

## OVERCONFIDENT CHIEF EXECUTIVE OFFICER AND EARNINGS MANAGEMENT PRACTICE

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### ABSTRACT

Several studies have suggested that overconfidence leads to expectations of future performance, and managers can develop predisposition to earnings management. The objective of the study is to identify the influence of overconfident managers on Brazilian companies' earnings management practices. The methodology of the research is descriptive, with quantitative approach, through documentary research. The statistical methods used were: entropy, TOPSIS and multiple linear regression. The sample consisted of 127 Brazilian companies listed on the BM&FBovespa. It is concluded that lower overconfidence has a positive impact on earnings management, suggesting that less confident managers believe with less intensity in their abilities, and, in order to guarantee organizational results that satisfy the expectations of analysts, they conduct the earnings management in an opportunistic way so as to increase organizational results.

**Keywords:** Overconfidence. Earnings management. Behavioral theory.

### 1 INTRODUCTION

Behavioral experts have discussed overconfidence as an important factor for the financial market. It can affect the human behavior in many organizational decision-making (De Bondt & Thaler, 1995). In this sense, the behavioral theory is used to explain the existence of tendencies in the behavior of agents that may lead to decision-making based on irrational aspects and, therefore, interferes in the structuring of the organizational capital (Thaler, 1999).

Recent studies demonstrate that irrational aspects of the human behavior affect operational investment and financing decisions, as well as the discretionary behavior as to accounting choices. Excessive confidence may lead to biased behaviors capable of triggering

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managers to believe in abilities that are beyond the normal course of business (Weinstein, 1980; Baker, Ruback & Wurgler, 2004). Therefore, individuals can overestimate their skills, believing their decision power is more assertive compared to those of others (Svenson, 1981; Taylor & Brown, 1988; Alicke, Klotz, Breitenbecher, Yurak & Vredenburg, 1995).

Managers who tend to overvalue their skills, judgment and forecasts have characteristics that bring out their excessive confidence (Barber & Odean, 2001; Simon & Houghton, 2003; Malmendier & Tate, 2005; Dushnitsky, 2010). Managers with these characteristics tend to overestimate their capabilities to achieve results, underestimate random events, and seem to be more susceptible to tendentiously optimistic forecasts (Hribar & Yang, 2015). Psychological factors, personal characteristics and limited rationality can be used to explain opportunistic behaviors, thus helping to clarify possible managerial distortions occurring in organizations (Lin, Ho & Chen, 2005).

Results reported by organizations in their financial statements can arise from opportunistic behavioral biases of their the *Chief Executive Officers* (CEOs). This factor derives from accounting choices of a discretionary nature that are not related to the economic reality of the business. The opportunistic behavior, at the discretion of accounting choices, may be motivated by the firm's exogenous influences and by the behavior of individuals, which warp executives towards earnings management practices (Martinez, 2008).

Managers' overconfidence may lead to decisions that involve more or less discretionary accounting choices. The impacts of overconfidence on the quality of the accounting information, under the aspect of earnings management, were examined in two studies with US companies. Hribar & Yang (2015) argue that overconfidence influence CEOs to announce earnings forecasts based on exorbitant expectations of future results. Schrand & Zechman (2012) suggest that companies managed by overconfident CEOs can carry out earnings management, whether intentionally or by accident.

The study conducted by Li & Hung (2013), with Taiwanese companies, suggests that overconfidence increases managers' opportunistic behavior. It can result in more intense earnings management practices to increase profits. Empirical studies suggest that overconfidence increases the expectation of future performance, and managers with such characteristics are more likely to practice earnings management in order to satisfy the expectations of analysts (Malmendier & Tate, 2005; Hribar & Yang, and Schrand & Zechman, 2012, Li & Hung, 2013).

Based on the foregoing, a problematic was created: What is the influence of managers' overconfidence on the earnings management in Brazilian companies listed on BM&FBovespa? The purpose is to identify the influence overconfident managers have on the earnings of Brazilian companies listed on BM&FBovespa.

This study seeks to include in the literature on the quality of accounting information the behavioral biases that may affect decisions of corporate officers on accounting choices that aim the distortion, notwithstanding the standards for reporting accounting information. The empirical literature on earnings management has examined economic, personal, and corporate incentives. However, it is necessary to add the behavioral factors in incentives to earnings management practice.

Only few studies have included evidences of individual psychology on opportunistic accounting choices (Hribar & Yang, 2015). According to Martinez (2013), it is necessary to integrate behavioral aspects of agents, managers and auditors with the opportunistic practices involving earnings management. The contributions of the study addresses the theoretical gap in the literature on the quality of accounting information, adding evidences of the human individual behavior on opportunistic practices.

In practical terms, the research provides for indications that behavioral factors must be observed in the evaluation as to the quality of the accounting information. Thus, analysts, investors and other stakeholders must observe the attitudes of managers in the evaluation of earnings reported by firms, mainly seeking to segregate the companies managed by overconfident managers from those that are more cautious in organizational actions and attitudes.

