.g., those in higher education who needed to adapt their classes to the remote format and work with hybrid teaching during the critical pandemic periods. In this sense, our suggestion is to assess the effect of remote and/or hybrid classes on the work-home balance, technostress, and job satisfaction to verify these factors' impact in the medium and long-term training of professionals from different fields.

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Revista de Educação e Pesquisa em Contabilidade
Journal of Education and Research in Accounting

Periódico Trimestral, digital e gratuito publicado pela Academia Brasileira de Ciências Contábeis | Available online at www.repec.org.br

REPeC, Brasília, v. 17, n. 3, art. 6, p. 353-366, Jul./Sep. 2023 | DOI: http://dx.doi.org/10.17524/repec.v17i3.3357 | ISSN 1981-8610

Endogeneity and the Importance of Quasi-Experiments for Causal Inference in Accounting Research

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Published in Portuguese and English. Original Version in Portuguese.

Round 1: Received in 7/4/2023. Review requested on 7/7/2023. Round 2: Resubmited on 7/26/2023. Review requested on 7/26/2023. Round 3: Resubmited on 8/4/2023. Accepted on 8/4/2023 by Gerlando Augusto Sampaio Franco de Lima, PhD (Editor). Published on 9/30/2023. Organization responsible for the journal: Abracicon.

1. Motivation

Research in the accounting field underwent a significant paradigm shift, notably from the 1960s onwards, driven by studies by Ball and Brown (1968) and Beaver (1968). These pioneering studies introduced the positivist perspective into Accounting, which began to emphasize the empirical and quantitative approach. With the development of economic theory and finance, as well as the advancement of information technology and the increasing availability of financial data, the adoption of an approach based on quantitative evidence has intensified in accounting research.

This structural shock profoundly impacted how researchers conduct their studies and the demands imposed by the leading Accounting journals, as empirical studies with a quantitative focus began to be increasingly valued. Consequently, studies without a quantitative design are virtually impossible to be published in many periodicals. Thus, there has been a significant increase in the production of studies adopting econometric modeling to identify relationships between variables, predict behaviors, and test theories seeking to explain phenomena involving Accounting.

As a result of this process, the most significant research problems in mainstream accounting research involve the use of observational data and the search for evidence of causal effects (Gow et al., 2016). For example, it is common to come across studies seeking to analyze the "impact," "effect," or "influence" of a variable *X* on a variable *Y*. All of these works implicitly demand causal inference. However, the designs adopted by many of these studies have generated an increasing number of questions about the effectiveness of the empirical strategy and raised doubts about whether the results can actually reveal causal effects or are restricted to presenting limited descriptive correlations.

The main problem in interpreting a causal relationship associated with these studies lies in Endogeneity, something prevalent in studies using accounting data. Overcoming the Endogeneity problem is a recurring challenge since accounting variables are often subject to mutual influences and factors difficult to control. These aspects may lead to spurious correlations or biases in the estimated parameters, compromising the ability to identify causality and, therefore, reflecting on the results' reliability.

The challenges associated with studies seeking to capture causal relationships are increasingly evident. Fortunately, researchers have addressed these issues and improved the empirical strategies to identify cause-and-effect relationships. It is worth highlighting the contributions of the 2021 Nobel Prize winners in Economics, David Card, Joshua D. Angrist, and Guido W. Imbens, who are recognized for using quasi-experimental techniques for causal inference, especially in fields such as labor and education economics. These economists' innovative approaches have gone beyond Economics and influenced other research fields, including Accounting.

Based on the previous discussion, this editorial presents some reflections on causal research in Accounting, emphasizing the Endogeneity problem. We propose an introductory discussion on the importance of quasi-experiments, especially about feasible techniques that can be adopted by many research projects in the field. Among these techniques, we highlight the Difference-in-Difference design, the use of Instrumental Variables, and the Regression Discontinuity design. Thus, our purpose is to encourage the adoption of more rigorous identification methods to sensitize researchers about the quality of research in Accounting, paving the way for a more solid and innovative accounting research environment.

