

# MODERATING EFFECT OF FINANCIAL EXPERTISE ON THE RELATIONSHIP BETWEEN OVERCONFIDENCE AND QUALITY OF ACCOUNTING DISCLOSURE

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## Abstract

**Objective:** The research seeks to analyze the moderating effect of financial expertise of the board of directors in the relationship between executives' overconfidence and the quality of accounting disclosure.

**Method:** A documentary research was carried out, considering data related to the period from 2011 to 2017, and the application of statistical techniques of correlation and multiple linear regression. The sample consists of 146 publicly-held companies with data available to operationalize the variables.

**Findings:** The results revealed that in companies where the board of directors has financial expertise, executives' overconfidence is minimized. Financial expertise moderates positively the relationship between overconfidence and the quality of accounting disclosure. In general, the results suggest that the financial knowledge of the board of directors reflects on the quality of accounting disclosure, even if the executive denotes overconfidence and minimizes the quality of accounting disclosure.

**Contribution:** The study contributes to helps investors and accounting regulators to understand how the personality traits of executives and the knowledge of the board of directors can interfere in the quality of accounting reports.

**Keywords:** Overconfidence. Financial expertise. Quality of accounting disclosure.

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■ DOI: <http://dx.doi.org/10.14392/asaa.2021140101>

■ Received: 24/06/2020. Required revisions: 04/08/2020. Accepted: 07/04/2021.

## 1 INTRODUCTION

In economic literature, agents are rational decision-makers that seek maximum utility, but in psychology, it is documented that individuals tend to be excessively confident and optimistic (Malmendier, Tate & Yan, 2011). They believe that favorable future events are more likely to happen than they actually are (Wei, Min & Jiaying, 2011), and that they possess a more precise knowledge about future events than they actually do (Malmendier et al., 2011). Executives are particularly prone to show these behavioral biases of overconfidence (Larwood & Whittaker, 1977; Guedes & Gonçalves, 2019). Overconfident executives have unreasonably high expectations for the company's future performance (Hackbarth, 2009) and believe they can guarantee the high performance is reached (Malmendier & Tate, 2015). They overestimate the precision of their own beliefs or underestimate the risk process in the company (Ben-David, Graham & Harvey, 2007).

The cognitive (Barros & Silveira, 2008) and knowledge biases may affect corporate decisions (Barros & Silveira, 2008; Markarian & Parbonetti, 2009). Lots of research about individuals' judgment psychology are mentioned by Barros and Silveira (2008) to demystify the rationality paradigm in finances. They report experiments that focused on the participants' overconfidence in different behavioral contexts, and the results showed their tendency to over trust their subjective estimates. Also, experiments showed association between overconfidence and the optimism bias, in which the individual believes that their chances of going through positive experiences are higher than their peers' (Barros & Silveira, 2008).

Individuals' biases may also shape the accounting policies of the company (Andriosopoulos, Andriosopoulos & Hoque, 2013). The managerial overconfidence can, for example, influence the accounting and financial information disclosure policies of the company (Hirshleifer & Teoh, 2009). Studies show that managerial overconfidence is negatively associated to the accounting report quality (Schrand & Zechman, 2012; Ahmed & Duellman, 2013), however, the Board's financial expertise may soften this relationship.

Research revealed the association between managerial overconfidence and the profit forecast quality (Libby & Rennekamp, 2012), softening of results (Bouwman, 2014), conservatism (Ahmed & Duellman, 2013) and quality of accounting disclosure (Schrand & Zechman, 2012; Ahmed & Duellman, 2013; Berry-Stolzle, Eastman & Xu, 2018). Others pointed to the association between the Board's financial expertise and the quality of the accounting disclosure (Klein, 2002; Levrau & Van Den Berghe, 2007; Felo, 2009). Hirshleifer and Teoh (2009) warn that to capture certain accounting characteristics, one must go beyond the assumption of individuals rationality.

However, behavioral factors that guide the managers' decisions are almost inaccessible to researchers, mostly due to the complexity of identifying values and cognitive basis of the individuals (Hambrick, 2007). In the last decade, a research flow has been observed, one that tries to identify observable characteristics of the managers that affect accounting decisions (Almeida & Lemes, 2019). In this regard, Schrand e Zechman (2012) argument that the behavior of overconfident managers can be noticed by overinvestment, excess of acquisitions, debt policy and debentures convertible into preferred shares of the managers.

Organizations generally understand social relationships of different actors through the Board of Directors. These directors have varied socially constituted identities and interests (Aguilera & Jackson, 2010), also with different expertise, that can shape the corporate decisions. Schrand and Zechman (2012) suggest that companies that have directors with a certain expertise show more realistic expectations, due to the knowledge they possess. Thus, individuals with financial expertise in the organization, through the Board of Directors, may affect the quality of the accounting disclosure (Markarian & Parbonetti, 2009).