The difference of this research compared to the study by Hribar & Yang (2015), Schrand & Zechman (2012) and to Li & Hung (2013), is that it presents different metrics for measuring

overconfidence allied to opportunism in accounting choices. Previous studies were conducted in developed countries, with strong stock market characteristics; therefore, a study with Brazilian companies can add opposite perspectives on the effect of overconfidence on the quality of accounting information.

## 2 THEORETICAL REFERENCE

### 2.1 Behavioral aspects of excessive confidence by managers

Heaton (2002) and Malmendier & Tate (2005) point out that overconfident managers tend to overvalue the future returns of investments. Other studies have documented that excessive confidence affects the investments, financings and dividend policies of organizations (Malmendier & Tate, 2008; Deshmukh, Goel & Howe, 2013, Malmendier, Tate & Yan, 2011).

Literature indicates the existence of, at least, three types of overconfidence. According to Hilary and Hsu (2011), the first occurs when individuals often have an exaggerated belief in their own capacity and evaluate their management, decision-making, ability, and responsibility skills as being better than others. Overconfidence is not only perceived in the finance and accounting areas. Peterson (2007) reports, for example, that 70% of people believe they are better drivers than the rest.

The second involves exorbitant beliefs in a standard objective. For example, an event is estimated to have 90% chance to happen, when, in fact, a lower chance must be estimated. Finally, the third is associated to the effect of weighting, which encompasses the relationship between private and public information (Hilary & Hsu, 2011). In this respect, overconfident individuals believe that their private information is more accurate than it actually is, and therefore, assign more weight thereto.

This research is covered within the overconfidence attribute established by Hilary & Hsu (2011), where managers underestimate their managerial ability in organizational decisions. The literature on overconfidence in the decision-making process has presented empirical evidences related to the overconfident behavior of business people, according to Cooper, Woo & Dunkelberg (1988), compared to officers, by Russo & Schoemaker (1992), and to managers, by Dittrich, Güth & Maciejovsky (2005). The research represents an empirical progress in overconfidence studies and adds an overview on the accounting choices that impact the quality of accounting information.

### 2.2 Overconfident Managers and earnings management

For Watts & Zimmerman (1990), the earnings management may be a characteristic of opportunistic practices, given the discretion condition, for its *ex post* benefit with wealth redistributive effects between the parties to a contract. The flexibility of standards and regulations make the financial earnings management possible, thus allowing different alternatives for accounting for the same event (Matsumoto & Pereira, 2009).

Santos & Grateron (2003) state that the term *earnings management* can be understood as the management or handling of results aimed at demonstrating a different image (better or worst), according to the relevant interests.

Moreover, psychological factors must be considered when analyzing the behavior of managers in organizational decisions, also covering the reporting of financial statements. Behavioral experts have been considering overconfidence as an important factor of managers' human behavior when reporting information to the stock market (Ko & Huang, 2007).

Hribar & Yang (2015) have analyzed the impacts of overconfidence on the increased probability of excessively optimistic releases for earnings management. CEOs were classified based on how many times they were described as confident compared to how many times they were described as prudent, cautious, conservative, practical and/or frugal. The sample comprised 640 companies listed on Fortune 500. The results suggest that overconfidence increases the optimistic biases in voluntary forecast. Leading, therefore, to greater earnings management.

Li & Hung (2013) have investigated the moderating effect of corporate family control on the relationship between overconfidence and earnings management. They used a sample integrated by companies listed in the Taiwan stock market. Their premise establishes that overconfident managers tend to engage in earnings management behaviors, and the family control negatively moderates the positive relationship between overconfidence and earnings management.

The study by Hsieh, Bedard & Johnstone (2014) have analyzed the relationship between overconfident CEOs and earnings management based on real activities, and also on targets to meet the forecasts prepared by analysts. The overconfidence of CEOs was determined by treasury stock / share buyback. The results suggest that, prior to the Sarbanes-Oxley Law (SOX), 2002, companies with confident CEOs would be more likely to opportunistic earnings management practices for real activities. After SOX Law, the results indicate that confident CEOs are more likely to use discretionary accruals for earnings management. The results are in line with the more confident CEOs, feeling less constrained by the application of the SOX Law, since earnings management by discretionary accrual is more likely to be found out.

### 2.3 Construction of hypotheses

The study by Banerjee, Humphery-Jenner & Nanda (2014) demonstrate that the decisions of overconfident CEOs are inconsistent in different moments of the application of SOX Law. They claim that companies with confident CEOs take risky decisions that distort investments, and further suggest that regulatory restrictions imposed by SOX have been effective in reducing the opportunistic behavior of CEOs presenting overconfidence tendencies.

The results of the research conducted by Banerjee et al. (2014) demonstrate that SOX Law was effective in reducing earnings management opportunistic behaviors. However, they point out that confident CEOs can probably continue exploring opportunities in certain earnings management practices.

