CEO OVERCONFIDENCE AND THE RISK OF FRAUDULENT FINANCIAL REPORTING: EVIDENCE FROM THE BRAZILIAN CAPITAL MARKET

Caritsa Scartaty Moreira [1]
Alex Ferreira Lopes [2]
Wenner Glaucio Lopes Lucena [3]
Orleans Silva Martins [4]

ABSTRACT

The quality and quantity of information available in a market reflects the process of preparing companies' financial statements, which can be impacted by behavioral biases on the part of their preparers, such as overconfidence. These biases can be an explanation for the practice of possible opportunistic behavior when preparing accounting information. This study analyzes the relationship among managers' overconfidence and the Risk of Fraudulent Financial Reporting (RFFR) of companies listed on the Brazil Stock Exchange (B3) from 2010 and 2021. To this end, the M-Score was used as a proxy for RFFR. In addition to it, a ranking was constructed using the TOPSIS methodology (with the aid of entropy) to formulate the independent variable that measures overconfidence. The sample

[1] PhD in Accounting Sciences from the Postgraduate Program in Accounting Sciences at the Federal University of Paraíba (PPGCC/UFPB), Substitute Professor of the Accounting Sciences course at the Federal University of Paraíba (UFPB), Jardim Cidade Universitária S/N – Castelo Branco, João Pessoa – PB, 58.051-900, caritsa_scarlaty@hotmail.com, +55 84 99116-1827.
ORCID: https://orcid.org/0000-0003-1243-9216

[2] Master in Accounting Sciences from the Postgraduate Program in Accounting Sciences at the Federal University of Paraíba (PPGCC/UFPB), Substitute Professor of the Accounting Sciences course at the Federal University of Delta do Parnaíba (UFDPar), Av. São Sebastião, 2819 – Nossa Sra. De Fátima, Parnaíba – PI, 64.202-020, alexferreiralopes12@gmail.com, +55 83 99309-6146.
ORCID: https://orcid.org/0000-0003-0307-6177

[3] PhD in Accounting Sciences from the Multi-Institutional and Inter-Regional Postgraduate Program in Accounting Sciences UnB/UFPB/UFRN (PMIPCC – UnB/UFPB/UFRN), Professor of the Accounting Sciences course at the Federal University of Paraíba (UFPB) – Campus I, Jardim Cidade Universitária S/N – Castelo Branco, João Pessoa – PB, 58.051-900, wdlucena@yahoo.com.br, +55 83 3216-7459.
ORCID: https://orcid.org/0000-0002-2476-7383

[4] PhD in Accounting Sciences from the Multi-Institutional and Inter-Regional Postgraduate Program in Accounting Sciences UnB/UFPB/UFRN (PMIPCC – UnB/UFPB/UFRN), Professor of the Accounting Sciences course at the Federal University of Paraíba (UFPB) – Campus I, Jardim Cidade Universitária S/N – Castelo Branco, João Pessoa – PB, 58.051-900, orleansmartins@yahoo.com.br, +55 83 3216-7459.
ORCID: https://orcid.org/0000-0002-4966-0347

of 211 companies was analyzed using linear regression. The results reveal a negative relationship among managers' overconfidence and RFFR, thus providing evidence that managers' personal characteristics, in this case overconfidence, have an impact on the quality of financial statements. In addition, the use of the M-score as a proxy for RFFR provides greater robustness to the results achieved here, since it uses contemporary parameters, i.e. updated according to the sample and period under study.

Keywords: Accounting Information. CEO Overconfidence. Risk of Fraudulent Financial Reporting.

EXCESSO DE CONFIANÇA DO CEO E O RISCO DE RELATÓRIOS FINANCEIROS FRAUDULENTOS: EVIDÊNCIAS NO MERCADO DE CAPITAIS BRASILEIRO

RESUMO

A qualidade e a quantidade de informações disponíveis em um mercado são reflexo do processo de elaboração das demonstrações contábeis das empresas, que podem sofrer impacto dos vieses comportamentais por parte de seus elaboradores, como o caso do excesso de confiança. Esses vieses podem ser uma explicação para a prática de possíveis comportamentos oportunistas quando da elaboração das informações contábeis. O presente estudo analisa a relação do excesso de confiança dos gestores com o Risco de Relatórios Financeiros Fraudulentos (RRFF) das empresas listadas na Brasil, Bolsa e Balcão (B3) no período de 2010 a 2021. Para tanto, o *M-Score* foi utilizado como *proxy* para o RRFF. Além disso, foi construído um ranking por meio da metodologia TOPSIS (com auxílio da entropia) para formulação da variável independente que mensura o excesso de confiança. A amostra analisada contém 211 empresas que foram analisadas por meio de regressão linear. Os resultados revelam uma relação negativa entre o excesso de confiança dos gestores e o RRFF, fornecendo assim, evidências de que as características pessoais dos gestores, neste caso, o excesso de confiança, têm impacto na qualidade das demonstrações contábeis. Ademais, a utilização do *M-score* como *proxy* para o RRFF traz maior robustez para os resultados aqui alcançados, uma vez que se utiliza de parâmetros contemporâneos, isto é, atualizados de acordo com a amostra e o período objetos de estudo.

Palavras-Chave: Informações Contábeis. Excesso de Confiança do CEO. Risco de Relatórios Financeiros Fraudulentos.

1 INTRODUCTION

The set of financial statements issued by companies is part of the accounting information system and should therefore be evaluated for its ability to provide useful information and should therefore be relevant and reliable to the market. However, if this information is not produced for this purpose, one of the problems generated will be information asymmetry (Murcia et al., 2008). This information asymmetry is addressed by the Agency Theory as arising from the

mismatch among the interests of investors (principal) and capital managers (agent), whose quantity and quality of information available in the corporate area accentuates this informational mismatch (Jensen & Meckling, 1976). It should be emphasized that the relationship between principal and agent can be affected by the disclosure of Accounting reports that do not represent the company's true performance (Maragno & Borba, 2017).

The fact is that the quality and quantity of information available is a reflection of the process of preparing financial statements which, in turn, can be impacted by the behavioral biases of the preparers (Dal Magro et al., 2018). Thus, psychological aspects, personal traits and limited rationality itself can act as reasons to explain the practice of possible opportunistic behavior (Lin et al., 2005).

Also in the context of opportunistic behavior is fraud, defined as an illegal practice in which the perpetrator aims to obtain some personal advantage, and does so in various ways, including altering the true accounting facts (Murcia et al., 2008). Fraud is a type of accounting manipulation, as it aims to alter the true (neutral) performance of companies. On the other hand, earnings management is also a type of manipulation, but it takes into account the legal limits of the rules (Dallabona et al., 2014; Schipper, 1989). So, for the purposes of this research, the risk of fraud will be dealt with from the perspective of financial reports being manipulated, and is so named due to the development and consolidation of indicators in the literature. Therefore, it does not have the objective of pointing out fraudulent acts, but rather the likelihood that the financial reports do not represent the company's real performance.

As a cognitive aspect that can alter the process of preparing financial statements, there is overconfidence, which in this case is characterized by the demonstration or observation of an individual's tendency to be superior about their abilities, judgments and future predictions (Dushnitsky, 2010), causing an overestimation of knowledge on the one hand and, on the other, an underestimation of risks when they act exaggeratedly to control the events of organizations (et al., 2014). According to Hribar and Yang (2016), managers with these characteristics tend to affect results by underestimating random events and are more prone to biased optimistic forecasts.

Allied to overconfidence, the discretion provided by accounting choices can alter the economic reality of the business and, thus, the information that is passed on by the financial statements can contain opportunistic behavioral biases of the Chief Executive Officer (CEO) (Dal Magro et al., 2018). This fact is justified by the upper echelons theory (Hambrick & Mason, 1984), which emphasizes that managers' choices derive from cognitive aspects and personal characteristics.

Those exposed as referring to the managers' overconfidence and the consequent fraud in Accounting information can find support in the definition of illegal acts committed by people with respectable and high social status in their occupation within the organization, known as white-collar crime (Sutherland, 1949), where the main objective of most of the acts is economical gain or even occupational success, which also leads to economical gain (Coleman, 1987) which, in turn, can be translated into the unreliable representation of assets (Sutherland, 1940), and false publications (Sutherland, 1945).

Revista Contabilidade Vista & Revista, ISSN 0103-734X, Universidade Federal de Minas Gerais, Belo Horizonte, v. 34, n. 3, p. 1-28, set./dez. 2023.

3

Therefore, biases originating from human behavior can affect the results of financial reports (Schrand & Zechman, 2012), and as a consequence, CEOs with overconfidence cause manipulations in accounting practices (Habib et al., 2012; Hsieh et al., 2014; Li & Hung, 2013), thus influencing the process of disclosing reliable accounting information (Dal Magro et al., 2018; Hribar & Yang, 2016; Kouaib & Jarboui, 2016).