From this perspective, the guiding question is: What is the moderating effect of the Board of Directors' financial expertise on the relationship between executives' overconfidence and the quality of accounting disclosure? The model proposed by Schrand and Zechman (2012) was used to determine overconfidence, the financial knowledge of the Board to determine financial expertise, and the model by Cormier and Magnan (2016) was used to show the quality of the accounting disclosure. The documentary research in the period between 2011 and 2017 of Brazilian companies listed on Brazil Stock Exchange and Over-the-Counter Market (B3) showed evidence that the Board's expertise is related to overconfidence, and that the financial expertise positively moderates the relationship between overconfidence and accounting disclosure quality.

The relevance of the research is to analyze the influence of the executives' overconfidence and financial expertise in the quality of accounting reports. A more detailed information disclosure reduces the asymmetry and increases the precision of information showed in financial demonstrations, therefore, it provides investors with more data for decision-making (Chen, Miao & Shevlin, 2015). Disclosure quality increases the company's accounting reports credibility and offers less freedom for managers to manage the reported information (D'Souza, Ramesh & Shen, 2010).

The study contributes to literature by identifying specific characteristics of the executives that affect the quality of accounting reports. Psychologists suggest, for example, that individuals are confident about the results they believe to be under their control (Langer, 1975) and to which are highly committed (Weinstein & Klein, 1995). It also contributes to literature in the means that it investigates the behavioral biases influence in corporate accounting policies (Leng, Ozkan & Trzeciakiewicz, 2018). In this sense, it is presumed that overconfident executives and directors with financial expertise affect the accounting disclosure quality.

The research results also present practical contribution by demonstrating the Board knowledge and executives' personality traits affect the accounting disclosure quality, which is of interest to investors, accounting regulators, among others (Berry-Stolzle et al., 2018). The regulators not only care about information publicly provided to investors, but also about the way they are disclosed (Hirshleifer & Teoh, 2009). Thus, the study offers insight to accounting policy makers interested in increasing accounting reports credibility (Habib & Hossain, 2013).

An aspect substantially altered by the adoption of the International Financial Reporting Standards (IFRS) is the disclosure of accounting reports, such as explanatory notes and management report, with a greater level of details. Cormier and Magnan (2016) add that the greater level of details is noticed by the increase in the number of the reports notes and pages. However, this detail increase may cause some confusion (Abernathy, Guo, Kubick & Masli, 2019). In fact, the International Accounting Standards Board (IASB) is committed to an initiative of dissemination in the light of information overload. Although, there are solid empirical evidences that the greater level of details in accounting reports brings improvements to the information environment (Cormier & Magnan, 2016; Blankespoor, 2019; Krishnan & Zhang, 2019).

In addition to this first introductory section, the article brings, in section 2, the research theoretical basis and hypotheses. In section 3, it shows the research methodology. In section 4, it shows the results description and analysis. In section 5, it shows the study conclusion and recommendations for further research.

## 2 THEORETICAL BASIS AND HYPOTHESES

Humans have cognitive biases and one of them is overconfidence. In social psychology literature, this bias is determined as the effect above average (Chen, Crossland & Luo, 2015). Overconfidence is

defined as the tendency of the individual to overestimate their abilities (Hill, Kern & White, 2012), leading to results expectations more desirable than a realistic evaluation suggests (Bhandari & Deaves, 2006). Individuals believe their abilities, skills, allocations and probabilities of career success are higher than most people's (Harrison & Shaffer, 1994).

Overconfident individuals tend to overestimate expected results of uncertain enterprises, either because of a general tendency to expect good results or because they overestimate their own efficiency in reaching success (Hirshleifer & Teoh, 2009; Libby & Rennekamp, 2012). In financial literature, an overconfident manager is seen as the one who overestimates future profits of projects or overestimates the probability and impact of favorable events on the company's cash flow (Ahmed & Duellman, 2013). One of the first to use this concept in finances was Roll (1986), to denote fusions that destroy the company value (Ahmed & Duellman, 2013).

Overconfident individuals believe to be more competent than others, that they can control risks out of their reach and their predictions are more precise than they actually are (Chen, Lai, Liu & McVay, 2014). Kahneman and Lovallo (1993) noticed that overconfidence or optimism is better assessed by the application of monitoring.

The Board of Directors is an important mechanism to monitor executives' actions in the organization, since it can reduce information asymmetry among the interested parties, such as, for example, reduce conflicts with regulatory agencies and ensure legal responsibilities fulfillment (Andrés & Vallelado, 2008; Guedes & Gonçalves, 2019). Generally, the Board of Directors monitors operations performed by the executives.

In this aspect, regulators emphasize the need of financial experts in the Boards of Directors, under the argument that they will lead to a better supervision of the Board and will serve the shareholders' interests (Güner et al., 2008). Among independent directors, financial experts have lower costs in acquiring information about the complexity and the risks associated to financial transactions and, therefore, are more capable of monitoring efficiently the high administration (Harris & Raviv, 2008).

According to Call, Campbell, Dhaliwal e Moon Jr. (2017), individuals with financial expertise must show more realistic expectations. Ben-David et al. (2007) and Schrand and Zechman (2012) stated the association between overconfidence and financial expertise. Therefore the Board of Directors with financial expertise minimizes overconfidence by presenting financial knowledge and monitoring managers' activities. Thus, the first research hypothesis was formulated:

H1: There is negative relationship between the Board's financial expertise and the executives' overconfidence.