According to Malmendier & Tate (2005), Jin & Kothari (2008), Hribar & Yang (2015), Li & Hung (2013), Hsieh et al. (2014), Banerjee et al. (2014), there is a premise of possible impacts of the managers' overconfidence on the earnings management practice as to accounting choices, what sets the ground for the construction of the general hypothesis that guides the study:

*Hypothesis 1: Overconfident managers are more likely to engage earnings management opportunistic practices to increase profits.*

Based on behavioral research, the excess of confidence can be measured from secondary data obtained from proxies previously used, such as: treasury stock, volume of dividends paid, financial leverage and family companies. Studies substantiate proxies of psychological attributes that can be used to measure managers' overconfidence.

Studies have demonstrated that companies managed by founding CEOs have different behavior compared to those managed by professional CEOs (Dalton & Daily, 2001; Nelson, 2003). Moreover, entrepreneurs are considered to be more overconfident than non-entrepreneurs, that is, companies whose managers are family members of founders or are the founders themselves are more overconfident than those managed by hired professionals (Lowe & Ziedonis, 2006; Hmieleski & Baron, 2009; Landier & Thesmar, 2009). Anderson & Reeb (2003) suggest that the behavior of CEOs who belongs to the founding family differs from those with no family relations, to the light of the competition in the labor market and the compensation plans, and therefore, these factors can lead to overconfidence in decision-making.

Lee, Hwang & Chen (2014) provide evidences that founding CEOs are more confident than their counterparts (professional CEOs). The results suggest that founding CEOs make use of a rather more optimistic language in their statements during teleconferences for the presentation of results. Founding CEOs prepare higher profit forecasts compared to hired CEOs. In this sense, it is reasonable to suggest that family-controlled companies have representatives/managers with greater overconfidence in comparison to those controlled by professionals.

The conclusion that the family control can moderate the effects of overconfidence on earnings management occurs for the following reasons: the family wealth is connected to the value of the company (Anderson & Reeb, 2003); family members are concerned about the company's reputation (Miller, Breton-Miller & Scholnick, 2008) and the long-term prospects for the business; they expect to transfer their assets to future generations (Gómez-Mejía et al., 2007). Therefore, we have the first sub-hypothesis of the study:

*Hypothesis 1<sub>a</sub>: There is a positive relation between family control and earnings management opportunistic practices to increase profits.*

Another variable used to measure managers' overconfidence relates to the payment of dividends. Ben-David, Graham & Harvey (2007) point out that companies with overconfident CFOs are less likely to pay dividends, more likely to engage in market timing, and more likely to issue voluntary disclosures. Ben-David et al. (2007) consider that companies managed by optimistic CFOs present greater volume of investments, lower volume of payment of dividends and greater level of leverage.

Deshmukh et al. (2013) developed a dynamic interaction model between the CEOs' overconfidence and the dividend policy. The model has demonstrated that an overconfident CEO perceives external financing so costly that it builds a financial slack for future investment needs; however, this financial slack is made by reducing the volume of payment of dividends. Thus, the level of payment of dividend is lower in companies managed by CEOs with higher overconfidence. The literature establishes that the lowest level of payment of dividend is consistent with the presence of overconfident managers. Based on the foregoing, the second sub-hypothesis is established:

*Hypothesis 1<sub>b</sub>: There is a negative relationship between the payment of dividends and the earnings management opportunistic practices to increase profits.*

Ben-David et al. (2007) and Deshmukh et al. (2013) have determined that companies managed by overconfident CEOs have higher levels of financial leverage. Likewise, Barros & Silveira (2009) have investigated the determinants of the capital structure by introducing the behavioral perspective. The main prediction of the work was that companies managed by overconfident individuals are more indebted than the others, besides providing indications that managers' overconfidence can determine the capital structure of firms, as both in static and dynamic formulations the estimated coefficient for excessive confidence was positive and generally significant to the leverage. Accordingly, companies with higher financial leverage would characteristically have overconfident managers and, therefore, would tend to earnings management opportunistic practices, giving rise to the third sub-hypothesis:

*Hypothesis 1<sub>c</sub>: There is a positive relationship between financial leverage and earnings management opportunistic practices to increase profits.*

Finally, as regards the buyback variable (treasury stock), Andriosopoulos, Andriosopoulos & Hoque (2013) have demonstrated that the disclosure of information and the CEOs' overconfidence are strong determinants in the share buyback. They suggest there is a clear relationship between information disclosure, CEO's overconfidence and the completion rates of buybacks.

Hsieh et al. (2014) have used the treasury stock volume as proxy to determine overconfident CEOs. In view of the aforementioned studies, it is reasonable to infer that companies with higher treasury stock volumes have overconfident CEOs, as they retain shares or buybacks based on their confidence in future results, which lead to higher valuation of the company's own shares. On that basis, the fourth sub-hypothesis of the study is established:

*Hypothesis 1<sub>d</sub>: There is a positive relationship between treasury stock volume and earnings management opportunistic practices to increase profits.*

Table 1 shows the theoretical development of the hypothesis presented above.