Thus, considering that behavioral issues can be used to explain opportunistic behavior that may be reflected in the financial statements themselves based on manipulated information (Hribar & Yang, 2016; Lin et al., 2005), the objective was to analyze the relationship among CEO overconfidence and the Risk of Fraudulent Financial Reporting (RFFR) of brazilian publicly traded companies. In summary, the results showed that the managers' overconfidence is negatively related to the RFFR of Brazilian companies, showing that the personal characteristics of managers, in this case overconfidence, have an impact on the process of preparing financial statements. In a comparison with other studies on the subject, it was also possible to observe that the findings indicate that this relationship may be a characteristic of the Brazilian context.

Some research has already been carried out on the subject (Agustia et al., 2020; Dal Magro et al., 2018; Hribar & Yang, 2016; Hsieh et al., 2014; Li & Hung, 2013; Martins & Ventura Junior, 2020). However, in general, they used earnings management measures to capture RFFR. M-score use to capture RFFR and its association with CEO overconfidence provides greater robustness to the findings when it comes to applying this methodology to the Brazilian reality, constituting an innovation for this research. The results found here also work to consolidate the relationship in the context of this work, since it presented similar results to the research by Dal Magro et al. (2018), even though the authors used earnings management and not a specific measure for RFFR.

This research contributes to the literature, because as highlighted by Hribar and Yang (2016), this type of study is necessary, given the scarcity of research dealing with the influence of individual behavior on the practice of opportunistic accounting choices when preparing accounting information. Identifying such an association is useful to the market because it provides evidence, especially for managers and investors, that the characteristics of organizational leaders, in this case overconfidence, may be associated with RFFR. The measure of overconfidence can be obtained from information disclosed by the company itself, and the RFFR proxy can be calculated from the financial statements, which allows those interested in the company to obtain these data and conclusions. Furthermore, the metrics used here and the results found also serve as support for future research on the subject.

2 THEORETICAL FRAMEWORK

2.1 Upper Echelons Theory

Based on bounded rationality and the concept of the dominant coalition (Cyert & March, 1963; Simon, 1947), Hambrick and Mason (1984) developed a study on the sociodemographic characteristics of executives that would come to

be known as the Upper Echelons Theory, given that studies on these characteristics were already being published in relevant journals at that time (Abatecola & Cristofano, 2020). As a result, the authors proposed two initial hypotheses: (i) executives make their decisions according to their own interpretation of reality; and (ii) these interpretations are the result of their experiences, in this case, their cognitive processes, beliefs and personality, as well as their standard of ethical conduct.

Years later, the authors realigned their propositions so that analyzing the characteristics of CEOs would be more appropriate when one wanted to infer something about the strategic behavior of the corporation. Another point discussed was that the sociodemographic characteristics of these executives could be satisfactory representations of their cognitive attributions (Abatecola & Cristofano, 2020; Hambrick, 2007). This is justified given the difficulty in capturing these attributes. Carpenter et al. (2004) argue that CEOs tend to respond to decision-making processes based on their personal values, which are actually unobservable psychological constructs.

After the initial hypotheses of the theory, several studies were carried out with the aim of identifying when executives can alter the firm's decisions, actions and performance (Wangrow et al., 2015). Hambrick and Finkelstein (1987) considered the moderating effects in the upper echelons theory, such as managerial discretion and the effects of demands on the executive's work in three spheres: environmental, organizational and individual. In relation to the moderating effect of managerial discretion, Sierra et al. (2019) explain that, according to a higher or lower level of managerial discretion, i.e. the freedom that the CEO has to act within the company, the reflection of their characteristics will be considered in the company's performance at the same level.

It is important to note that this discretion can make the CEO fall into one of the elements of the Fraud Triangle. So, Schnatterly et al. (2018) searched the literature in order to understand how the Fraud Triangle occurs in terms of CEO behavior. The authors showed that there are internal and external factors that can influence the agents' behavior when there are the elements of pressure, opportunity and rationalization. And some of these factors include, for example, aspirations, the structure of the board of directors, the culture of the firm and the power of the CEO.

Not uncommon in the corporate world, cases of Accounting fraud took on worldwide repercussions in the early 2000s. Maragno and Borba (2017) state that these frauds are basically divided into two: (i) occupational, in which individuals use their profession for personal enrichment through the misuse of resources or misapplication of assets of the organization in which they work (Holtfreter, 2005); and (ii) organizational, which are committed for the benefit of the organization (Levi, 2008).

In order to investigate the relationship among the executives' characteristics and the presentation of incorrect results by companies, considering the leaders' overconfidence, Schrand and Zechman (2012) carried out a detailed analysis of 49 companies that were subject to SEC Accounting and Auditing Enforcement Releases from the 1990s and 2000s. The authors found that in 25% of

Revista Contabilidade Vista & Revista, ISSN 0103-734X, Universidade Federal de Minas Gerais, Belo Horizonte, v. 34, n. 3, p. 1-28, set./dez. 2023.

5

the distortions reported by the companies there was a certain degree of managerial intent that indicated fraud, while in the remaining cases, there was a misrepresentation of the data, but without the opportunistic bias. One explanation for this, according to the authors, is the fact that overconfidence can lead managers to exhibit optimistic behavior and then begin to disclose distorted results intentionally.

2.2 Overconfidence

In recent years, accounting research has made extensive use of developments in sociology, psychology and even neurology in order to increase its interdisciplinary nature, and thus try to better understand the economic behavior of both individual agents and the market as a whole (Skala, 2008).

Thus, with the emergence of behavioral finance and the definitions of cognitive biases, several studies have emerged with the aim of better understanding the relationships among human behavior and the decisions made about finance. One of these cognitive biases is known as overconfidence, which has been widely used in the field of psychology since the 1960s, but only in the mid-1990s it has been applied to the disciplines of economics and finance (Habib & Hossain, 2013; Skala, 2008).

Another term that demonstrates individual behavior in some people is narcissism. In general, narcissism and overconfidence are similar concepts, but with some differences. Narcissistic individuals display stable psychological behavior regardless of the situation, while overconfident people tend to overestimate the likelihood of a specific outcome and their knowledge, even if due to some bias, acting rashly (Bortoli & Soares, 2019; Jemaiel et al., 2013; Tang et al., 2018). In addition, overconfident people feel superior without relying on external sources to sustain this feeling, while narcissistic individuals display other behaviors, such as vanity, exhibitionism and exploitation (Olsen et al., 2013; Young et al., 2016). Management overconfidence is a modern behavioral finance concept, characterized by managers' optimism about every aspect of an event under uncertain conditions (Almaleki et al., 2021).

According to Dal Magro et al. (2018), overconfidence can be measured using secondary data, since the cognitive biases of interest are not directly observable (Barros & Silveira, 2008). The authors conducted a study of 127 Brazilian companies in 2014, investigating the relationship between managers' overconfidence and the practice of earnings management. The results indicate that overconfidence has a negative impact on earnings management and suggest that managers with low self-confidence manage earnings to meet analysts' expectations and increase companies' organizational results.

Similarly, in order to analyze the moderating effect of the financial expertise of the board of directors between the overconfidence of executives and the quality of accounting disclosure, Lunardi et al. (2021) also used secondary metrics to capture the overconfidence of the CEOs of publicly traded companies in Brazil.

Malmendier and Tate (2005) explain that overconfident executives tend to make more investments when internal resources are sufficient to finance the investments. Similarly, Ben-David et al. (2013) say that managers overestimate the cash flows of an investment project and underestimate the risk of returns, as evidenced by Barros and Silveira (2008). Thus, the literature indicates that there is a certain relationship among the overconfidence of CEOs in companies with higher levels of financial leverage (Dal Magro et al., 2018; Lunardi et al., 2021).

Another factor that can indicate overconfidence on the part of executives in companies is the volume of treasury shares they hold (Barros & Silveira, 2008). Studies indicate that share buybacks have a clear relationship between information disclosure and CEOs' overconfidence, as they believe more in the entity's future profitability (Ahmed & Duellman, 2013; Andriosopoulos et al., 2013; Hsieh et al., 2014).

In addition to it, family control is another factor that has also been used as a proxy to determine overconfident CEOs (Sutrisno et al., 2022). Arguments such as market competition and remuneration plans (Anderson and Reeb, 2003), concern for the company's reputation (Miller et al., 2008) and the transfer of its assets to the next generations, including succession issues (Gómez-Mejía et al., 2007; Volta et al., 2021), reinforce the idea that companies that are managed by founder CEOs determine aspects of their overconfidence.

Finally, the volume of dividend payments, a variable used by Schrand and Zechman (2012), is another metric used to capture executives' overconfidence. Studies show that overconfident executives are less likely to pay dividends in order to preserve the cash available to finance planned investment opportunities (Ben-David et al., 2013; Deshmukh et al., 2013). Nguyen et al. (2021) explain that excessive CEO confidence has a positive impact on dividend payout and yield, and show that this characteristic has an impact on both state-owned and private companies traded on different stock exchanges.