2. The Endogeneity Problem

Ultimately, what is Endogeneity, and why should it receive attention from researchers when designing studies intended to interpret a causal relationship? Objectively, Endogeneity occurs when the explanatory variable of a regression model is correlated with the error term, resulting from the omission of relevant variables, reverse causality, and/or measurement error in the regressor. Therefore, it represents a violation of the Exogeneity hypothesis, which is essential for deriving unbiased estimators using the Ordinary Least Squares (OLS) method. Hence, researchers must be alert to this matter when interpreting the estimate of the parameter of interest since any bias in the estimator compromises the causal inference between the regressor and the dependent variable of the econometric model.

Thus, we bring a didactic example to better illustrate the problem caused by Endogeneity. For brevity, we focus the discussion on the first two types of Endogeneity previously mentioned. Suppose you are interested in measuring the effect of belonging to the B3 Corporate Sustainability Index (ISE) portfolio on the performance of publicly traded companies. Let the performance measure of company *i* be Y_{it}, the binary variable D be an indicator of the company's adherence to the ISE (=1) or (=0) otherwise and, finally, let $\boldsymbol{X}_i$ $(X1_i, X2_i, ..., X_{ki})$ be a vector that contains "*k*" observable characteristics. Initially, we consider a context in which data are observed through a cross-section. The empirical model can be expressed as:

$$Y_i = \beta_0 + \beta_1 D_i + \boldsymbol{X}'_i\gamma + \varepsilon_i, \qquad (1)$$

where ε_i represents the regression error term, and β_1 is the parameter of interest, which should measure the "effect" ("impact" or "influence") of ISE on business performance. However, a priori there is no reason to believe that "β_1" represents the average effect of interest. This is because, without understanding the factors that determine the company's membership to the ISE, nothing ensures that this parameter will be estimated without bias. In this sense, some points in Equation 1 should be highlighted.

First, the *k* variables contained in vector $\boldsymbol{X}_i$ will not contribute to minimizing bias in the estimation of β_1 if they are not **predetermined factors concerning adherence to the ISE**. It occurs because the characteristics of this vector may reflect the behavior of companies in response to joining the ISE[1] and even play the role of dependent variables in the model. Angrist and Pischke (2009) highlight this problem and call these variables "bad controls." Hence, the variables in $\boldsymbol{X}_i$ may not be good candidates for control variables. Second, due to the simple fact that the econometric model represents a simplification of reality and reflects the researcher's lack of knowledge about several phenomena in its stochastic term ε_i, **other unobservable** characteristics(or confounding factors) that are relevant and correlated with adherence to the ISE may exist. Consequently, omitting variables determining a company's performance and likelihood of joining the ISE will imply $\hat{\beta}_1$ bias. Therefore, the companies' performance variation may be partially or entirely caused by a factor not observed by the researcher and, fallaciously, be attributed to the companies' adherence to the ISE. The two points discussed here reflect the problem of Endogeneity well. It is also worth highlighting that the magnitude of such bias can be so significant to the point of affecting the estimate's direction, compromising both the interpretation of the correlation's "impact" and "sign."

1 For example, considering the actual eligibility criteria for the ISE portfolio, it is relatively simple to argue that joining the ISE is endogenous to a company's size since larger companies tend to self-select to participate in the portfolio and present better performance. Additionally, the size of the participating companies may be impacted as a reflection of ISE membership. Thus, using the natural logarithm of total assets (a traditional proxy for company size) in the empirical model as a control variable can be quite problematic. Ahern and Dittmar (2012) propose a similar discussion by estimating the effect of changes in the Board of Directors on the valuation of corporations. Larcker et al. (2007) propose another interesting example and discuss endogeneity in using the leverage variable in their econometric specification when analyzing the association between corporate governance and organizational performance.

Another source of estimating bias concerns the reverse causality imbued in the relationship of interest. In our context, both arguments that "joining the ISE can affect a company's performance" and "the level of performance may determine a company joining the ISE" make sense. We must agree that the chronological issue is crucial to understanding the causal relationship since the cause precedes the effect. However, we note that exploiting longitudinal information in the data is insufficient to overcome the problem of reverse causality — which, from an alternative perspective, can be seen as an omitted variable problem — and obtain the desired causal interpretation.