Table 1  
Theoretical development of the hypothesis

Assumptions of Overconfidence Variables	Assumptions of Overconfidence	Hypothesis	Theoretical Basis
Entropy/TOPSIS of variables: Family business, payment of dividends, accounting leverage and treasury stocks	+Excessive Confidence	+ Earnings management $H_1$	Malmendier & Tate (2005); Bhandari & Deaves (2006); Malmendier & Tate (2008); Wong (2008); Jin & Kothari (2008); Schrand & Zechman (2012); Hribar & Yang (2015); Li & Hung (2013); Banerjee <i>et al.</i> (2014); Hsieh <i>et al.</i> (2014).
+ Family Business	+Overconfidence	+ Earnings management $H_{1a}$	Anderson & Reeb (2003); Lowe & Ziedonis (2006); Landier & Thesmar (2009); Hmieleski & Baron (2009); Lee <i>et al.</i> (2014).
- Payment of Dividends	+ Overconfidence	+ Earnings management $H_{1b}$	Ben-David <i>et al.</i> (2007); Deshmukh <i>et al.</i> (2013)
+ Accounting Leverage	+ Overconfidence	+ Earnings management $H_{1c}$	Ben-David <i>et al.</i> (2007); Barros & Silveira (2009); Deshmukh <i>et al.</i> (2013).
+ Treasury Stocks	+ Overconfidence	+ Earnings management $H_{1d}$	Heaton (2002); Malmendier & Tate (2005); Andriosopoulos <i>et al.</i> (2013); Ahmed & Duellman (2013); Hsieh <i>et al.</i> (2014).

**Note.** Source: Prepared by the authors.

Table 1 evidences that higher volume of treasury stock is a characteristic of companies with managers who are more overconfident. Managers who are more overconfident (measured by the higher volume of treasury stocks) tend to a more intense use of earnings management. The lower payment of dividends is a characteristic of companies with managers who are more overconfident. And, finally, the higher accounting leverage is a characteristic of companies with managers who are more overconfident, according to literature.

### 3 METHODOLOGICAL PROCEDURES

A descriptive research was carried out with a quantitative approach, through documentary survey, in order to reach the objective of the study.

#### 3.1 Research Population and Sampling

The survey population comprised the Brazilian publicly traded companies with data available in the Economatica® database. The sample was outlined covering the companies that had the information necessary to operate the variables. First, companies that did not have information for the regression model that could evidence the dependent variable of earnings management, were excluded. Subsequently, companies that did not have information to calculate the independent variables were excluded. The final sample of the survey consisted of 127 companies, in the year 2014.

#### 3.2 Procedures for Data Collection and Analysis

Data collected are related to variables used to conduct the study, and are shown in Table 2.

Table 2  
Composition of the study variables

Variables	Description	Metrics	Theoretical Basis
Dependent	Earnings management (Discretionary Accruals)	Model KS Chart 3	Model KS (1995)
	Treasury stocks (buyback)	Natural logarithm of the treasury stocks of the company <i>i</i> in year <i>t</i> .	Andriosopoulos <i>et al.</i> (2013); Ahmed & Duellman (2013)
Independent	Volume of payment of dividends	Natural logarithm of the volume of payment of dividends of the company <i>i</i> in year <i>t</i> .	Ben-David <i>et al.</i> (2007); Deshmukh <i>et al.</i> (2013)
	Financial leverage	$\frac{Total Liabilities}{Total Assets}$	Barros & Silveira (2009); Ben-David <i>et al.</i> (2007)
	Family Business	<i>dummy variable equal to 1 for family-controlled / managed companies, and 0 otherwise.</i>	Anderson & Reeb (2003); Lowe & Ziedonis (2006); Landier & Thesmar (2009); Hmieleski & Baron (2009); Lee <i>et al.</i> (2014)
	Ranking of Overconfidence	Ranking determining the excessive confidence of each organization using and TOPSIS through variables: family business, payment of dividends, financial leverage and treasury stocks.	Malmendier & Tate (2005); Bhandari & Deaves (2006); Malmendier & Tate (2008); Wong (2008); Jin & Kothari (2008); Schrand & Zechman (2012); Hribar & Yang (2015); Li & Hung (2013); Banerjee <i>et al.</i> (2014); Hsieh <i>et al.</i> (2014).
	ROA	$\frac{Net Profit}{Total Assets}$	Balsam, Haw & Lilien (1995); Dechow & Dichev (2002); Doyle, Ge & Mcvay (2007); Barth, Landsman & Lang (2008); Dechow, Ge & Schrand (2010)
Control Variables	ROE	$\frac{Net Profit}{Equity Capital}$	Balsam <i>et al.</i> (1995); Dechow & Dichev (2002); Doyle <i>et al.</i> (2007); Barth <i>et al.</i> (2008); Dechow <i>et al.</i> (2010)
	ST Indebtedness	$\frac{Current Liabilities}{Total Assets}$	Labelle (1990); Malmquist (1990); Balsam <i>et al.</i> (1995); Minton & Schrand (1999)
	LT Indebtedness	$\frac{Non - Current Liabilities}{Total Assets}$	Labelle (1990); Malmquist (1990); Balsam <i>et al.</i> (1995); Minton & Schrand (1999)
	Size	Natural Logarithm of Total Company Assets <i>i</i> in year <i>t</i> .	Francis, Khurana & Pereira (2004); Dechow <i>et al.</i> (2010); Gaio (2010)