Overconfident executives are more prone to commit accounting fraud (Schrand & Zechman, 2012), and issue profit forecasts with more errors and optimistic bias (Hribar & Yang, 2010). These executives, when providing voluntary predictions expecting to keep improving performance in the future, are more likely to resort to profit management and possibly to frauds if, in any moment, they notice they are not able to meet those expectations (Hribar & Yang, 2010; Libby & Rennekamp, 2012; Schrand & Zechman, 2012). Schrand and Zechman (2012) found positive association between the manager's overconfidence and incidence of fraud.

According to Biddle, Hilary and Verdi (2009), when executives get involved in value-destroying activities they are more likely to disclose less information in the accounting reports to mask the poor results of their decisions. When mistakenly taking negative projects for positive projects due to their overconfidence, they may hesitate to disclose negative comments about the projects (Ahmed & Duellman, 2013). Thus, executives may use voluntary disclosure to highlight positive accounting information

and communicate their optimistic beliefs about the projects, manipulating information (Kim, Wang & Zhang, 2016). In this sense, Chen et al. (2014) stress that overconfident executives tend to overestimate their own abilities and believe they can control events that are, in fact, out of reach. Thereby, the second research hypothesis was formulated:

H2: There is negative relationship between the executives' overconfidence and the accounting disclosure quality.

Overconfident executives tend to engage in activities that maximize the company's value, such as overinvestments and acquisitions (Hribar, Kim, Wilson & Yang, 2013). Overconfident executives tend to see profit losses as temporary (Hribar et al., 2013), therefore are more likely to provide lower quality accounting reports. In this case, the Board of Directors may act as a beacon of accounting information, minimizing the accounting information manipulation (Klein, 2002).

Levrau and Van Den Berghe (2007) mention that the Board of Directors has potential to offer varied expertise, and the members tend to have a variety of experiences that can represent more specialized knowledge and skills. Roberts et al. (2005) stress that directors may bring objectivity to the Board, due to their relative distance from the company's daily problems. Felo (2009) points out that most directors with financial expertise in companies are related to the accounting information disclosure improvement. Thus, the third research hypothesis was formulated:

H3: The financial expertise of the Board of Directors has positive relationship with the accounting disclosure quality.

Financial experts tend to have the ability to analyze the company's accounting controls and financial reports so to avoid possible flaws in reports, litigation and scrutiny by the policy-makers (Garcia-Sanchez, Martinez-Ferrero & Garcia-Meca, 2017). This way, directors with financial expertise tend to be more capable of monitoring and advising companies, because their financial knowledge is a leverage. Under this conjecture, Boards of Directors with financial expertise tend to present higher quality accounting reports, even when the manager shows an overconfidence behavioral bias.

In this sense, Habib and Hossain (2013) and Almeida and Lemes (2019) argue that the executives' behavioral and knowledge traits may affect the accounting reports quality. So, overconfidence is expected to negatively influence the quality of accounting disclosure, but this influence is minimized by the Board of Directors' financial expertise. Thus, the fourth research hypothesis was formulated:

H4: Financial expertise positively moderates the relationship between overconfidence and accounting disclosure quality.

## 3 METHODOLOGY

### 3.1 Population and Research Sample

The research population is constituted by publicly-held companies listed on the Brazil Stock Exchange and Over-the-Counter Market (B3) and by 146 companies, resulting in 1,022 observations (balanced data). Financial companies were removed from the sample, due to the fact that the sector has its own accounting rules system that differs from the other sectors. In addition, the sample is constituted by companies that presented the necessary data to operationalize the variables, in the period from 2011 to 2017. The initial year of 2011 for data collection is justified because it is the year after the mandatory implementation of the International Financial Reporting Standards (IFRS) in Brazil.

In Table 1, the identified overconfident executives amount and Board members with financial expertise from the sample are shown.

Table 1. Research sample separated by overconfidence and financial expertise

Classification	Sample Total	Amount of executives of the Board of Directors						
		2011	2012	2013	2014	2015	2016	2017
Overconfidence	319	45	46	44	53	50	39	42
Financial expertise	706	101	101	101	102	102	98	101

Source: Research data.

It is noticeable in Table 1 that the analyzed companies have a high quantity of directors with financial expertise, and from the 1,022 observations, 706 are companies whose executives have financial expertise. The research data regarding variables were collected to meet the proposed measurement.

### 3.2 Data collection and analysis procedures

The data collected are related to the research variables, according to shown in Table 2.