To motivate this issue, we will include a temporal dimension in the previously declared variables of our example, assuming annual periodicity ($t = \{0, 1, 2, ..., T\}$). When considering longitudinal data, the most convenient starting econometric specification for estimating the relationship of interest would be a fixed effects model[2]:

$$Y_{it} = \beta_0 + \beta_1 D_{it} + X'_{it}\ \gamma + \alpha_i + \alpha_t + u_{it}, \qquad (2)$$

where u_{it} represents the regression error, and the terms α_i and α_t are, respectively, company and year fixed effects. Including the first fixed effect is essential to control for idiosyncratic factors of companies that are invariant over time and cannot be observed by the researcher, e.g., the year of incorporation and sector of activity. The year-fixed effect absorbs temporal shocks distributed homogeneously among companies (e.g., inflation, seasonality, interest rates, and macroeconomic shocks, among many others). Using the longitudinal data structure of the data does not solve the problem of reverse causality because there may be temporal trends in the dependent variable that precede the company's participation in the ISE. In other words, dynamically, the level of performance may be responsible for the company's choice to participate in the ISE portfolio. On the other hand, note that the opposite is also an empirically susceptible situation. The central issue is that, in this context, the researcher cannot observe either the first or the second situation in the data, allowing a feedback relationship between the variables.

Furthermore, even when using more robust econometric modeling, as in Equation 2, the problem of identifying the causal effect remains due to the same problems previously discussed. It is worth noting that the fact that joining the ISE constitutes a company decision, other unobservable time-varying factors may be associated with the company's choice to participate in the portfolio and which directly affect its performance. For example, the company may decide to participate in the portfolio motivated by the adherence behavior of its peers in the same sector, which may reflect on its performance. All the points discussed in this section regarding the difficulty in estimating the causal effect translate the phenomenon known as **selection into unobservable**, i.e., selection bias caused by the existence of factors the researcher cannot control. In short, it is impossible to infer causality between performance and ISE if the self-selection behavior of companies in the ISE portfolio remains unresolved.

2 It is worth noting that since the decision to participate in the ISE portfolio comes from companies, there is no reason to believe that a random effects model (or even a pooled OLS) is employable in this context. It happens because of the individual's unobserved heterogeneity, "" is not independent of the variable , reflecting this relationship's endogeneity. Furthermore, Hausman will be uninformative regarding the decision to use one model over another due to its sensitivity regarding the inclusion of regressors. In fact, Wooldridge (2015) notes that "*if we think the unobserved effect α_i is correlated with any explanatory variables, we should use first differencing or fixed effects*".

The approach thus far is very provocative and somewhat discouraging concerning the consequences Endogeneity brings to causal interpretation. Thus, the question becomes pertinent: Are there ways to get around this problem? Fortunately, yes. However, it should be noted that the solutions are not so trivial and are not always feasible. In this sense, the perception of implementation opportunities requires considerable insight from the researcher regarding the institutional context of what is being investigated. Before we present the solutions, it is helpful to define some key terms.

Let us consider a **factual** situation in which a group of individuals receives an intervention of any nature (**treatment**) and a **counterfactual** situation in which that same group does not receive the intervention. The purpose is to estimate the average treatment effect on a given **impact indicator** (dependent variable), measured after the intervention. The average impact of interest could then be obtained by the difference in the impact indicator averages between the factual and counterfactual worlds. However, note that while the first situation is tangible, the counterfactual is not (perhaps, in a parallel universe, it is). This impossibility of observing the counterfactual world creates what is known as the Fundamental Problem of Causal Inference[3]. The researcher's objective is, then, to find a group of individuals in the real world that mimics the counterfactual situation of the treated group (called the **control group**). In other words, it is necessary to identify individuals who are comparable to those selected to receive treatment. An important message is that not all observational units that make up the untreated group constitute a good control group in the impact analysis.

Experiments are the "gold standard" to determine causal inference. Experiments are interventions conducted by researchers or policymakers in which the treatment condition is randomly manipulated[4]. Randomization intends to ensure that the treatment assignment is uncorrelated with the individuals' observable or unobservable characteristics, as everyone is equally likely to be selected, regardless of particular traits. Therefore, randomization creates a treatment group and a control group, from which a causal relationship between the intervention and impact indicator may be identified. The use of experiments in the Applied Social Sciences is not frequent due to issues ranging from ethical conflicts to financial and technical restrictions. In our hypothetical example concerning the ISE, drawing companies listed on the Brazilian Stock Exchange to participate in the ISE portfolio would configure an experiment along the lines discussed here. However, it is difficult to imagine this could happen in practice. The good news is that an experiment is not the only means for researchers to examine causal relationships.