Moreover, Li and Hung (2013) investigated the relationship between executive overconfidence and earnings manipulation. Overconfidence was measured through CEO trading and the sample consisted of companies listed on the Taiwan Stock Exchange from 2001 and 2009. As a result, the authors concluded that there is a positive relationship between these agents' overconfidence and earnings management, suggesting that this overconfidence increased the earnings management practice.

Huang and Kisgen (2013) examined the corporate financial and investment decisions made by female and male executives in order to verify which gender would have more overconfidence in relation to the other and concluded that male executives make more acquisitions and issue debt than female executives, showing that men have more overconfidence than women. A similar result was found by Mishra and Metilda (2015), who investigated, using a questionnaire, the relationship between overconfidence and investment experience, gender and level of education of 309 mutual fund investors chosen at random in India. To this end, the authors concluded that overconfidence is higher among men than among women and increases with more investment experience and education.

Revista Contabilidade Vista & Revista, ISSN 0103-734X, Universidade Federal de Minas Gerais, Belo Horizonte, v. 34, n. 3, p. 1-28, set./dez. 2023.

7

Hsieh et al. (2014) used a metric proposed by Malmendier and Tate (2005) to measure managers' overconfidence through their investments in options, to examine this behavior with earnings management through accruals and real activities after the Sarbanes-Oxley Act was established. Overall, the authors found evidence that there was greater earnings management before the law, with managers classified as overconfident, and that they continued this practice through accruals, operating cash flows and discretionary expenses in the post-law period, finding no evidence that a greater number of overconfident managers impacts analysts' forecasts.

Kramer and Liao (2016) looked at CEO overconfidence in companies and its implications for the market. The sample consisted of 429 American publicly traded companies from 1983 and 1994, based on CEOs' decisions to hold options and the way they are described in the financial press. Among the findings, the authors stated that the CEO's overconfidence can directly affect analysts who make optimistic profit forecasts in the market, in addition to these forecasts being less dispersed and their error of being smaller. Finally, they concluded that the CEO's behavioral characteristics are important in shaping the environment in which analysts and other market participants make financial decisions.

Measuring overconfidence through the exercise of CEOs' options and the size of their photos printed in press coverage, Hribar and Yang (2016) examined whether overconfidence increases the likelihood of issuing earnings forecast, whether it increases the amount of optimism in management forecasts and, finally, whether overconfidence increases forecast accuracy. For all three hypotheses, positive results were found: for the first, overconfidence is positively associated with the decision to issue voluntary forecasts; regarding the second hypothesis, overconfident managers are more likely to issue earnings forecasts with greater optimism after a loss; and finally, they found that overconfidence affects the accuracy of earnings forecasts (Hribar & Yang, 2016).

Kouaib and Jarboui (2016) showed that the indirect effect of managers' overconfidence on company performance through earnings management by real activities is conditioned by the mandatory use of IFRS. The analysis was based on information from 275 European companies from 12 countries from 2000 and 2013. The results showed that companies with overconfident managers who had not adopted the IFRS had a worse future performance, and also found that overconfident managers who practiced earnings management, with the use of the IFRS, practiced it much more than managers who were not overconfident.

2.3 Fraudulent Financial Reporting

The Agency Theory advocates that the agents linked to the entity have different interests and that this can end up damaging its performance and efficiency when these individual interests, both in relation to the manager and the owner, are put first, one to the detriment of the other (Jensen & Meckling, 1976; Murcia & Carvalho, 2007). Fraud and manipulation of results are practices that can be carried out so that some market participants benefit as opposed to others.

Fraud, according to Costa and Wood Junior (2012), is an illicit act committed rationally by members of senior management with a view to obtaining their own benefits - it is a pervasive socio-economic disease that affects companies in the most diverse sectors and is present in developed and underdeveloped economies (Udeh & Ugwu, 2018). Earnings manipulation can be defined as an intentional intervention in financial reporting, either by following loopholes in accounting standards, as is the case with earnings management, or even by fraud. Manipulation is a generic concept, while fraud is specific. The difference in the definitions is due to the illegality of fraud (Levi, 2008), since earnings management is due to the possible choices within the accounting standards, those in which managers decide in a discretionary manner, thus being able to alter the structure or even the real performance of the company (Dallabona et al., 2014; Martins et al., 2016; Murcia & Carvalho, 2007; Schipper, 1989).

One of the essential conditions for attracting new investors and creditors to constructive economic activities and for economic growth is the provision of information that is useful in making financial, economic and commercial decisions (Wang, 2018). However, financial reporting fraud refers to a major intentional distortion or omission of disclosures in financial statements with the aim of deceiving their users, causing not only significant losses to organizations, but also to the credibility of the Accounting profession and public confidence in these reports (Gorbani & Salehi, 2020; Rostami & Rezaei, 2022).

In accounting research, the means by which RFFR is measured is through the simultaneous identification of both the possibility of the company manipulating results and its incurring an imminent risk of bankruptcy (Martins & Ventura Júnior, 2020). Thus, predicting, measuring, mitigating and assessing the risk of company bankruptcy has been the subject of investor analysis for a long time, because investment is the way for them to achieve value maximization in terms of capital gains or dividend payments (Agustia et al., 2020). The first bankruptcy prediction model introduced by Altman (1968) provided the basis for the development of several other models over time.

In the national context, the first application of a quantitative bankruptcy prediction model was made by Altman et al. (1979), analyzing a sample of 23 companies with variables previously used by Altman (1968), adapted to Brazilian specificities. Based on the work carried out by Razali and Arshad (2014), Martins and Ventura Júnior (2020) created a new bankruptcy prediction model that at the same time indicates the possibility of manipulation of results by companies, with the aim of analyzing the influence of corporate governance in mitigating the possibility of fraudulent financial reporting in Brazil.

With data from 314 publicly traded companies in Brazil, using the probability of bankruptcy model (Z-score) by Altman et al. (1979) and the probability of earnings manipulation model (M-score) by Beneish (1999), the authors concluded that corporate governance practices linked to the board of directors are effective in reducing the possibility of fraudulent financial reporting, while those related to the audit committee help to reduce earnings manipulation (Martins & Ventura Júnior, 2020).

Revista Contabilidade Vista & Revista, ISSN 0103-734X, Universidade Federal de Minas Gerais, Belo Horizonte, v. 34, n. 3, p. 1-28, set./dez. 2023.

9

In addition to these studies, several studies have been carried out to test the predictive power of the Z-score and M-score. Razali and Arshad (2014) analyzed the annual reports of 227 Malaysian companies that traded on the stock exchange and used the Altman (1968) and Beneish (1999) models to identify relationships between corporate governance and the likelihood of fraudulent financial reporting. Among the findings of the study, the authors concluded that a convenient corporate governance structure is fundamental to giving greater credibility to financial reports.

Using discretionary accruals as a measure of earnings management and Altman's (1968) model for bankruptcy predictability, Agrawal and Chatterjee (2015) analyzed 150 Indian companies and found that among them, those with good financial performance tended to engage in higher levels of earnings management, while those in financial difficulty were more conservative, implying lower levels of earnings management.

Rostami and Rezaei (2022) sought to trace the impact of corporate governance and its mechanisms on the prevention of fraudulent financial reporting in 187 companies listed on the Tehran stock exchange from 2013 and 2019. The model used to measure fraudulent financial reporting was the one Beneish (1999) adjusted. The results indicated that robust corporate governance reduces the intention of companies to report fraudulently.

It is worth noting that, for the purposes of this research, fraud will be treated from the perspective of its occurrence risk, since the identification of fraud itself involves everything from aspects related to auditing to sets of risk management practices, regulations and security, considered more complex, for example (Power, 2013).

Considering the relevance of identifying FRFR, as well as the evidence on the impact that executive overconfidence can have on the presentation of company results, the following research hypothesis was defined:

H1: CEO overconfidence has a positive relationship with RFFR of Brazilian publicly traded companies.

From the research already carried out on the subject proposed here, it can be seen that authors have used earnings management as a proxy for the opportunistic behavior of managers when manipulating accounting information, i.e. it was not a measure created for this purpose taking into account the companies characteristics. Similarly, in Brazil, an emerging country, it is necessary to verify the relevance of what has been found so far on this relationship, as is the case of the study by Dal Magro et al. (2018).

3 METHODOLOGICAL ASPECTS

The sample for this research was made up of companies listed on Brasil, Bolsa e Balcão (B3) from 2010 and 2021. The starting year was chosen because of the mandatory adherence to the International Financial Reporting Standards (IFRS) and the presentation of the Reference Form by listed companies in Brazil.

The year 2021 is justified because it is the last year of full disclosure of the financial statements by the companies up to the research.

The sample formation process considered the exclusion of financial companies, since they have different characteristics from other sectors. Companies that did not provide the information needed to calculate the variables used in this study were also excluded.

The final sample thus included 2,204 observations from 211 companies. With regard to data collection, the economic and financial data was obtained using Economatica®, while the variables relating to the company and CEO profile were collected from the Reference Form made available by B3 and on the companies' websites.