**Note.** Source: prepared by the authors.

Table 2 evidences that the dependent variables consist of *discretionary accruals and independent* variables consist of financial leverage, volume of treasury stocks, family control and volume of payment of dividends. For the soundness test, the control variables related to the return on assets, return on equity capital, short & long-term indebtedness and size of companies were added later. These control variables were selected since they were included in other studies on the matter as incentives for earnings management practices.

Moreover, the independent variables (treasury stocks, financial leverage, family business), which served as characteristics of manager's overconfidence, were gathered in a single ranking to determine the general level of overconfidence. This ranking was prepared using the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS), using entropy to define the weight of each vector. TOPSIS is based on the ranking of alternatives to obtain the best alternative selection, which is close to the ideal solution, considering the distances from the ideal solution and the anti-ideal solution (Bulgurcu, 2012).

Figure 1 shows model KS (1995) used to identify the *Discretionary Accruals*.

**Model KANG & SILVARAMAKRISHMAN (1995)**

$$TA_{it} = \phi_0 + \phi_1 [\delta_1 Rev_{it}] + \phi_2 [\delta_2 Exp_{it}] + \phi_3 [\delta_3 Fixed A_{it}] + \varepsilon_{it}$$

$$AD_{it} = AT_{it} - \{ \phi_0 + \phi_1 [\delta_1 Rev_{it}] + \phi_2 [\delta_2 Exp_{it}] + \phi_3 [\delta_3 Fixed A_{it}] \}$$

$TA_{it}$  = Total Accruals = (CGL – Depreciation & Amortization)<sub>t</sub>

$Rev_{it}$  = Net Revenue (tax excluded)

$Exp_{it}$  = Operational Costs and Expenses before Depreciation & Amortization

$NWC$  = Net Working Capital, excluded financial provisions of S.T. and Prov. of Payable Tax

$Fixed A_{it}$  = Intangible Fixed Asset

$Receivables_{i,t-1}$  = Receivables for the period  $t - 1$

$Deprec_{i,t-1}$  = Depreciation Costs

$$\delta_1 = Receivables_{i,t-1} / Rec_{i,t-1}$$

$$\delta_2 = (\Delta WC - Receivables_{it}) / Exp_{i,t-1}$$

$$\delta_3 = Deprec_{i,t-1} / Fixed A_{i,t-1}$$

$Rev_{it}, Exp_{it}, Fixed A_{it}$ , These variables are escalated in terms of total assets

**Figure 1. Model KS to identify discretionary accruals**

Source: Adapted from Martinez (2008).

The earnings management data and the independent variables made possible to apply the linear regression model using SPSS software. After applying this model, it was possible to verify if the independent variables of overconfidence influence the level of earnings management. Equation 1 is used to illustrate this regression model:

$$EM = \beta_1 + \beta_2 TS + \beta_3 PD + \beta_4 FL + \beta_5 FB + \varepsilon \quad (1)$$

Where:

EM = Discretionary Accruals - Earnings management;

TS = Treasury stocks;

PD = Payment of dividends;

FL = Financial leverage;

FB = Family business.

Subsequently, the attributes (family business, treasury stocks, payment of dividends, financial leverage) were gathered in a ranking using TOPSIS, in order to determine an indicator of excessive confidence of the CEO of each organization. An additional regression model was established to explain the level of earnings management, consisting of the explanatory variable ranking of overconfidence and the control variables related to performance, indebtedness and company size. Equation 2, below, represents the regression model described:

$$EM = \beta_1 + \beta_2 RO + \beta_3 ROA + \beta_4 ROE + \beta_5 ST \text{ Ind.} + \beta_6 LT \text{ Ind.} + Size + \varepsilon \quad (2)$$

Where:

EM = Discretionary Accruals - Earnings management;

RO = Ranking of Overconfidence;

ROA = Return on Assets;

ROE = Return on Equity Capital;