Without an experimental design, the path to causal inference is to explore a **quasi-experiment** — or a **natural experiment** — which consists of a design in which treatment assignment is "as good as if it were random." There is a need to find an "exogenous variation" on the treatment variable, i.e., a source of variation that circumvents issues of self-selection of individuals to treatment to identify the causal effect of interest. Researchers can only identify this exogenous shock when they have in-depth knowledge about the institutional context linked to the phenomenon studied. Generally, the response lies in the eligibility criteria linked to the intervention. Other times, the source of exogeneity is not evident and is "between the lines" of the context. After identifying a natural experiment, an empirical strategy is required to perform causal inference, which we discuss below.

3 Angrist and Pischke (2009) simply and intuitively present the Rubin Causal Model, which addresses this problem by deriving the mean treatment effect of an intervention. The model uses the language of potential outcomes, where it is possible to decompose the average difference in outcomes observed between the untreated and treated groups into two parts: the treatment effect and the selection bias.

4 To avoid confusion regarding terminology, note that "random treatment assignment" differs from "random sampling." The first determines the individuals who will receive a given intervention, while the latter consists of randomly selecting a portion of elements belonging to a target audience. Therefore, obtaining a random sample from a population will not solve Endogeneity problems.

3. Identification Strategies

The identification strategy consists of the methodological approach that aims to overcome the Endogeneity problem and recover the causal interpretation of the relationship of interest. Quasi-experimental methods have received significant theoretical contributions over the last decades and are widely valued in empirical analyses due to the results' degree of reliability arising from methodological rigor. This section briefly presents the main methods used to identify causal effects to discuss the main hypotheses for identification and application contexts. Our objective here is not to develop each quasi-experimental method with statistical rigor but to approach the techniques from an introductory and intuitive perspective.

3.1 Difference-in Difference

Indeed, the identification strategy most frequently adopted in the mainstream literature is Difference-in-Difference (DiD). The application of the method is conditioned on the availability of longitudinal data for both treatment and control groups in at least two moments: before and after the treatment occurs. Specifically, it is necessary to observe the pre-intervention situation for both groups. The mean effect of interest is estimated by subtracting the differences between the dependent variable means of the treatment and control groups before and after the intervention. This double difference is responsible for assigning the name to the method. For the DiD estimator to identify the causal effect, one condition must be satisfied: that of **parallel trends**[5]. This identification hypothesis states that the impact indicator trajectories of the treatment and control groups would have similar dynamics in the absence of an intervention. Note that the condition **does not** require "the means of the impact indicator are equal between the groups" or that "the predetermined factors present equal means between the groups" before the intervention.

As it is impossible to observe the counterfactual situation of the treatment group (i.e., treated individuals not receiving treatment), it is easy to see that this identification hypothesis is not directly testable. Therefore, carrying out the sequence of differences previously explained does not ensure the identification of a causal relationship. For illustration purposes, the ISE example is applied again, considering that participating and non-participating companies are observed at two points in time, before and after the creation of the portfolio. Organizational performance could behave differently between treated companies even before joining the ISE, which indicates the presence of pre-existing differences in performance trajectories compared to companies outside the portfolio and, therefore, makes causal inference impossible.

In this sense, conducting empirical tests, such as verifying anticipatory behavior, which indirectly corroborates the hypothesis, is vital. Therefore, the DiD strategy is commonly explored in the context of observing multiple points in time. This is because if data are available at various times before and after treatment, we may verify whether there is evidence of pre-trends in the dependent variable. The DiD design that explores this expanded temporal dimension in a semi-parametric model in relation to the treatment variable is specifically known as an event-study[6]. In addition to tables, graphs are welcome and widely adopted to describe the indicator's trajectories and present the results.

5 There is also the hypothesis of the absence of anticipatory effects, commonly confused with parallel trends due to their close connection. For didactic reasons, we do not explicitly refer to this hypothesis. Roth et al. (2023) discuss both hypotheses in detail, the recent advancements in the DID literature, and future perspectives of the method.