3.1 Risk of Fraudulent Financial Reporting (*M-SCORE*)

In order to identify RFFR, we used Beneish's (1999) M-score model of probability of manipulation of results, whose formation takes into account the Sales Receivables Index (DSRI), Gross Margin Index (GMI), Asset Quality Index (AQI), Sales Growth Index (SGI), Depreciation Index (DEPI), General and Administrative Expenses Index (SGAI), Asset Quality Index (AQI), Sales Growth Index (SGI), Depreciation Index (DEPI), Selling General and Administrative Expenses Index (SGAI), Leverage Index (LVGI), and the Total Accruals to Total Assets Index (TATA). Table 1 shows how the parameters for forming the M-score were calculated.

Table 1
Beneish Model Parameters (1999)

Index	Equation
DSRI	$\dfrac{Accounts\ receivable_{it}/Revenue_{it}}{\dfrac{Accounts\ receivable_{it-1}}{Revenue_{it-1}}}$
GMI	$\dfrac{Gross\ Margin_{it}}{Gross\ Margin_{it-1}}$
AQI	$\dfrac{1-((Current\ Assets_{it}/Immobilized_{it})/Total\ Assets_{it})}{1-((Current\ Assets_{it-1}/Immobilized_{it-1})/Total\ Assets_{it-1})}$
SGI	$\dfrac{Revenue_{it}}{Revenue_{it-1}}$
DEPI	$\dfrac{(Depreciation_{it}/(Depreciation_{it}+Immobilized_{it})}{(Depreciation_{it-1}/(Depreciation_{it-1}+Immobilized_{it-1})}$
SGAI	$\dfrac{Sales\ and\ Administrative\ Expenses_{it}/Revenue_{it}}{Sales\ and\ Administrative\ Expenses_{it-1}/Revenue_{it-1}}$
LVGI	$\dfrac{Total\ Liabilities_{it}/Total\ Assets_{it}}{Total\ Liabilities_{it-1}/Total\ Assets_{it-1}}$
TATA	$\dfrac{(Net\ Income_{it}-Cash\ from\ Operations_{it}/Total\ Assets_{it})}{(Net\ Income_{it-1}-Cash\ from\ Operations_{it-1}/Total\ Assets_{it-1})}$

Source: Beneish (1999).

The parameter values found by Beneish (1999) were updated by Martins and Ventura Júnior (2020) considering the characteristics of the Brazilian companies that had their financial statements restated and/or republished by the

Revista Contabilidade Vista & Revista, ISSN 0103-734X, Universidade Federal de Minas Gerais, Belo Horizonte, v. 34, n. 3, p. 1-28, set./dez. 2023.

11

CVM from 2010 and 2015. For the purposes of this research, these parameters were updated considering the set of companies for the period from 2010 to 2019. Thus, Equation 1 shows the new coefficients considering the economic and financial data of 14 companies listed on B3 from 2010 and 2020 (the last year disclosed by the CVM) that restated or republished their financial statements as determined by the CVM.

$$P(M_{it} = 1) = \frac{1}{1 + e^{-(-1,8044 - 1,3282DSRI - 0,3575GMI - 1,2188AQI + 6,3324SGI - 8,6082DEPI - 0,5660SGAI + 3,4182LVGI - 0,0283TATA)}} \tag{1}$$

Equation 1 refers to the estimation of the M-score for the purposes of determining the RFFR, whose new coefficients were obtained using a probit-type multiple regression model with panel data. It should be noted that for the purposes of this study, the M-score was used in absolute values. It should be noted that the values found refer to probabilities, which in this case represent the risk of companies having their reports manipulated, called RFFR due to the consolidation of the indicators in the related literature. Thus, the higher the M-score, the greater the risk.

3.2 Definition of Overconfidence

The variable representing CEO overconfidence (OVC) was measured using the model and methodology used by Dal Magro et al. (2018). Thus, a set of variables representing the attributes of executive overconfidence was used, which were financial leverage, the volume of treasury shares, family control and the volume of dividend payments. Table 2 shows the variables used, the metrics used and the theoretical basis for the formation of the OVC variable.

Table 2
Variables Used to Determine the OVC Index

Variable	Metric	Theoretical Basis
Financial Leverage	Quantitative variable calculated by dividing total liabilities by total assets.	Barros e Silveira (2008); Ben-David et al. (2013).
Volume of Treasury Stock	Natural logarithm of the company's treasury stock volume	Ahmed e Duellman (2013); Andriosopoulos et al. (2013).
Family Control	Dummy variable that takes the value 1 if the company has family management and 0 otherwise.	Hmieleski e Baron (2009); Lee et al. (2014).
Dividend Payout Volume	Natural logarithm of the company's dividend payout volume.	Ben-David et al. (2013); Deshmukh et al. (2013).

Source: The authors.

After calculating each of the variables listed in Table 2, they were aggregated using the Technique for Order Preference by Smilarity to Ideal Solution (TOPSIS) methodology, using entropy to determine the weight of each vector, with the aim of forming the variable representing the CEO's

overconfidence (OVC). The TOPSIS technique is based on the formation of a sort of ranking of alternatives whose objective is the best model, i.e. the ideal solution considering the distance between the ideal solution and the anti-ideal solution (Bulgurcu, 2012).

3.3 Estimation Design of the Econometric Model

Having defined the ways of measuring both the M-score and the CEO's Overconfidence, Table 3 shows the variables to be used in the econometric model. This shows the dependent, independent and control variables.

Tabela 3
Definition of Variables

Dependent Variable	Description	Metric	Theoretical Basis	
RFFR	Risk of Fraudulent Financial Reporting	Percentage result estimated by Equation (1) - Probit model	Beneish (1999) e Martins e Ventura Júnior (2020).	
Independent Variable	**Description**	**Metric**	**Theoretical Basis**	**Sign**
OVC	CEO Overconfidence	Index formed from the TOPSIS technique	Ahmed e Duellman (2013); Barros e Silveira (2008); Ben-David et al. (2013); Dal Magro et al. (2018); Hmieleski e Baron (2009); Lee et al. (2014); Malmendier e Tate (2005); Schrand e Zechman (2012).	+
Control Variables	**Description**	**Metric**	**Theoretical Basis**	**Sign**
GENCEO	CEO's Gender	Dummy variable indicating 1 if the CEO is female and 0 otherwise.	Huang & Kisgen (2013) e Mishra e Metilda (2015).	-
END	Indebtedness	$\dfrac{Onerous\ Liabilities}{Total\ Assets}$	Razali e Arshad (2014) e Vladu et al. (2017).	+
TAM	Firm Size	Logarithm of total assets	Agustia et al. (2020); Almaleki et al. (2021); Dal Magro et al. (2018) e Salehi et al. (2022).	-
ROA	Return on Assets	$\dfrac{EBIT}{Average\ Total\ Assets}$	Dal Magro et al. (2018) e Dechow e Schrand (2010).	-
LIQCR	Liquidity Ratio	$\dfrac{Current\ Assets}{Current\ Liabilities}$	Agustia et al. (2020)	-
GC	Level of Corporate Governance	1 - New Market 2 - Level 2 3 - Level 3 4 - Bovespa Mais 5 - Traditional	Lunardi et al. (2021); Martins e Ventura Júnior (2020) e Rostami e Rezaei (2022).	-

Revista Contabilidade Vista & Revista, ISSN 0103-734X, Universidade Federal de Minas Gerais, Belo Horizonte, v. 34, n. 3, p. 1-28, set./dez. 2023.

13

Source: The authors.

To analyze the relationship between CEO overconfidence and the RFFR of brazilian publicly traded companies, we used an Ordinary Least Squares (OLS) regression model, as shown in Equation 2. The econometric model was defined based on the specification tests (Chow, Breush-Pagan and Hausman), which indicated the use of OLS at a 5% significance level. In order to reduce the loss of observations, an unbalanced panel was used.

$$RFFR_{it} = \beta_0 + \beta_1 OVC_{it} + \beta_2 GENCEO_{it} + \beta_3 END_{it} + \beta_4 TAM_{it} + \beta_5 ROA_{it} + \beta_6 LIQCR_{it} +$$
$$\beta_7 GC_{it} + \delta_t + \gamma_s + \varepsilon_{it}$$

(2)

Where, $RFFR_{it}$ is the Risk of Fraudulent Financial Reporting measured by the M-score; OVC_{it} is the CEO's overconfidence, measured by the index formed from the TOPSIS technique (variable of interest); $GENCEO_{it}$ is the CEO's gender, measured by a dummy that assumes 1 if the CEO is female and 0 otherwise; END_{it} it is indebtedness measured by the ratio of total onerous liabilities to total assets; TAM_{it} is the size of the firm measured by the logarithm of total assets; ROA_{it} is the return on assets measured by net profit in relation to total assets; $LIQCR_{it}$ is the company's current liquidity measured by the ratio of current assets to current liabilities; GC_{it} is the level of Corporate Governance, measured by a categorical variable (1 – Novo Mercado; 2 – Nível 2; 3 - Nível 3; 4 – Bovespa Mais; 5 – Tradicional – utilizou-se o Novo Mercado como categoria de referência); δ_t e γ_s are, respectively, the control for year and sector; ε_{it} is the regression error.