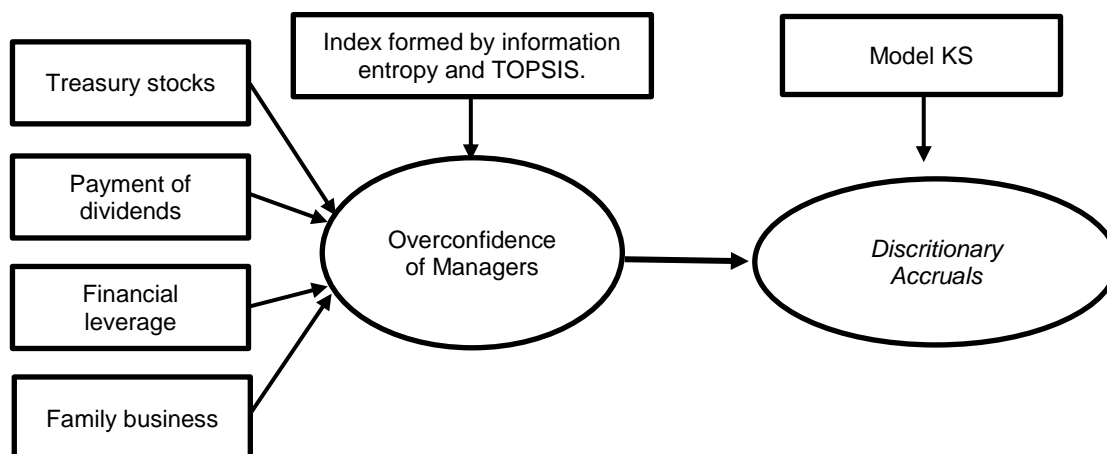
ST Ind. = Short-term Indebtedness;

LT Ind. = Long-term Indebtedness;

Size = Natural Logarithm of Total Assets.

Figure 2 shows how variables were gathered in a single variable to measure overconfidence of managers, as well as the preliminary overconfidence test associated to the earnings management practice.





**Figure 2.** Model to explain the construction of the overconfidence variable and its relation with earnings management

Source: Prepared by the authors.

#### 4 PRESENTATION AND ANALYSIS OF RESULTS

This item presents the findings obtained applying the methods established in the research methodology in order to meet the objective proposed by the study. In this sense, Table 3 presents the descriptive statistics of the variables used in the research.

Table 3  
**Descriptive Statistics**

Variable	Minimum	Maximum	Average	Standard Deviation
<i>Discretionary Accruals</i>	-3.8281	2.2083	0.000	0.8944
Treasury stocks	0.0000	2,104,524.00	41,089.70	198,062.58
Payment of dividends	0.0000	249,037,996.00	4,811,945.63	22,465,880.41
Financial leverage	0.0061	0.6074	0.2995	0.1519
Family business	0.0000	1.0000	0.4803	0.5016
ROA – Return on Assets	-0.124	0.558	0.048	0.071
ROE – Return on Equity	-1.250	0.805	0.090	0.227
ST Ind.	0.014	0.623	0.212	0.124
LT Ind.	0.000	0.705	0.330	0.149
Size (Total)	48,601	752,966,638	17,181,136	68,488,989

**Note.** Source: Research Data.

Table 3 shows that the minimum *Discretionary Accruals* was -3.8281, while the maximum was 2.2083, with standard deviation of 0.8944. As regards the treasury stocks variable, the minimum was 0.000 – explained by the existence of companies that held no treasury stocks –, while the maximum was R\$ 2,104,524.00. As regards the payment of dividends, it is noticed that some companies presented no payment of dividends for the period, as per minimum of 0,00; while the maximum value of payment of dividends was R\$ 249,037,996.00.

Regarding the financial leverage, the average is found to be 0.2995, and the maximum is 0.6074. When it comes to family companies, among the 127 companies studied hereunder, 61 are family controlled and 66 are not. Therefore, the family companies represent a percentage of 48.03%. As regards the control variables, the companies present average return on assets of 0.048, average return on equity of 0.090, short-term indebtedness of 0.212, long-term indebtedness of 0.330, and company size by total of assets of R\$ 17,181,136.00.

Attention should be drawn to the high variation of data, which can compromise the parameters estimation, once they are estimated by the average. Subsequently, the proposed regressions were applied to answer the hypotheses in the theoretical construction. In addition,

with the variables shown in Table 3, the assumptions of normality, absence of autocorrelation, heteroscedasticity, multicollinearity and linearity were statistically proved.

Table 4 shows a summarized linear regression model of independent variables comprised of treasury stocks, payment of dividends, accounting leverage and family business in relation to the dependent variable of Discretionary Accruals.

Table 4  
**Regression of the overconfidence measurement variables in relation to the Discretionary Accruals**

Model	Non-standardized coefficients B	T	Sig.	VIF	Model R <sup>2</sup>	Durbin Watson	Model Sig.
(Constant)	0.578	2.382	0.019*				
Treasury Stock	-0.044	-2.887	0.005*	1.099			
Payment of Dividends	0.035	1.770	0.079**	1.082	0.194	1.660	0.000*
Accounting Leverage	-0.007	-3.573	0.001*	1.052			
Family Business	0.009	0.059	0.953	1.066			

**Note.** \* significance at 5%

\*\* significance at 10%

Source: Research Data.