6 Note that this design is different from the one classically applied in finance literature.

Another critical element is the possibility of differences in the timing of treatment adherence among treated individuals. Consequently, we can think of basically two distinct cases. The first is the canonical case, in which all treated units receive the intervention simultaneously. Complementary treatment is characterized by individuals adopting treatment that occurs progressively over time, known as staggered DiD. The second case deserves greater attention since it is reasonably common in designs in which DiD is adopted (Baker et al., 2022) and may be subject to bias when estimating the treatment effect. It occurs because heterogeneity at entry to the treatment — and potential heterogeneity of the treatment effect — might distort the weighting used in the estimator, introducing negative weights in the calculation of the mean treatment effect. As a consequence, the sign of the correlation may be erroneously inverted. A series of new DiD estimators correct the weights and generate reliable estimates of the causal effect to overcome such a difficulty. Figure 1 shows one of the results of Guimarães and Trevisan (2022), in which the authors use a regulation promulgated by the Brazilian Stock Exchange to estimate the effect of the mandatory separation of the CEO and chairman positions on a measure of shareholder value implementing three different estimators in a staggered event-study design. Figure 1 highlights the absence of anticipatory effects — statistically insignificant estimates and very close to zero before the separation — and indicates a positive and progressive effect on the impact indicator.

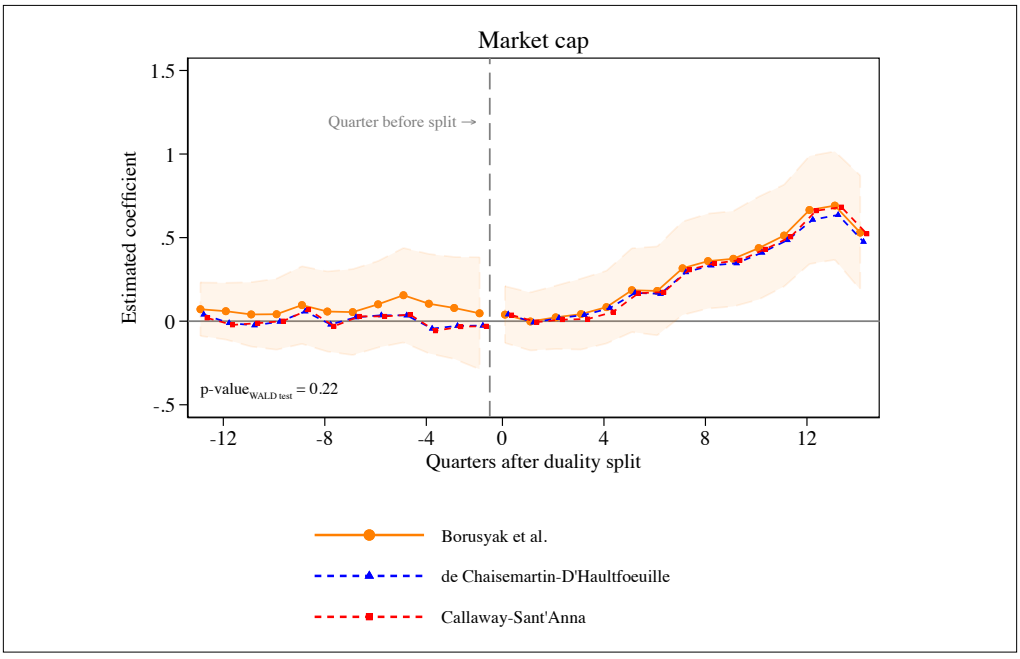

Figure 1. An example de staggered event-study design.

Source: Guimarães and Trevisan (2022).

It is worth highlighting that, to identify the causal effect in the DiD design, one must resort to motivations exogenous to individuals concerning their non-random treatment adoption. If treatment entry essentially involves self-selection of observational units, finding a suitable control group and extracting causality from the relationship of interest will be challenging. Therefore, it is interesting to explore rules, regulations, and guidelines of different natures, which constitute a component beyond the choice of individuals and generate variation over time and between groups. To better understand the application of the DiD method in Accounting research, we suggest reading Huang et al. (2020), Chircop et al. (2023), and Lin et al. (2019), which bring interesting applications to the topics of managerial litigation risk, tax avoidance, and impacts of IFRS adoption.