Table 2. Research variables

Variables/Definition		Formula	Collection	Authors
Dependent variable	Accounting Disclosure Quality (DQ)	Pages number/Notes number	B3 Management Report	Cormier and Magnan (2016); Outa, Ozili & Eisenberg (2017); Blankespoor (2019).
	Overconfidence (OC)	Overconfident managers 1 and 0, otherwise	Economática	Schrand and Zechman (2012); Ahmed and Duellman (2013); Malmendier & Tate (2015); Berry-Stölzle et al. (2018).
Control variables	Expertise (EXPE)	Directors with financial expertise 1 and 0, otherwise	B3 Reference form	Ben-David et al. (2007) Schrand and Zechman (2012); Bamber et al. (2010); Call et al., (2017).
	Size (SIZ)	Total asset log	Economática	Hermalin and Weisbach (2012); Ahmed and Duellman (2013); Chen et al. (2014); Brockman et al. (2017); Berry-Stölzle et al. (2018).
	Debt (DEB)	CL+NCL/Total Asset		Ahmed and Duellman (2013); Berry-Stölzle et al. (2018).
	Sales increase (SALES)	$\frac{Revenue_t - Revenue_{t-1}}{Revenue_{t-1}}$		Ahmed and Duellman (2013); Chen et al. (2014); Brockman et al. (2017); Berry-Stölzle et al. (2018).
	Level of Corporate Management (CM)	Traditional, New Market, Level 1 and Level 2		Ahmed e Duellman (2013); Chen et al.(2014); Brockman et al. (2017)
Market-to-book ratio (MTB)	Market Value/Net Worth	Ahmed e Duellman (2013); Hsieh, Bedard & Johnstone (2014); Brockman et al. (2017); Berry-Stölzle et al. (2018).		

Caption: CL = Current Liability; NCL = Non-current Liability.

Source: Research data.

The financial expertise variable was collected in the Reference Form, on B3 website, and established from the curriculum analysis of each member of the Board of Directors of the analyzed companies. Thus, those in the Board of Directors and experienced in financial institutions were characterized as having financial expertise (Markarian & Parbonetti, 2009).

The accounting disclosure quality was measured according to the Cormier and Magnan’s study (2016), that considered the level of details in the accounting reports, determined by their number of

notes and pages. In said study, the disclosure quality was determined by dividing the number of pages by the number of notes of the explanatory notes. The main goal of explanatory notes is to show useful information and transparency to those interested in the company.

On the one hand, this procedure is not subjectivity-free. Unnecessary words may overshadow the disclosure meaning, unnecessary numbers may increase the noise that the market participants must filter. Besides, this measure does not capture the relevance of additional information for the market participants. On the other hand, greater level of details in the accounting reports provides market participants with different information, which captures an aspect of the depth and the quality of a company disclosure (Cormier & Magnan (2016); Outa et al. (2017); Blankespoor (2019)).

Overconfidence was analyzed based on four constructs from Schrand and Zechmann's study (2012): overinvestment, excess of acquisitions, debt and debentures convertible into preferred shares. The company that presented at least two of these constructs above the economic sector of activity median was classified as value 1 (overconfident executives), otherwise value 0. However, given the difficulty to obtain data regarding convertible debts into preferred shares, only the first three metrics were used.

Ben-David et al. (2007) highlight that overconfident managers overestimate the cash flow of an investment project and underestimate the profit risk. Malmendier and Tate (2005) add that overconfident executives invest more when the internal resources are enough to fund investments. The overinvestment was determined by the regression residues between the assets growth and the sales growth, compared to the company's sector residue median. The regression residue that was higher than the sector's median for the year indicates overconfidence. The detection metric used was the following:

$$\Delta Revenue_{it} = \Delta ASSETS_{it}$$

Where:

$$\Delta REVENUE_{it} = \text{Revenue variation};$$

$$\Delta ASSETS_{it} = \text{Assets variation};$$

$$RESIDUES_{it} = \text{Determines the overinvestment.}$$

Malmendier and Tate (2015) point out that overconfident managers are more likely to engage in acquisitions. According to Ahmed and Duellmann (2012), an overconfident executive is confident about the company's future profitability, which affects the share purchase. The excess of acquisitions was determined by acquisitions, identified in cash flow demonstrations. Acquisitions above the sector's median for the year suggest overconfidence, according to Schrand and Zechman (2012). The detection metric used was the following:

$$EXA_{it} = \ln(\text{Acquisitions}_{it})$$

Where:

$$EXA_{it} = \text{Excess of acquisitions};$$

$$\ln(\text{Acquisitions}_{it}) = \text{Acquisitions natural logarithm, obtained in the DFC (investment cash flow).}$$

Overconfidence causes an optimistic assessment of investment profits, which affects the investments funding (Hackbarth, 2008; He, Chen & Hu, 2019). The debt policy was determined by the debt rate related to the company's net worth compared to the sector. The long term debt was divided by the company's market value, and compared to the sector's median for the year, which indicates excess of debt by the company. When the metric value was higher than the sector's median, it received value "1", and "0" otherwise. The detection metric used was the following:



$$S\_Capital_{it} = NCL_{it} / MV_{it}$$

Where:

$$S\_Capital_{it} = \text{Structure of capital};$$

$$NCL_{it} = \text{Non-current liability};$$

$$MV_{it} = \text{Market value.}$$

For the model's robustness, size was assessed as control variables, according to Hermalin and Weisbach's arguments (2012) that big companies adopt stricter disclosure rules than small ones. Corporate management was controlled, due to the possibility of overconfidence to change in the presence of corporate management (Schrand & Zechman, 2012; Berry-Stölzle et al. 2018).