As observed in Table 4, treasury stocks, payment of dividends, financial leverage and family business represent 19.40% of total earnings management variability (Discretionary Accruals). According to the theoretical basis, variables may represent the managers' overconfident behavior. Therefore, a possible influence of CEO's overconfidence is demonstrated on the earnings management level.

The regression model presented significance at 5%, with p-value of 0.000. It is possible to prove that managers' overconfidence represent 19.40% of the variability of Discretionary Accruals, measured by the individual variables of treasury stocks, payment of dividends, financial leverage and family business.

The coefficients of the regression model demonstrate that the higher volume of treasury stocks negatively influences the earnings management opportunistic practice to increase profits, at a significance level of 5% (0.005). The finding is not consistent with the literature, which provides that the higher the volume of treasury stocks, the greater the overconfidence, and, consequently, the higher the level of earnings management to increase profits, rejecting H1d.

As regards the payment of dividends, the literature provides that lower volume of payment of dividends represents greater overconfidence by managers. In this sense, the result found indicated the opposite: higher payment of dividends (less overconfident managers) influences higher level of earnings management to increase profits, at a significance level of 10%, contrary to H1b.

Moreover, the literature provides that higher financial leverage is the characteristic that establishes higher overconfidence of managers and, therefore, the findings show that lower leverage (less overconfident managers) positively influences the level of earnings management to increase the profits, contrary to H1c.

Finally, the results indicate that the family business presents no impact significance at earnings management level, thus not allowing to influence H1a. The findings contradict previous hypotheses. However, they demonstrate important evidence that less overconfident CEOs tend to earnings management opportunistic practices to increase profits. The contradiction in the hypotheses may have occurred because the theoretical basis is from countries with well-developed equity markets and strong auditing and corporate governance legislation, like countries where companies are monitored under the Sarbanes-Orley Law. Table 5 summarizes the assumptions of the sub-hypothesis and their findings.

Table 5

**Research results related to the construction of the sub-hypotheses**

Results of the overconfidence variables	Results according to overconfidence attributes	Results with dependent variable
- Treasury stocks	- Overconfidence	+ Earnings management
+ Payment of Dividends	- Overconfidence	+ Earnings management
- Accounting Leverage	- Overconfidence	+ Earnings management

**Note.** Source: Prepared by the Authors.

Table 5 shows that the results contradict those indicated by literature. These results suggest that lower overconfidence – measured by the attributes of lower volume of treasury stocks, higher volume of payment of dividends and lower financial leverage – influence the earnings management opportunistic practice to increase profits. It should be observed that interest rates and credit policies of the Brazilian market may have interfered to the findings, regarding factors related to leverage and dividends. As to the volume of treasury stocks and family companies, the results may have been influenced by the equity culture, as well as by the large proportion of family businesses that make up the Brazilian market.

The factors hereof are strongly contrary to those found in the U.S. and Taiwan markets, thus bringing complementary results for researches in markets with characteristics similar to those of the Brazilian context. Table 6 evidences the regression model using the overconfidence ranking and the inclusion of control variables in the impact on the Discretionary Accruals.

Table 6

**Coefficients of the regression model using the overconfidence ranking**

Model	Non-standardized coefficients B	T	Sig.	VIF	Model R <sup>2</sup>	Durbin Watson	Model Sig.
(Constant)	1.290	1.728	0.087**				
Overconfidence	-2.610	-3.963	0.000*	1.286			
ROA	-2.012	-1.405	0.163	2.673			
ROE	0.286	0.635	0.527	2.690	0.417	1.664	0.000*
ST Ind.	-4.056	-7.734	0.000*	1.086			
LT Ind.	-0.189	-0.390	0.697	1.353			
Size	0.068	0.611	0.542	1.252			

**Note.** \* significance at 5%

\*\* significance at 10%

Source: Research Data.

Table 6 shows that the overconfidence ranking and the control variables represent 41.70% of the total variation of earnings management. Thus, the evidence from preliminary analysis, stating that overconfidence influences the earnings management, is confirmed. In addition, the regression model showed significance at 5%. They show that overconfidence and control variables can explain the earnings management practice in the organizations studied.

The results corroborate the evidences presented in Table 1 (first model) that the confidence ranking negatively influenced the earnings management. It can be confirmed that the lower overconfidence by managers influences the earnings management opportunistic practice to increase profit. The results confirm the evidences of Schrand & Zechman (2012) on the possible influence of overconfident managers on earnings management. On the other hand, the results contradict the evidences of Hribar & Yang (2015) Li & Hung (2013) and Hsieh et al. (2014) supporting that the higher overconfidence by managers influence the earnings management opportunistic practice to increase profits.