3.2 Instrumental Variables

Of all the quasi-experimental methods, the Instrumental Variable (IV) can be considered the most complex in identifying situations for its application. To present the method intuitively, we will recover the variables *Y* and *D* already defined in Section 2. We also consider the existence of another variable, *W*, which the researcher does not observe. The motivation is adopting a directed acyclic graph (DAG) used in every textbook presenting a canonical IV, as follows:

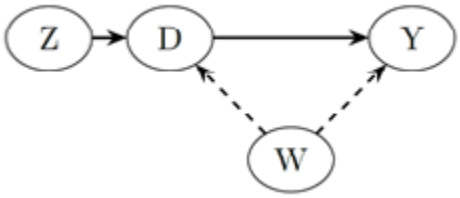

Figure 2. Gráfico direcionado acíclicon.

Fonte: elaborado pelos autores.

The causal relationship of interest is expressed by $D \rightarrow Y$. However, the *W* factor introduces a history of selection on unobservables since it confuses the relationship of interest by determining both the dependent and endogenous treatment variables ($D \leftarrow W \rightarrow Y$). Now, note the existence of factor *Z* and how it acts in the chain of causal effect expressed in the DAG: a variation in *Z* causes a variation in *D*, which causes a variation in *Y*. The most important perception here is that, even if *Y* varies when *Z* varies, the variation in *Y* **only occurs due to the variation in** *D*. In other words, the variable *Z* affects *Y* **exclusively through** *D*. This path is called **exclusion restriction**. The *Z* factor is an **instrumental variable** — or just an **instrument** —a term that gives its name to the identification strategy. Hence, a good instrument meets the exclusion restriction hypothesis (i.e., $Z \rightarrow D \rightarrow Y$) and is independent of other confounding factors. In this causal chain, you can think of factor *D* as assuming both the role of a mediating variable in the path $Z \rightarrow D \rightarrow Y$ and that of a collider in the direction $Z \rightarrow D \leftarrow W$.

However, why is it so difficult to find good instruments in practice? The reason is that they require a consistent theoretical and logical foundation to argue the validity of the exclusion restriction. This, by itself, is a good reason for researchers to avoid identifying a causal relationship by using IV, as such difficulty increases proportionally to the number of instruments. As in the case of parallel trends in DiD, the exclusion restriction hypothesis is not directly testable. Therefore, defending an instrument's validity requires applying several tests to verify the results' robustness and falsification of the empirical strategy. For example, it is essential to show that the instrument presents a strong correlation — in terms of statistical significance — with both the treatment variable (or **first stage**) and the dependent variable, in addition to presenting evidence of the absence of correlation with other relevant characteristics. However, one should remember that the first stage and the reduced form are insufficient to configure *Z* as a good instrument. Additionally, the researcher will need to tell an excellent story about it.

As highlighted by Cunningham (2021), the defense of a good instrument generally causes surprise to readers concerning the argumentation of its relationship with the dependent variable. Take as an example Bennedsen et al. (2007), who estimate the effect of nominating a family or an external CEO on corporate performance. Clearly, the decision to keep a family member in a company's management is endogenous — caused by previous performance problems, merger and acquisition decisions, and political connections, among several other unobservable factors. The authors propose using the "gender of the first child of the CEO who is about to be succeeded" as an exogenous variation to family succession. You may be wondering: How would the gender of the first child "influence" a company's performance? The elegance of the strategy is intrinsically linked to the context of this eccentric and peculiar reduced form. The authors explore unique data from family trees of corporate members and argue/show that the gender of the first child is a good instrument because it affects the probability of a family member being nominated **exclusively** due to birthright reasons (first-born males are more likely to "inherit" the position). Much of the previously mentioned paper is devoted to defending the validity of this exclusion restriction. On the other hand, it is improbable that this family trait is correlated with other determinants of company performance, as shown through the implementation of several robustness tests. This instrument's quasi-random attribute is what allows the causal relationship of interest to be identified.

IV applications are viable for both cross-sectional and panel data. Furthermore, it is common for research to use both "continuous" and "binary" treatments. Larcker and Rusticus (2010) carry out a literature review on the use of the method in research in the accounting field, discuss the non-triviality of its implementation, and promote a practical guide for its use. We warn that, whatever the situation in which a researcher believes in the possibility of using the IV strategy, there must be means (empirical and argumentative) of convincing the reader that the instrument meets the exclusion restriction since the use of unfit instruments can bias the estimator even more drastically than using a simple OLS. Some interesting examples of articles that adopt IV in the Accounting field are Fang et al. (2015) and Tseng (2022), which deal with the role of foreign investors in financial information reporting practices and the spillover effects of technologies on innovation.