4 ANALYSIS OF RESULTS

The first stage of the results analysis process consists of the descriptive statistics of the quantitative variables used in the research, in this case, the dependent variable (M-score) and the variable of interest (OVC), as well as the control variables (END, TAM, ROA and LIQCR), as shown in Table 4.

Table 4
Descriptive Statistics of the Variables Used in the Research

Variable	RFFR	OVC	END	TAM	ROA	LIQCR
Mean	0,2785	0,2823	0,9254	14,9090	0,0083	1,8034
Median	0,0400	0,2472	0,6592	15,0456	0,0316	1,4473
Standard Deviation	0,3897	0,1756	0,8816	1,9580	0,1461	1,6435
Minimum	0,0000	0,0334	0,1002	9,7080	-0,8463	0,0317
Maximum	1,0000	0,6173	6,3266	19,3036	0,2650	11,9534
Coefficient of Variation	1,3994	0,6221	0,9526	0,1313	17,6369	0,9114

Source: Research data.

According to Table 4, on average the companies had 27.85% RFFR, ranging from those with no risk (minimum 0) to those with 100% risk (maximum). It is worth noting that it is natural for the M-score, a proxy for the RFFR, to vary among companies, as in the case of those with the minimum and maximum, because as this variable is made up of various parameters that are particular to each company, there are those that will present greater or lesser risks, which justifies the average being very different from the median.

Martins and Ventura Junior (2020) found that in 17.73% of the observations there was evidence of manipulation of results. It is worth noting that the way this variable was interpreted in the authors' work is different to the one used in this study, as they used the M-score as a binary variable to determine whether or not the company had evidence of manipulation in its results. The results shown here, on the other hand, are extracted from a continuous variable over all the years of the research which indicates, on average, the RFFR of the companies analyzed.

Like the RFFR, the OVC, a proxy representing the CEO's overconfidence, is also very specific to each company, since it represents the CEO's attitudes that characterize him as overconfident or not, so it is justifiable that the maximum and minimum values differ. On average, the CEOs' level of overconfidence was approximately 30%, which is below 50%. Therefore, as it is below average, these results generally suggest that CEOs have a moderate level of confidence, which can have an impact on determining the company's business, especially in the decision-making process and when drawing up the financial statements.

For the control variables END, ROA and LIQCR, the mean and median values, as well as the respective standard deviations and coefficients of variation, showed that these variables are very dispersed, which is justifiable given the size and variability of the sample (12 years and involving all sectors of B3). It is also worth noting that the negative ROA is justified by the fact that loss-making companies were not excluded in order to preserve the data. For the same reason, company size (TAM) is in logarithm, since it is a variable with a high standard deviation, and if it were considered in its original unit it could skew the results.

In order to reduce the effect of outliers on the results, all the quantitative variables, with the exception of M-score and OVC, were winsorized by 1%, both in the upper and lower data. The dependent variable (M-score) and the independent variable of interest (OVC) were not winsorized because the high variability is normal, since they are proxies according to the characteristics of each company and also of the manager. It is worth noting that the aim of the descriptive analysis used here was to verify the arrangement of the data, given that it is a large and varied sample.

After analyzing the descriptive statistics of the variables, the correlation matrix was drawn up using Spearman's correlation for all the research variables. The aim of this analysis is to check, at first, whether there is a significant relationship among the variables studied here, but it is not initially intended to affirm a cause and effect relationship. The results can be seen in Table 5.

Table 5
Spearman Correlation Matrix of the Research Variables

Variables	RRFF	OVC	GENCEO	END	TAM	ROA	LIQCR
OVC	-0,03***						
GENCEO	-0,07***	0,08***					
END	0,28***	-0,16***	-0,08***				
TAM	-0,01***	0,32***	0,01	0,05***			
ROA	0,13***	0,26***	0,05***	-0,30***	0,09***		
LIQCR	0,03**	0,29***	0,06***	-0,37***	0,06***	0,35***	
GC	-0,02**	0,14***	0,07***	-0,011**	0,30***	0,01**	0,19***

Notes: * significant at 10%; ** at 5%; and *** at 1%.
Source: Research data.

It is evident from the results in Table 5 that all the research variables show significant correlations with RFFR. It can be seen that the CEO who has lower overconfidence (OVC) may be related to a higher level of RFFR in Brazilian companies, and this relationship is in line with the results of Dal Magro et al. (2018).

For the control variables, the lower the participation of women as CEOs (GENCEO), the higher the RFFR may be, and the same relationship is evidenced in smaller companies (TAM). Indebtedness (END) showed a positive relationship, indicating that more financially exposed companies are related to higher RFFR. For the size of the companies, the justification may lie in the fact that smaller companies have less management skills and, therefore, less prudence in relation to the way the financial statements are prepared, and are more prone to a higher RFFR.

Profitability (ROA) and liquidity (LIQCR) showed positive and significant correlations with RFFR, suggesting that such companies may feel the need to demonstrate continuous performance and may therefore end up exposing themselves to greater RFFR. For CG, the relationship is indicating that companies with lower levels of CG are more prone to RFFR.

After the preliminary analysis, descriptive statistics and correlation among the variables, we proceeded with the regression analysis to identify the relationship between CEO overconfidence and the RFFR of Brazilian listed companies, as shown in Table 6. Table 6 shows Models 1 and 2, the first of which includes the full sample (years 2010 to 2021) and the second the same sample, but excluding the years 2020 and 2021, which in this case excludes the two years of the Covid-19 pandemic, in which some companies may have presented atypical data. Thus, the aim of Model 2 is to provide robustness to the findings.

Table 6
Association Between the Risk of Fraudulent Financial Reporting and Managers' Overconfidence

RFFR	Model 1 Complete Sample (2010-2021)	Model 2 Sample Excluding 2020 and 2021
	Coefficient (Robust Standard Error)	Coefficient (Robust Standard Error)
OVC	-0,1851*** (0,0470)	-0,2043*** (0,0437)

GENCEO	-0,0789** (0,0431)	-0,1612*** (0,0420)
END	0,1597*** (0,0142)	0,0958*** (0,0162)
TAM	-0,0049** (0,0047)	-0,0209*** (0,0043)
ROA	0,3947*** (0,0790)	0,1604** (0,0764)
LIQCR	0,0191*** (0,0054)	0,0172*** (0,0045)
GC	0,0018 (0,0057)	0,0058 (0,0083)
Constante	-55,1050*** (5,6944)	-34,3804*** (5,4277)
Dummies-Year	Sim	
Dummies-Sector	Sim	
Nº Companies	211	
Nº Observations	2.404	1.868
R² Adjusted	25,21%	15,07%

Notes: * significant at 10%; ** at 5%; and *** at 1%.
Source: Research data.

Models 1 and 2 were estimated by OLS using the Chow, Breush-Pagan and Hausman tests, followed by the model specification tests. Thus, the model was estimated with robust standard errors for heteroscedasticity, as proposed by Newey-West (1987) - (Breusch-Pagan test at 5% significance), and did not present problems with omission of variables (RESET - Ramsey test at 5% significance) and multicollinearity (Variance Inflation Factor - VIF presented a maximum value below 2 and an average of 1.23).

Table 6 shows that the differences among the models were not substantial, and the comparative analysis only worked to make the findings more robust. However, the overall explanatory power (R²) of Model 1 was higher (25.21%) than Model 2 (15.07%), meaning that the variables used during the period have greater explanatory power over the variations in RFFR.

According to Models 1 and 2, the findings show a significant but negative relationship between executive overconfidence and the RFFR of Brazilian publicly traded companies. The initial proposition of this study was that this relationship would be positive, given that managers with greater overconfidence tend to underestimate random events and show a greater propensity for biasedly optimistic forecasts (Hribar & Yang, 2016), and, consequently, a greater chance of altering the true accounting facts reported in the financial statements. Thus, it was not possible to confirm the research hypothesis (H1), that CEO overconfidence has a positive relationship with the RFFR of Brazilian publicly traded companies.

According to Bortoli and Soares (2019), biased executives, in this case those with greater or lesser overconfidence, tend to act hastily when making decisions, which would lead to manipulations in the financial statements themselves without much caution. Thus, although the positive relationship among the variables is the expected one, there is room to explore the opposite relationship, i.e. a negative one.

One possible justification for the results found here is that managers who don't feel as self-confident about their results, or even because of pressure from corporate governance or ethical responsibility, have incentives to manipulate the company's true performance.

The relationship found here is in line with Dal Magro et al. (2018), since they showed that overconfidence has a negative impact on earnings management, justifying that the lower managers' overconfidence influences the opportunistic practice of earnings management to increase profits. The authors argued that the absence of good organizational performance could cause organizational instability, and consequently, the loss of reputation of managers, so those who have less overconfidence would be more tempted to use the benefit of discretion in accounting choices when reporting accounting information.