Companies with a higher market-to-book ratio tend to have greater quality of accounting disclosure, because they aim to reach the market by showing their performance (Meek, Roberts & Gray, 1995). Such assumptions are expected for the company growth, given that growing companies tend to disclose more accounting information to evidence their growth. Indebted companies are expected to show an inverse relationship, where they tend to disclose less accounting information.

With overconfidence, financial expertise and control variables data, H1 was tested through the following regression model:

Equation 1

$$EC_{it} = \beta_0 + \beta_1 EXPE_{it} + \beta_2 SIZ_{it} + \beta_3 DEB_{it} + \beta_4 GROW_{it} + \beta_5 CM_{it} + \beta_6 MTB_{it} + \sum Effect\_fixed\_sector_t + \sum Effect\_fixed\_year_t + \epsilon_{it}$$

Where:

$$OC_{it} = \text{Overconfidence in company } i \text{ in period } t;$$

$$EXPE_{it} = \text{Financial expertise in company } i \text{ in period } t;$$

$$SIZ_{it} = \text{Size of company } i \text{ in period } t;$$

$$DEB_{it} = \text{Debt of company } i \text{ in period } t;$$

$$GROW_{it} = \text{Growth of company } i \text{ in period } t;$$

$$CM_{it} = \text{Level of corporate management in company } i \text{ in period } t;$$

$$MTB_{it} = \text{Market to book of company } i \text{ in period } t;$$

$$\epsilon_{it} = \text{Regression error.}$$

Aligned with H2, that predicts relationship between overconfidence and accounting disclosure quality, we have:

Equation 2

$$DQ_{it} = \beta_0 + \beta_1 OV_{it} + \beta_2 SIZ_{it} + \beta_3 DEB_{it} + \beta_4 GROW_{it} + \beta_5 CM_{it} + \beta_6 MTB_{it} + \sum Effect\_fixed\_sector_t + \sum Effect\_fixed\_year_t + \epsilon_{it}$$

Where:

$$DQ_{it} = \text{Accounting disclosure quality in company } i.$$

To test H3, that the Board of Directors financial expertise has positive relationship with the accounting disclosure quality, we have:

Equation 3

$$DQ_{it} = \beta_0 + \beta_1 EXPE_{it} + \beta_2 SIZ_{it} + \beta_3 DEB_{it} + \beta_4 GROW_{it} + \beta_5 CM_{it} + \beta_6 MTB_{it} + \sum Effect\_fixed\_sector_t + \sum Effect\_fixed\_year_t + \epsilon_{it}$$

Thinking about H4, that analyzes the relationship between both overconfidence and financial expertise with the accounting disclosure quality, we have:

Equation 4

$$DC_{it} = \beta_0 + \beta_1 OC_{it} + \beta_2 EXPE_{it} + \beta_3 OC_{it} * EXPE_{it} + \beta_4 SIZ_{it} + \beta_5 DEV_{it} + \beta_6 GROW_{it} + \beta_7 CM_{it} + \beta_8 MTB_{it} + \sum Effect\_fixed\_sector_t + \sum Effect\_fixed\_year_t + \epsilon_{it}$$



In the models tested, assumptions applied in the regression were considered: multicollinearity, auto-correlation of residues, normal distribution of residues and homoscedasticity. The regressions used were made by Least Squares Regression (OLS), on the Statistics Data Analysis software (Stata® 13.0), fixing year and sector, and robust standard errors to capture innate and static characteristics that may affect both the accounting disclosure quality and the overconfidence and financial expertise (Ahmed & Duellman, 2013). For homoscedasticity problems, the models were run with robust standard errors.

Figure 1 shows the theoretical model of the research, which highlights the influence of overconfidence (measured by the overinvestment and acquisitions and debt policy) in the capacity of accounting disclosure, moderated by the financial expertise.

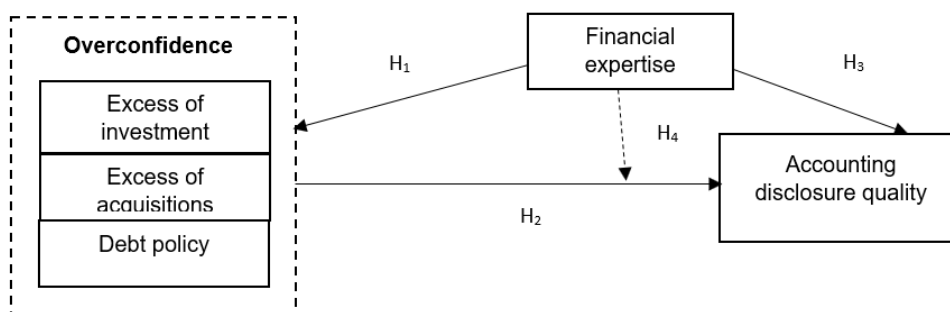


Figure 1. Research theoretical model  
Source: Own elaboration

Previous studies suggest executives’ behavioral traits directly affect the accounting information (Oliveira & Soares, 2018). However, knowledge traits shown by the Board of Directs may interfere in such relationship (Habib & Hossain, 2013). Thus, the underlying argument to the one proposed in this study is that managers’ overconfidence, noticed by the overinvestments, excess of acquisitions and debt policy affects the accounting disclosure quality, but its effect can be influenced by the Board of Directors’ expertise (Felo, 2009; Habib & Hossain, 2013).