3.3 Regression Discontinuity Design

Applications with the Regression Discontinuity Design (RDD) have been intensified in Applied Social Sciences due to the practicality of its implementation and convincing power to defend the results' internal validity. RDD explores a sudden change — of exogenous origin — in the probability of receiving a treatment, which occurs based on a specific value (cutoff point) of a quantitative variable (running variable). A quasi-experiment is created in the neighborhood/near this cutoff point so that the observational units within this neighborhood can be used as treatment and control groups due to their similarity in predetermined characteristics.

Thus, let us assume that tax authorities implement a tax inspection policy that institutes audits in companies that reach a specific value of annual net revenue, referring to the fiscal year preceding the year of the policy. In this case, the annual net revenue configures the quantitative variable (running variable), and the cutoff point would be the revenue limit that a company must reach to qualify for the inspection process. An RDD would enable comparing companies close to this threshold. Companies slightly above this threshold would be considered the treatment group, as they would be eligible for the tax inspection policy. In contrast, companies slightly below the threshold would be considered the control group, as they would not be selected for the audit.

Therefore, due to a **discontinuity** in the chance of receiving the treatment, the mean "local" treatment effect can be estimated, which is characterized as a **discontinuity** in the mean impact indicator precisely at the cutoff point. The identification hypothesis is that the mean of the dependent variable for the counterfactual group has a smooth transition at the cutoff. In other words, without the treatment, no discontinuity in the mean impact indicator should exist on the cutoff.

Not surprisingly, this hypothesis is not directly testable because it represents a situation that is impossible to observe. However, there are useful empirical tests to corroborate the support of this hypothesis and which are standard procedures in all studies using this identification strategy. The first is the balancing test, which checks the similarity between the treatment and control groups based on their observable characteristics. If the intervention is actually "as good as if it were random," the groups must be statistically equal regarding the means of the characteristics measured before the exogenous shock. Another critical test is to check if the running variable is manipulated. Intuition indicates that individuals could self-select to receive (or avoid) the treatment, manipulating the values of the running variable to (not) meet the eligibility criteria. To illustrate this point, consider the previous example of tax inspection policy. Suppose, alternatively, that tax authorities announce that companies that reach a minimum amount of net revenue at the end of the fiscal year will be subject to tax audits. In this case, companies will likely anticipate and adopt strategies to avoid exceeding the cutoff established by the policy not to be selected for the audit. If there is manipulation, the frequency of observations of the treatment and control groups at the cutoff will show a "jump," thus reflecting an endogenous behavior of the individuals and harming the causal inference.

The case in which all individuals receive treatment when they meet the eligibility criteria — the probability of receiving treatment jumps from 0% to 100% at the cutoff — is called a sharp design. This is the case in the previous example regarding the tax inspection policy. However, empirically, it is possible that not all individuals who meet the eligibility criteria actually receive the intervention. In other words, there may be situations in which there is endogeneity concerning the adoption of treatment. These cases configure the fuzzy design. To exemplify fuzzy RDD, let us continue using the previous hypothetical case. Suppose that, due to resource constraints, tax authorities cannot audit all eligible companies (i.e., those that have exceeded the minimum net income amount). This case configures a fuzzy design since the probability of being treated is less than 100% among eligible companies. In these cases, identifying the treatment effect on those treated uses the "opportunity" to receive the treatment as an IV to determine the probability of actually receiving the treatment. Note that the reduced form — the relationship between the impact indicator and the opportunity to receive treatment — represents the "treatment intention effect," an instrumental piece of information for those responsible for designing public policies or regulations. Estimating the parameter of interest can be done using non-parametric techniques, "optimal bands," and parametric techniques (OLS models). Cunningham (2021) appropriately discusses the current estimation methods and validation tests.