The lower overconfidence related to the higher RFFR may suggest that managers feel pressured to continue delivering good results, either to meet organizational objectives or analysts' expectations. As a result, this characteristic allows for a greater risk of manipulating the company's true performance. Their leadership role and, at the same time, their lower level of trust, suggest that this relationship can be explained.

The upper echelons theory helps to explain the results shown here, given that when managers are faced with strategic situations within the company, they tend to insert some personal characteristics into the decision-making process, and overconfidence would be one of them, which would have an impact on this process (Hambrick & Mason, 1984; Hambrick, 2007).

Also according to the theory, leadership traits can create a place based on ethical positioning or operational management style, including practices of manipulating accounting information (Bishop et al., 2017; Patelli & Pedrini, 2015). Thus, it makes sense that if the CEO is less overconfident, this characteristic could have an impact on financial reporting. Thus, this research is yet another finding to substantiate that the characteristics of the organizational leader have an impact on the disclosure of accounting information, in this case, on the manipulation of true performance.

As for the control variables used in the models, the gender of the CEO (GENCEO) showed a negative and significant relationship, suggesting that the absence of female participation as CEO may increase RFFR. According to Huang and Kisgen (2013) and Mishra and Metilda (2015), overconfidence is higher among men than among women, and according to the main finding,

lower overconfidence may provide a greater propensity for manipulation in financial reporting.

The company's indebtedness (END) was an organizational characteristic that showed a significant and positive relationship with RFFR, which makes sense, since companies that are more financially exposed have greater incentives to alter the company's real performance, since a high level of debt is not well regarded by the market. As Razali and Arshad (2014) and Vladu et al. (2017) point out, companies that are in financial difficulties, and in any case need to continue attracting the market's attention, are more likely to manipulate their financial statements in order to present better results.

The size of the company (TAM) showed a negative and significant relationship, indicating that smaller companies are related to higher RFFR. As highlighted by Agustia et al. (2020), Almaleki et al. (2021) and Salehi et al. (2022), larger companies have greater managerial skills, and consequently are more prudent in their actions. Therefore, the personal characteristics of managers, in this case the CEO, would have less impact on the process of preparing the financial statements of companies that are better managed considering their size.

The return on assets (ROA) and the firm's current liquidity (LIQCR) showed positive and significant relationships, in line with the results found by Almaleki et al. (2021). However, the initial propositions for these two variables were that more profitable companies, as well as those with greater liquidity, would have a negative relationship with RFFR, since they generally have good results.

On the other hand, these results regarding ROA and LIQCR can be justified by the fact that overconfidence is linked to an individual's tendency to be superior in terms of their abilities, judgments and future forecasts (Dushnitsky, 2010), and so they are more likely to show a greater propensity for biasedly optimistic forecasts (Hribar & Yang, 2016). Thus, even given the positive return on assets, as well as their good liquidity capacity, managers who have less overconfidence would be more tempted to increase or even maintain this positive result over time, with the aim of generating more visibility for the company and trying to exceed analysts' expectations.

Corporate governance (CG) was not significant in explaining RFFR, i.e. companies listed on the New Market (NM), compared to the others, do not explain RFFR. This finding is in line with Martins and Ventura Junior (2020) and Rostami and Rezaei (2022), who found that companies listed on the NM are negatively associated with RFFR. One possible reason for this divergence is the RFFR measure itself, because as explained, the authors Martins and Ventura Junior (2020) used it as a dummy, while the present study used the continuous variable, without cutting the data. It is also worth noting that the sample analyzed here was larger, both in terms of time period and number of companies, which may lead to greater consolidation of the findings.

Revista Contabilidade Vista & Revista, ISSN 0103-734X, Universidade Federal de Minas Gerais, Belo Horizonte, v. 34, n. 3, p. 1-28, set./dez. 2023.

19

Thus, it is important to note that the comparisons in this study are made indirectly with studies such as Dal Magro et al. (2018), Hribar and Yang (2016), Hsieh et al. (2014), and Li and Hung (2013), as these authors used earnings management as a proxy for the opportunistic behavior of managers when manipulating accounting information. At the same time, this indirect comparison demonstrates the difference among the study developed here and those listed, since the combination of the two variables of interest, RFFR and overconfidence, provide greater robustness for the study, especially the first (RFFR) since it is a proxy created to measure RFFR itself.

Using RFFR and finding the same relationship as Dal Magro et al. (2018) may suggest a characteristic of the Brazilian context. In the same vein, since the authors used earnings management as a proxy for manipulation, and the results used with RFFR provided similar results, there is evidence of the consolidation of the findings, as well as the relevance of the RFFR metric, i.e. the M-score.

The results of this study can be compared with those listed above, since the aim of the M-score is to act as a warning or a sign of the risk of manipulation of the financial statements, not to state that there is fraud in that company in a given year, but rather to act as a measure of risk.

An advance of this study for the theme is that the M-score was used as a metric for the RFFR, which is a well-established measure in the literature and which, for this study, had its parameters updated according to the sample and the period analyzed, translating into a measure with contemporary parameters, which provides greater robustness for the findings. And according to the results shown here, the greater or lesser overconfidence of the CEO can be used as a measure of risk in the preparation of financial statements, acting as a warning.

5 CONCLUSIONS

The aim of this study was to analyze the relationship between managers' overconfidence and the Risk of Fraudulent Financial Reporting in Brazilian publicly traded companies listed on B3 from 2010 and 2019. So, the hypothesis developed (H1) for this research was not confirmed, as the results indicated the opposite of the initial proposition, demonstrating that lower overconfidence is a personal aspect that impacts on the process of preparing financial statements, in this case increasing the RFFR.

The findings here find justification in the Upper Echelons Theory, indicating that leadership traits can have an impact on the process of preparing financial statements. Managers with less overconfidence may feel pressured to continue demonstrating the company's good performance, either to meet organizational objectives or less to satisfy analysts' expectations.

Thus, the main contribution of this research to academia is the presentation of evidence about the relationship between the CEO's overconfidence and the

RFFR of Brazilian publicly traded companies, as it provides evidence on a topic that is pertinent to participants in the Brazilian market, demonstrating that the characteristics of organizational leaders, in this case, overconfidence, can affect those interested in the financial statements, especially investors.

In the practical context, the identification of this relationship is important because it provides evidence that the behavior of executives, in this case a lower level of trust, impacts on the quality of accounting information that is reported to users, and can therefore be used as an indicator for RFFR.

The results shown in the research are important for the choice of company management, in this case the CEO, as a lower level of overconfidence can have an impact on the accounting choices reflected in the financial reports. Similarly, the results here can also be used by investors, creditors and other external stakeholders in the company, as the measure of lower or higher overconfidence can be obtained from the characteristics of the CEO made available in the company's Reference Form.

Another contribution of this research is the use of the M-score as a proxy for RFFR, as proposed by Martins and Ventura Junior (2020). It is worth noting that, for the purposes of this research, the parameters were updated according to the economic and financial information of Brazilian publicly traded companies that had their financial statements restated and/or republished by the Brazilian Securities and Exchange Commission (CVM) during the period analyzed here. Therefore, this proxy can be used by other companies, various users, as well as by academic researchers for the development of new research.

It is worth pointing out that the literature is limited in terms of previous studies that have dealt specifically with the relationship between CEO overconfidence and RFFR, which makes it difficult to make comparisons with previous studies in order to make the results more robust. As for the limitations encountered in the development of this study, the M-score considers some variables that are not available from some companies in the database used, which limited the number of observations in the econometric model analyzed.

Furthermore, the M-score only represents a simplification of the companies' reality, since the result is based on probabilities, i.e. it only shows us the companies' RFFR, a kind of warning or indication, and does not have the purpose of informing or pointing out companies that are practicing manipulation in their financial statements.

As a suggestion for future studies, we recommend using and improving the M-score metric, including other variables that can improve the proxy's measurement power, and then testing the relationship proposed here. Another proposal is to include corporate governance variables as moderators of executive overconfidence. In addition, it would be interesting to use other proxies for the manipulation of accounting and financial information as a way of providing robustness to the results presented here.

Revista Contabilidade Vista & Revista, ISSN 0103-734X, Universidade Federal de Minas Gerais, Belo Horizonte, v. 34, n. 3, p. 1-28, set./dez. 2023.