## 4 DESCRIPTION AND ANALYSIS OF RESULTS

### 4.1 Descriptive statistics and test of research hypotheses

The descriptive statistics of the analyzed variables is depicted in Table 3.

Table 3. Variables descriptive statistics

Variables	Descriptive statistics						
	Average	Median	Standard deviation	Max.	Min.	Percentile 25%	Percentile 75%
Accounting disclosure quality	1,95	1,93	0,95	5,65	0,00	1,30	2,53
Overconfidence	0,31	0,00	0,46	1,00	0,00	0,00	1,00
Financial expertise	0,70	1,00	0,45	1,00	0,00	0,00	1,00
Size	6,65	6,64	0,71	8,95	4,58	6,11	7,12
Debt	0,83	0,80	0,34	2,83	0,12	0,61	0,99
Growth	0,17	0,07	1,90	56,46	-3,90	-0,04	0,16
Corporate management	3,45	4,00	1,69	5,00	1,00	1,00	5,00
Market-to-book	2,22	1,28	4,36	70,70	-17,71	0,69	2,31

Source: Research Data.

In Table 3, it is possible to see the companies financial variables descriptive statistics. Regarding overconfidence average (0,31), few managers showed this trait in the investigated samples. On the other hand, financial expertise in the Board of Directors revealed an average of 0,70, which indicates that, in the investigated companies, the Board has a high quantity of directors with financial knowledge.

It is also noticeable that some companies' growth in the analyzed period was negative, which means there was a decrease in revenue. The companies showed high variation to market-to-book, negative and positive values, which is confirmed by the high value of the standard deviation (4,36).

Next, the strength and direction of the relationship among variables was calculated, by the Pearson correlation coefficient, to check for possible multicollinearity problems. In Table 4, the Pearson correlation coefficient results are displayed.

Table 4. Pearson Correlation

Variable	OC	EXPE	DQ	SIZ	DEB	GROW	MTB	CM	SECTOR
OC	1	-0,054*	0,086**	0,192**	0,220**	0,084**	-0,023	-0,022	0,028
EXPE		1	0,192**	0,310**	-0,066*	-0,037	0,071*	0,044	-0,164**
DQ			1	0,430**	0,062*	-0,020	-0,026	0,186**	-0,099**
SIZ				1	-0,033	-0,014	-0,033	0,141**	-0,054
DEB					1	-0,005	0,227**	-0,037	0,070*
GROW						1	-0,009	0,034	-0,049
MTB							1	0,098**	0,001
CM								1	-0,181**
SECTOR									1

Caption: OC = Overconfidence; EXPE = Financial expertise; DQ = Accounting disclosure quality; SIZ = Size; DEB = Debt; GROW = Growth; MTB = Market-to-book; CM = Corporate management level.

Note. Levels of significance \*p<0,10; \*\*p<0,05; \*\*\*p<0,01.

Source: Research Data.

In Table 4, it is evident that the managers' overconfidence relates significantly and negatively with the financial expertise (-0,0054, p<0,05). This result shows that companies with financial expert directors tend to not have overconfident managers. On the other hand, there is significant and positive correlation between overconfidence and accounting disclosure quality (0,086, p<0,006). Overconfidence also shows a positive and significant correlation with the company's size, debt and sales growth. This evidence suggests that companies with accounting disclosure quality, bigger size, debt and sales growth tend to have overconfident managers.

Financial expertise shows positive and significant correlation with accounting disclosure quality (0,192, p<0,000). Therefore, companies with greater accounting disclosure quality tend to have directors with financial knowledge. Financial expertise also correlates positively and significantly with the company's size and market-to-book, but negatively and significantly with the company's debt and sector. Thus, bigger companies with higher market-to-book and smaller debt have Boards of Directors with financial knowledge.

There is no strong correlation among the explanatory variables analyzed in the study. That indicates there are no big multicollinearity problems that may affect the OLS Regression model results (Hair Jr. et al., 2009). Thus, the variables may be used to explain the relationship that analyzes overconfidence and financial expertise effects of the executives in the accounting disclosure quality of the investigated companies.

The OLS regression test was applied for the hypotheses, controlling year and economic sector. The results are summarized in Table 5, in which the lower part displays the results of VIF, Durbin-Watson and Shapiro-Wilk tests.