To illustrate the use of RDD in Accounting research, let us consider Lin et al. (2022), in which the impact of unionization on earnings management in the United States context is estimated. The study's motivation is related to the possibility that employees of unionized companies demand higher wages when companies have good financial results. Therefore, the previous study investigates whether unionization affects the practice of earnings management by reducing profits and, thus, mitigating the impact of higher compensation expenses. To achieve this objective, the authors explore a quasi-experiment originating in union elections, in which unionization is instituted if the company obtains at least 50% plus "1" of the votes. Hence, the unionization event is almost random for companies in which the votes were close. The authors compared companies that were successful in unionization by a margin close to 50% with those that were also unsuccessful by a margin close to this limit (sharp drawing). Panel A of Figure 3 graphically presents one of the article's results. Note that the curve that represents the mean behavior of earnings management presents a discontinuity precisely at the cutoff, indicating that, after unionization, there is a reduction in discretionary accruals. This result signals that companies use managerial discretion to report lower profits, trying to shield themselves from workers' demands for higher wages. Panel B performs a placebo test, simulating that the actual cutoff would be at the "0.45" point instead of "0.50". The graph suggests that there is no discontinuity at this point, thus validating the strategy of identifying the causal effect of unionization.

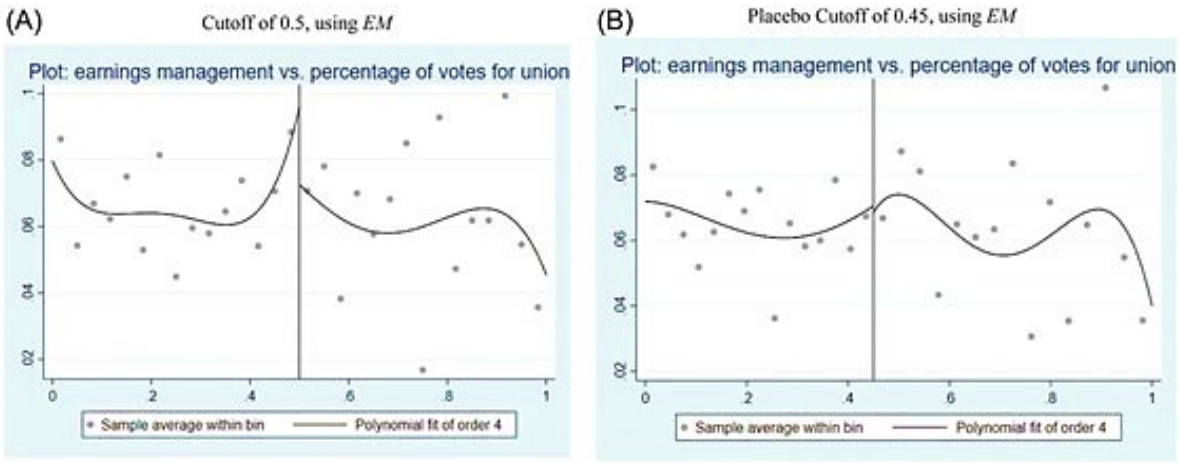

Figure 3. Example of sharp RDD.

Source: adapted from Lin et al. (2022).

In short, for RDD to be applicable, there must be an exogenous and sudden variation in the chance of receiving treatment based on a specific value of a quantitative index. A significant advantage of the method is that it does not exclusively depend on longitudinal data to be implemented. We recommend reading Joshi (2020) and Fan et al. (2021), in which RDD is used to assess the effects of regulation related to the reporting of tax information on companies' tax avoidance and the impacts of proposals related to corporate governance on earnings management.

4. Final Considerations

One of the most admirable aspects of scientific thinking is its premise of allowing it to break paradigms and continually renew itself. As researchers, we need to be receptive to "the new" to continue learning and contributing to advancing knowledge about phenomena in which we are involved. In this editorial, we highlight an epistemological issue in the context of quantitative empirical research in the accounting field, seeking to infer a causal relationship. In this sense, we would like to encourage some reflections: Do we adopt the appropriate methodological tools to seek answers to our research questions? Are we adequately updated, and have we learned about the methods available? From our point of view, such knowledge is not yet fully disseminated and consolidated, and there is still a long way to go.

Quantitative methods for causal inference, especially at a national level, need to be rethought: a structural break in the *modus operandi* of Accounting research is needed. A change in standards regarding the mainstream (quantitative) accounting literature has been seen among the leading journals concerning the demand for studies implementing more rigorous methods to identify causal relationships and explore quasi-experiments and controlled experimental designs. To converge and interact with the mainstream, we need to appropriate such methods. Therefore, this editorial is expected to clarify some introductory questions regarding quasi-experimental econometric techniques and instigate the academic community to "rediscover" it and learn about its potential use.

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Revista de Educação e Pesquisa em Contabilidade
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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.

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  - 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[1]

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:

1 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.