21

REFERENCES

Abatecola, G., & Cristofano, M. (2020). Hambrick and Mason's "Upper Echelons Theory": Evolution and open avenues. *Journal of Management History*, 26(1), 116-136. https://doi.org/10.1108/JMH-02-2018-0016

Agrawal, K., & Chatterjee, C. (2015). Earnings Management and Financial Distress: Evidence from India. *Global Business Review*, 16(5), 140-154. https://doi.org/10.1177/0972150915601928

Agustia, D., Muhammad, N. P. A., & Permatasari, Y. (2020). Earnings management, business strategy, and bankruptcy risk: evidence from Indonesia. *Heliyon*, 6(2), e03317. https://doi.org/10.1016/j.heliyon.2020.e03317

Ahmed, A. S., & Duellman, S. (2013). Managerial overconfidence and accounting conservatism. *Journal of Accounting Research*, 51(1), 1-30. https://doi.org/10.1111/j.1475-679X.2012.00467.x

Almaleki, M., Salehi, M., & Moradi, M. (2021). The relationship between narcissism, managerial overconfidence and comparability of financial statements of listed companies. *Journal of Facilities Management*, 19(5), 681-700. https://doi.org/10.1108/JFM-01-2021-0002

Altman, E. I. (1968). Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *The Journal of Finance*, 23(4), 589-609. https://doi.org/10.2307/2978933

Altman, E. I., Baidya, T. K., & Dias, L. M. R. (1979). Previsão de problemas financeiros em empresas. *Revista de Administração de Empresas*, 19(1), 17-28. https://doi.org/10.1590/S0034-75901979000100002

Anderson, R. C., & Reeb, D. M., (2003). Founding-family ownership and firma performance: Evidence from the S&P 500. *The Journal of Finance, 58*(3), 1301-1328. https://doi.org/10.1111/1540-6261.00567

Andriosopoulos, D., Andriosopoulos, K., & Hoque, H. (2013). Information disclosure, CEO overconfidence, and share buyback completion rates. *Journal of Banking & Finance*, 37(2), 5486-5499. https://doi.org/10.1016/j.jbankfin.2013.04.011

Barros, L. A. B. C., & Silveira, A. M. (2008). Overconfidence, managerial optimism and the determinants of capital structure. *Brazilian Review of Finance*, 6(3), 293-335. https://doi.org/10.12660/rbfin.v6n3.2008.1343

Ben-David, I., Graham, J. R., & Harvey, C. R. (2013). Managerial miscalibration. *The Quarterly Journal of Economics*, 128(4), 1547-1584. https://doi.org/10.1093/qje/qjt023

Beneish, M. D. (1999). The detection of earnings manipulation. *Financial Analysts Journal*, *55*(5), 24-36. https://doi.org/10.2469/faj.v55.n5.2296

Bishop, C. C., DeZoort, F. T., & Hermanson, D. R. (2017). The effect of CEO social influence pressure and CFO accounting experience on CFO financial reporting decisions. *Auditing: A Journal of Practice & Theory*, *36*(1), 21-41. https://doi.org/10.2308/ajpt-51507

Bortoli, C., & Soares, R. O. (2019). Executivos com Maior Sofisticação Financeira São mais Confiantes e Otimistas? *Revista de Administração Contemporânea*, *23*(2), 268-287. https://doi.org/10.1590/1982-7849rac2019180073

Bulgurcu, B. K. (2012). Application of TOPSIS technique for financial performance evaluation of technology firms in Istanbul stock exchange market. *Procedia-Social and Behavioral Sciences*, *62*, 1033-1040. https://doi.org/10.1016/j.sbspro.2012.09.176

Carpenter, M. A., Geletkanycz, M. A., & Sanders, W. G. (2004). Upper echelons research revisited: Antecedents, elements, and consequences of top management team composition. *Journal of Management*, *30*(6), 749-778. https://doi.org/10.1016/j.jm.2004.06.001

Coleman, J. W. (1987). Toward an integrated theory of white-collar crime. *American Journal of Sociology*, *93*(2), 406-439. https://doi.org/10.1086/228750

Costa, A. P. P., & Wood Junior, T. (2012). Fraudes corporativas. *Revista de Administração de Empresas*, *52*(4), 464-472. https://doi.org/10.1590/S0034-75902012000400008

Cressey, D. R. (1950). The criminal violation of financial trust. *American Sociological Review*, *15*(6), 738-743. https://doi.org/10.2307/2086606

Cyert, R. M., & March, J. G. (1963). *A Behavioural Theory of the Firm*. Englewood Cliffs NJ: Prentice Hall.

Dal Magro, C. B., Gorla, M. C., & Klann, R. C. (2018). Excesso de confiança do Chief Executive Officer e a prática de gerenciamento de resultados. *Revista Catarinense da Ciência Contábil*, *17*(50). https://doi.org/10.16930/2237-7662/rccc.v17n50.2372

Dallabona, L. F., Martins, J. A. S., & Klann, R. C. (2014). Utilização do gerenciamento de resultados para a redução de custos políticos: uma análise a partir da DVA. *Contextus - Revista Contemporânea de Economia e Gestão*, *12*(2), 91-115. https://doi.org/10.19094/contextus.v12i2.32179

Dechow, P., Ge, W., & Schrand, C. (2010). Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of*

accounting and economics, *50*(2-3), 344-401. https://doi.org/10.1016/j.jacceco.2010.09.001

Deshmukh, S., Goel, A. M., & Howe, K. M. (2013). CEO overconfidence and dividend policy. *Journal of Financial Intermediation*, *22*(3), 440-463. https://doi.org/10.1016/j.jfi.2013.02.003

Dushnitsky, G. (2010). Entrepreneurial optimism in the market for technological inventions. *Organization Science*, *21*(1), 150-167. https://doi.org/10.1287/orsc.1090.0454

Feitosa, A. B., Silva, P. R., & Silva, D. R. (2014). A influência de vieses cognitivos e motivacionais na tomada de decisão gerencial: Evidências empíricas em uma empresa de construção civil brasileira. *Revista de Negócios*, *19*(3), 3-22. http://dx.doi.org/10.7867/1980-4431.2014v19n3p3-22

Gómez-Mejía, L. R., Haynes, K. T., Núñez-Nickel, M., Jacobson, K. L., & Moyano-Fuentes, J. (2007). Socioemotional wealth and business risks in Family-controlled firms: Evidence from Spanish olive oil mills. *Administrative Science Quarterly*, *52*(1), 106-137. https://doi.org/10.2189/asqu.52.1.106

Gorbani, A., & Salehi, M. (2020). Earnings management and the informational and disciplining role of debt: evidence from Iran. *Journal of Asia Business Studies*, *15*(1), 72-87. https://doi.org/10.1108/JABS-11-2019-0336

Habib, A., Hossain, M. (2013). CEO/CFO characteristics and financial reporting quality: A review. *Research in Accounting Regulation*, *25*, 88-100. https://doi.org/10.1016/j.racreg.2012.11.002

Habib, A., Hossain, M., & Cahan, S. (2012). Managerial overconfidence, earnings management and the global financial crisis. In Steven Cahan (ed), *Accounting and Finance Association of Australia and New Zealand* (AFAANZ), Paper 89. Melbourne: Wiley-Blackwell Publishing Asia.

Hambrick, D. C. (2007). Upper Echelons Theory: An update. *The Academy of Management Review*, *32*(2), 334-343. https://doi.org/10.2307/20159303

Hambrick, D. C., & Finkelstein, S. (1987). Managerial discretion: A bridge between polar views of organizational outcomes. In B. Straw, & L. L. Cummings (Eds.) *Research in Organizational Behavior*, (9th ed., pp 369-406). Greenwich: JAI Press.

Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review*, 9(2), 193-206. https://doi.org/10.2307/258434

Hmieleski, K. M., & Baron, R. A. (2009). Entrepreneurs' optimism and new venture performance: A social cognitive perspective. *Academy of Management Journal*, *52*(3), 473-488. https://doi.org/10.5465/amj.2009.41330755

Holtfreter, K. (2005). Is occupacional fraud "typical" white-collar crime? A comparison of individual and organizational characteristics. *Journal of Criminal Justice*, *33*(4), 353-365. https://doi.org/10.1016/j.jcrimjus.2005.04.005

Hribar, P., & Yang, H. (2016). CEO overconfidence and management forecasting. *Contemporary Accounting Research*, *33*(1), 204-227. https://doi.org/10.1111/1911-3846.12144

Hsieh, T. S., Bedard, J. C., & Johnstone, K. M. (2014). CEO overconfidence and earnings management during shifting regulatory regimes. *Journal of Business Finance & Accounting*, *41*(9-10), 1243-1268. https://doi.org/10.1111/jbfa.12089

Huang, J., & Kisgen, D. J. (2013). Gender and corporate finance: Are male executives overconfident relative to female executives? *Journal of Financial Economics*, *108*(3), 822-839. https://doi.org/10.1016/j.jfineco.2012.12.005

Jemaiel, S., Mamoghli, C., & Seddiki, M. W. (2013). An experimental analysis of over-confidence. *American Journal of Industrial and Business Management*, *3*(4), 395-417. http://dx.doi.org/10.4236/ajibm.2013.34047

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305-360. https://doi.org/10.1016/0304-405X(76)90026-X

Kouaib, A., & Jarboui, A. (2016). Real earnings management in innovative firms: Does CEO profile make a difference? *Journal of Behavioral and Experimental Finance*, *12*, 40-54. https://doi.org/10.1016/j.jbef.2016.09.002

Kramer, L. A, & Liao, C. M. (2016). The spillover effects of management overconfidence on analyst forecasts. *Journal of Behavioral and Experimental Finance*, *12*, 79-92. https://doi.org/10.1016/j.jbef.2016.10.004