Table 5. Regression between overconfidence and accounting disclosure quality

Dep.	OC (Equation 1)	DQ (Equation 2)	DQ (Equation 3)	DQ (Equation 4)
	Coef. (Test t)	Coef. (Test t)	Coef. (Test t)	Coef. (Test t)
Constant	0,611*** (-2,80)	-2,170*** (-5,04)	-2,075*** (-4,93)	0,068*** (3,75)
EXPE	-0,092** (-2,52)	-	0,106* (1,62)	-0,008 (-0,12)
OC	-	-0,024** (-2,47)	-	-0,257** (-2,56)
OC * EXPE	-	-	-	0,351** (2,81)
SIZ	0,118*** (4,26)	0,557*** (11,19)	0,536*** (9,93)	0,540*** (10,22)
DEB	0,351** (7,92)	0,405*** (4,68)	0,401*** (5,99)	0,404*** (5,78)
GROW	0,019** (3,17)	-0,018*** (-1,12)	-0,017*** (-3,70)	-0,014*** (-3,16)
MTB	-0,008** (-1,92)	-0,008* (-1,58)	-0,009** (-1,80)	-0,009* (-1,90)
CM	-0,003 (-0,35)	0,067*** (3,71)	0,068*** (3,75)	0,068*** (3,82)
Fixed sector and year effect	Yes	Yes	Yes	Yes
Sig. Stat. F	0,000	0,000	0,000	0,000
R <sup>2</sup>	17,31	33,94	34,11	34,66
VIF	1,01 a 3,37	1,04 a 3,65	1,03 a 1,86	1,01 a 1,20
Durbin-Watson	1,178	1,372	1,386	1,184
Shapiro-Wilk	0,000	0,000	0,000	0,000
Observations no.	1.022	1.022	1.022	1.022

Caption: OC = Overconfidence; EXPE = Financial expertise; DQ = Accounting disclosure quality; SIZ = Size; DEB = Debt; GROW = Growth; MTB = Market-to-book; CM = Corporate management level; VIF = Variance inflation factor.

Note. Levels of significance \*p<0,1, \*\*p<0,05, \*\*\*p<0,01.

OLS Regression with fixed sector and year effects and robust standard errors.

Source: Research data

In Table 5, Durbin-Watson showed value above 1,178 for both the equations tested. Such results demonstrate that the independence of errors in the analyzed data is satisfied and there is no autocorrelation between residues (Marôco, 2011).

In the Shapiro-Wilk test, that verifies data normality, the results show abnormality in residue distribution, because there was significance to level of 1%. However, the multicollinearity test (VIF) evidences the non-existence of multicollinearity problems in the analyzed data, given that the values are within the parameters established in literature, between 1 and 10 (Hair Jr., Black, Babin, Anderson & Tatham, 2009).

### 4.3 Discussion of results

H1, suggesting that overconfidence has negative relationship with the Board of Directors' financial expertise, has enough support not to be rejected. Financial expertise showed negative and significant relationship with overconfidence (-0,092, p<0,5), which suggests that the lower the directors' expertise, the higher the executives' overconfidence.

According to Schrand and Zechman (2012), overconfident executives believe they are better than most in their jobs. Individuals who exhibit the overconfidence bias believe they are more competent and their predictions and decisions are more precise than actually are (Chen et al., 2014), but this characteristic is minimized when the Board of Directors has financial experience and knowledge.

According to Call et al. (2017), financial experts must show more realistic expectations to the managers when making decisions. Overconfident executives, prone to risky decisions and investments (Schrand & Zechman (2012), tend to have that bias minimized in decision-making if the Board of Directors has greater financial knowledge.

Previous research reveals that overconfident managers believe in their competence and decision-making and managements skills optimistically (Hribar & Yang, 2010; Malmendier et al., 2011; Hill et al., 2012). However, research results point that the monitoring made by a financial expert Board of Directors affects the optimistic behavior of executives in decision-making and operations of the company.

When analyzing the relationship between overconfidence with control variables, there is positive and significant relationship between the company size (0,118,  $p < 0,01$ ), debt (0,351,  $p < 0,01$ ), sales growth (0,019,  $p < 0,01$ ), and negative relationship with market-to-book (-0,008,  $p < 0,10$ ). Such result may contribute to explain dissonances when compared to Schrand and Zechman's study results (2012), that found relationship between the Board of Directors' financial expertise and the accounting reports quality.

The study findings suggest that companies with overconfident executives are bigger and show greater sales growth, but they have higher level of debt, according to Hackbarth (2008). Furthermore, companies with overconfident executives show lower market value, evidence that can be supported by the fact that overconfident executives tend to make riskier investments (Ahmed & Duellman, 2012; Malmendier & Tate, 2015), which can result in increase of the company debt (Hackbarth, 2008), which then refrains investors from injecting resources in the company.

Regarding H2, there is negative and significant relationship between overconfidence and accounting disclosure quality, which allows not to reject this hypothesis. This evidence suggest that the accounting information disclosure quality is lower when executives exhibit the behavioral bias of overconfidence. The study findings confirm what is observed in studies by Ahmed and Duellman (2013), Cheng et al. (2014) and Oliveira and Soares (2018), that overconfident managers provide lower quality information to the shareholders and the Board of Directors.

Overconfident executives have high expectations about the company's future performance and believe they are better than their peers, which leads to lack of concern regarding the company's accounting information disclosure (Hackbarth, 2009; Oliveira & Soares, 2018). Another reason for the negative relationship between overconfidence and accounting disclosure quality is that the Board of Directors may not notice the overconfidence of some executives. When the board is not capable of identifying overconfident executives, it tends to not demand greater quality in the accounting reports to compensate adverse effects of overconfidence (Ahmed & Duellman, 2007; Ahmed & Duellman, 2013).