The divergence to previous studies may result from the manager's insecurity towards the Brazilian stock market, considering that the related researches were conducted in developed countries, with solid stock market reliable to investors. Managers with lower overconfidence would tend to earnings management opportunistic practices given the insecurity in presenting financial results that do not meet the expectations of market analysts, shareholders and investors. Unsatisfactory results could cause organizational instability and damages to the

reputation of managers, causing those with lower overconfidence to take advantage of discretionary accounting choices.

The contradiction in the hypotheses has contributed to the literature, since it demonstrates contrary effects of the overconfidence on the quality of accounting information in the emerging market, with less developed capital market and lower effectiveness of corporate governance mechanisms.

Furthermore, as regards the control variables, it was possible to conclude that lower short-term indebtedness leads to higher earnings management practice through accounting choices, contradicting the evidence of Labelle (1990), Malmquist (1990) and Balsam et al. (1995) that higher levels of indebtedness would be associated with opportunistic accounting choices to increase profits.

Finally, the findings indicate that the return on assets and return on equity do not impact on the level of earnings management. Such evidence is not in line with the stated by Balsam et al. (1995) and Doyle et al. (2007) that the low organizational performance may serve as an incentive to earnings management opportunistic practices. Finally, the long-term indebtedness and organizations opportunistic practices pose no influence on the earnings management opportunistic practices.

## 5 CONCLUSIONS

The objective of the study was to identify the influence of overconfident managers on earnings management in Brazilian companies. Initially, companies with treasury stocks were found to present lower earnings management, which allows to conclude that lower overconfidence, characterized by lower values in treasury stocks, influences the higher level of earnings management.

Similar conclusions can be obtained regarding the higher payment of dividends (characterized by the literature as managers with lower overconfidence), which presented positive impact on earnings management. Thus, the higher remuneration by dividend is positively related to earnings management, evidencing that companies with less confident managers, who distribute results instead of leaving them in the organization, present earnings management opportunistic practices.

The findings suggest that the family business is not related to the level of earnings management. In this sense, conclusions about overconfident managers cannot be inferred. And, finally, lower financial leverage presented positive influence on earnings management, suggesting that lower overconfidence has a positive effect on this management. In general, the variables determined by the literature to measure the overconfidence are found to influence the earnings management opportunistic practice, although the results were controversial to those pointed out in the literature (Malmendier & Tate, 2008; Jin & Kothari, 2008, Hribar & Yang, 2015, Li & Hung, 2013, Hsieh et al., 2014, Banerjee et al., 2014).

The consistency for the findings was obtained from the overconfidence ranking, where the results corroborate that lower overconfidence influences the increase of earnings management opportunistic practices to increase the profits. It is reasonable to argue that the differences found can be based on the characteristics of the Brazilian financial market, presenting different levels on the volume of treasury stocks, the financial leverage, the payment of dividends and the percentage of companies with family control.

The inconsistent result found in the Brazilian context, compared to the international findings, can be explained by the fact that less confident managers may make use of earnings management to demonstrate a financial result that boosts their reputation within the capital market and the organization itself. Additionally, less confident managers assume their skills are poorer than those of competitors and, therefore, manipulate earnings management to meet expectations that have been prospected, thus satisfying their self-esteem. This fact corroborates the study by Lin et al. (2005), defending that individuals' behavioral aspects may help to explain their financial choices.

The studies conducted by Malmendier & Tate (2008), Jin & Kothari (2008), Hribar & Yang (2015), Li & Hung (2013), Hsieh *et al.* (2014) and Banerjee *et al.* (2014), with US managers,

suggest that higher overconfidence leads to higher earnings management. In this sense, US companies are monitored under *Sarbanes-Oxley Law*, which may be preventing less confident managers from carry out the earnings management out of fear to be caught. On the other hand, overconfident managers would not be intimidated by stricter monitoring mechanisms and would act according to their interests. The factors provided hereunder may offer arguments for the divergent results found in the Brazilian context, with cultural, personal and macro-economical factors proving to be very specific in each country, also impacting the behavior of individuals.

Finally, the individual psychology may affect the opportunistic accounting choices (Hribar & Yang, 2015), and contribute to a better integration between behavioral aspects of managers (CEOs) and earnings management opportunistic practices to increase profit. The findings further demonstrate that analysts, investors and other *stakeholders* must observe the behavior of corporate agents when evaluating the results reported by firms, also considering the characteristics of the stock market, the auditing, the corporate governance and, specially, the cultural aspects for investment in the capital market.

Future researches that apply a questionnaire capable to identify the overconfidence of managers, directors and officers of organizations are recommended. Additionally, a list of researches considering the overconfidence from other perspectives (premises) of accounting information quality (conservativeness, timing, relevance value, persistence, among others) is rather important. Finally, additional variables can be used to express CEOs' overconfidence, such as age, schooling, and time of office.

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