Lee, J. M. M., Hwang, B. H., & Chen, H. (2014). Behavioral differences between founder CEOs and professional CEOs: The role of overconfidence. *Proceedings*, *2015*(1). https://doi.org/10.5465/ambpp.2015.17214abstract

Levi, M. (2008). Organized fraud and organizing frauds: Unpacking research on networks and organization. *Criminology & Criminal Justice*, *8*(4), 389-419. https://doi.org/10.1177/1748895808096470

Li, I. C., & Hung, J. H. (2013). The moderating effects of family control on the relation between managerial overconfidence and earnings management. *Review of Pacific Basin Financial Markets and Policies*, *16*(2), 1350010. https://doi.org/10.1142/S0219091513500100

Lin, Y. H., Hu, S. Y., & Chen, M. S. (2005). Managerial optimism and corporate investment: Some empirical evidence from Taiwan. *Pacific-Basin Finance Journal*, *13*(5), 523-546. https://doi.org/10.1016/j.pacfin.2004.12.003

Lunardi, M. A., Beuren, I. M., & Klann, R. C. (2021). Efeito moderador da expertise financeira na relação entre o excesso de confiança e a qualidade da evidenciação contábil. *Advances in Scientific and Applied Accounting*, *14*(1), 3-21. http://dx.doi.org/10.14392/asaa.2021140101

Malmendier, U., & Tate, G. (2005). CEO overconfidence and corporate investment. *The Journal of Finance*, *60*(6), 2661-2700. https://doi.org/10.1111/j.1540-6261.2005.00813.x

Maragno, L. M. D., & Borba, J. A. (2017). Mapa conceitual da fraude: Configuração teórica e empírica dos estudos internacionais e oportunidades de pesquisas futuras. *Revista de Educação e Pesquisa em Contabilidade (REPeC)*, *11*(3), 41-68. https://doi.org/10.17524/repec.v11i0.1665

Martins, O. S., & Ventura Júnior, R. (2020). Influência da governança corporativa na mitigação de relatórios financeiros fraudulentos. *RBGN: Revista Brasileira de Gestão de Negócios*, *22*(1), 65-84. https://doi.org/10.7819/rbgn.v22i1.4039

Martins, V. G., Paulo, E. & Monte, P. A. (2016). O Gerenciamento de Resultados Contábeis Exerce Influência na Acurácia da Previsão dos Analistas no Brasil? *Revista Universo Contábil*, *12*(3), 73-90. https://doi.org/10.4270/ruc.2016322

Miller, D., Breton-Miller, L. & Scholnick, B. (2008). Stewardship vs. stagnation: An empirical comparison of small Family and non-family business. *Journal of Management Studies*, *45*(1), 51-78. https://doi.org/10.1111/j.1467-6486.2007.00718.x

Mishra, K. C., & Metilda, M. J. (2015). A study on the impact of investment experience, gender, and level of education on overconfidence and self-attribuition bias. *IIMB Management Review*, *27*(4), 228-239. https://doi.org/10.1016/j.iimb.2015.09.001

Murcia, F. D. R., Borba, J. A., & Schiehll, E. (2008). Relevância dos red flags na avaliação do risco de fraudes nas demonstrações contábeis: a percepção de auditores independentes brasileiros. *Revista Universo Contábil*, *4*(1), 25-45. http://dx.doi.org/10.4270/ruc.20084

Murcia, F. D., & Carvalho, L. N. (2007). Conjecturas acerca do gerenciamento de lucros, republicação das demonstrações contábeis e fraude contábil. *Contabilidade Vista & Revista*, *18*(4), 61-82.

Nguyen, D. D., To, T. H., Nguyen, D. V, & Do, P. H. (2021). Managerial overconfidence and dividend policy in Vietnamese eterprises. *Cogent*

Economics & Finance, *9*(1), 1-12. http://doi.org/10.1080/23322039.2021.1885195

Olsen, K. J., Dworkis, K. K., & Young, S. M. (2013). CEO narcissism and accounting: A picture of profits. *Journal of Management Accountig Research*, *26*(2), 37-51. https://doi.org/10.2308/jmar-50638

Patelli, L., & Pedrini, M. (2015). Is tone at the top associated with financial reporting aggressiveness?. *Journal of Business Ethics*, *126*, 3-19. https://doi.org/10.1007/s10551-013-1994-6

Power, M. (2013). The apparatus of fraud risk. *Accounting, Organizations and Society*, *38*(6-7), 525-543. https://doi.org/10.1016/j.aos.2012.07.004

Razali, W. A. A. W. M., & Arshad, R. (2014). Disclosure of corporate governance structure and the likelihood of fraudulent financial reporting. *Procedia – Social and Behavioral Sciences*, *145*, 243-253. https://doi.org/10.1016/j.sbspro.2014.06.032

Rostami, V., & Rezaei, L. (2022). Corporate Governance and fraudulent financial reporting. *Journal of Financial Crime*, *29*(3), 1009-1026. http://10.1108/JFC-07-2021-0160

Salehi, M., Zimon, G., & Seifzadeh M. (2022). The effect of management characteristics on audit report readability. *Economies*, *10*(12), 1-23. https://doi.org/10.3390/economies10010012

Schipper, K. (1989). Earnings management. *Accounting Horizons*, *3*(4), 91-102.

Schnatterly, K., Gangloff, K. A., & Tuschke, A. (2018). CEO wrongdoing: A review of pressure, opportunity and racionalization. *Journal of Management*, *44*(6), 2405-2432. https://doi.org/10.1177/0149206318771177

Schrand, C. M., & Zechman, S. L. (2012). Executive overconfidence and the slippery slope to financial misreporting. *Journal of Accounting and Economics*, *53*(1-2), 311-329. https://doi.org/10.1016/j.jacceco.2011.09.001

Sierra, J. C. V., Serra, F. A. R., Guerrazzi, L. A. C., & Teixeira, J. E. (2019). Revisão sistemática sobre a influência dos executivos no desempenho das empresas na perspectiva da teoria do alto escalão. *Future Studies Research Journal: Trends and Strategies*, *11*(2), 216-240. https://doi.org/10.24023/FutureJournal/2175-5825/2019.v11i2.442

Simon, H. A. (1947). *Administrative Behaviour*. (4. ed.) New York: Macmillan.

Skala, D. (2008). Overconfidence in psychology and finance – An interdisciplinary literature review. *Bank I Kredyt*, *4*, 33-50. https://mpra.ub.uni-muenchen.de/26386/

Revista Contabilidade Vista & Revista, ISSN 0103-734X, Universidade Federal de Minas Gerais, Belo Horizonte, v. 34, n. 3, p. 1-28, set./dez. 2023.

27

Sutherland, E. H. (1940). White-collar criminality. *American Sociological Review*, *5*(1), 1-12. https://doi.org/10.2307/2083937

Sutherland, E. H. (1945). Is "white collar crime" crime? *American Sociological Review*, *10*(2), 132-139. https://doi.org/10.2307/2085628

Sutherland, E. H. (1949). *White Collar Crime*. New York: Dryden Press.

Sutrisno, P., Utama, S., Hermawan, A. A., & Fatima, E. (2022). Founder and descendant vs. professional CEO: Does CEO overconfidence affect tax avoidance in the Indonesia case? *Economies*, *10*(327), 1-20. http://doi.org/10.3390/economies10120327

Tang, Y., Mack, D. Z., & Chen, G. (2018). The diferencial effects of CEO narcissism and hubris on corporate social responsibility. *Strategic Management Journal*, *39*(5), 1370-1387. https://doi.org/10.1002/smj.2761

Udeh, S. N., & Ugwu, J. I. (2018). Fraud in Nigerian banking sector. *International Journal of Academic Research in Business and Social Sciences*, *8*(5), 590-607. http://dx.doi.org/10.6007/IJARBSS/v8-i5/4159

Vladu, A. B., Amat, O., & Cuzdriorean, D. D. (2017). Truthfulness in accounting: How to discriminate accounting manipulators from non-manipulators. *Journal of Business Ethics*, *140*, 633-648. https://doi.org/10.1007/s10551-016-3048-3

Volta, C. L. C. C., Borges, A. F. & Cappelle, M. C. A. (2021). Sucessão em empresas familiares: Um olhar a partir do conceito de conatus. *Revista de Administração Contemporânea*, *25*(4), e200021. http://doi.org/10.1590/1982-7849rac2021200021.por

Wang, C. (2018). Accounting standards harmonization and financial statement comparability: Evidence from transational information transfer. *Journal of Accounting Research*, *52*(4), 955-992. https://doi.org/10.1111/1475-679X.12055

Wangrow, D. B., Schepker, D. J., & Barker, V. L, III. (2015). Managerial discretion: An empirical review and focus on future research directions. *Journal of Management*, *41*(1), 99-135. https://doi.org/10.1177/0149206314554214

Young, S. M., Du, F., Dworkis, K. K, & Olsen, K. J. (2016). It's all about all of us: The rise of narcissism and its implications for management control system research. *Journal of Management Accountant Research*, *28*(1), 39-55. https://doi.org/10.2308/jmar-51024