Financial expertise has positive relationship with accounting disclosure quality, which allows not to reject H3. That indicates that in corporate environments where the Board of Directors has financial knowledge, explanatory notes are more detailed, which indicates greater accounting disclosure quality. There results align with the ones presented by Roberts et al. (2005), Levrau and Van Den Berghe (2007) and Felo (2009), that the Board of Directors with expert members has greater skills and experiences, which results in greater quality of accounting reports.

H4, that the executive's overconfidence, moderated by the Board of Directors' financial expertise, has positive relationship with the accounting disclosure quality, shows support not to be rejected. If executives are overconfident and financial experts, the accounting reports have greater quality. Such fact is recognized in the relationship between overconfidence, financial expertise and disclosure quality (0,351,  $p < 0,01$ ).

Executive's overconfidence is noted to influence negatively the accounting disclosure quality, but when the company's Board of Directors are financial experts, the low quality of the accounting information is minimized. Thus, the Board of Directors may bring objectivity and transparency to the accounting information (Roberts et al., 2005; Felo, 2009).

The quality of the disclosure also has positive and significant relationship with size (0,540,  $p < 0,01$ ) and debt (0,404,  $p < 0,01$ ) of the companies, and negative and significant relationship with sales growth (-0,014,  $p < 0,01$ ) and market-to-book (-0,009,  $p < 0,10$ ). These two latter ones differ from the findings of Hsieh et al. (2014).

There is also perceptible positive and significant relationship with corporate management. Such results confirm what was depicted by Ahmed and Duellman (2013) and Brockman et al. (2017), that corporate management contributes to greater accounting disclosure quality. Thus, corporate management is decisive for companies to show well-detailed reports and, consequently, greater quality.

Generally, companies where executives are overconfident have directors with lower financial expertise. Furthermore, in companies where the Board of Directors have financial expertise, the accounting disclosure has greater quality, even if the company has overconfident managers. That suggests that factors such as knowledge may minimize the overconfidence behavior when presenting accounting reports. These findings contribute by evidencing the importance of considering the executives' and Board of Directors' traits, given they are decisive for the accounting disclosure quality.

## 5 CONCLUSIONS

The research results revealed that the Board of Directors' financial expertise has negative and significant relationship with the managers' overconfidence, which indicates that the lower the Board's financial expertise, the higher the managers' overconfidence. The analysis of the relationship between the explanatory factors and overconfidence revealed that company size, sales growth and debt have positive relationship, while market-to-book has negative relationship. Therefore, these variables can contribute to explain the relationship between overconfidence and financial expertise of the Board of Directors in the investigated companies. That indicates that big companies with sales growth, higher debt and lower market-to-book have overconfident managers.

Regarding the analysis of the relationship between the Board of Directors' overconfidence and financial expertise with accounting disclosure quality, results showed that the accounting disclosure quality has negative relationship with overconfidence, which indicates that overconfident managers minimize the accounting reports quality. However, when both overconfidence and financial expertise are analyzed together, there is positive and significant relationship. That indicates that the accounting disclosure quality is negatively affected by the managers' overconfidence. Besides, overconfident and financial expert managers positively affect the accounting reports quality.

In general, the explanatory notes detailing, in this study, understood as accounting disclosure quality, may be boosted by different preceding factors. In this regard, the explanatory notes detailing may be boosted by the Board of Directors' financial knowledge.

The conclusion is that the Board of Directors' financial expertise has negative relationship with the managers' overconfidence, which implies that the financial expert directors, by impacting the executives confidence behavior, tend to have less overconfidence (Ben-David et al., 2007, Schrand & Zechman, 2012). Company size, debt, sales growth and market-to-book affect the relationship between executives' overconfidence and financial expertise, therefore, the company's different characteristics impact on the

executives' behavioral characteristics. In addition, the accounting disclosure quality is negatively affected by overconfidence, but when executives have financial expertise the accounting reports quality increases.

These study results contribute to the literature that examines the executives' behavior regarding implications of managerial overconfidence in information disclosure quality, according to the gap pointed out by Ahmed and Duellman (2013) and Berry-Stolzle et al. (2018). Besides, the study findings contribute to the understanding of how executives try to shape the companies' global information environment, from their overconfidence and financial expertise. The study also presents insights about how capital market participants can get accounting information. The Board of Directors knowledge analysis may be understood as an important element of accounting reports disclosure quality. Besides, the executives' cognitive biases, in this case, overconfidence, affect reports with lower accounting information quality.

Given the research limitations, it is impossible to generalize the results, given that only companies listed on Brazil Stock Exchange and Over-the-Counter Market (B3) were analyzed with information on Economica database, in the period from 2011 to 2017. Besides, there is no tool that can measure directly a personality trait to quantify overconfidence (Brown & Sarma, 2007). It is also possible that overconfidence is boosted by a non-identified variable and that is affecting the company's results (Cheng et al., 2014). Thus, for further research, the limitations presented here are recommended to be somehow challenged.

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