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Robbing Peter to Pay Paul: Earnings management practices in Brazilian SOEs

ABSTRACT

Objective: The accounting information can be manipulated in order to change the perception of the minority shareholders about the real situation of the firm. In case of state-owned enterprises (SOEs), they can have their wealth expropriated by the politicians and bureaucrats' opportunistic behavior, which is an incentive to the earnings management (EM) practice. This study aims to analyze the state ownership effects on EM in Brazil, and investigate the link between EM, and ownership and control structures.

Method: Data from 2006–2015, for 250 non-financial Brazilian firms, of which 26 are SOEs. The analyses are based on multiple regression methods with panel data.

Originality/Relevance: This study innovates by including in this analysis the interaction of state control with the excess of control rights over the ownership rights of the largest shareholders, and analyze the entrenchment effect. Additionally, addresses the EM both in terms of direction and breadth.

Results: SOEs tend to take on income-increasing practices, which persisted even after the adoption of International Financial Reporting Standards (IFRS). However, the IFRS adoption led to a reduction in the level of EM, in special the positive trend. Yet, the firms' market value and size are significant for explaining EM.

Theoretical/Methodological contributions: this study helps to understand the behavior of Brazilian SOEs, while reveals the SOE's political influence can induce greater information asymmetry and the control is more concentrated in there, which supposedly raises the risks of minority shareholders' expropriation. These results suggest the need for improvements in the transparency of these companies.

Keywords: State-owned enterprises, earnings management, ownership and control structure, IFRS.

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1 INTRODUCTION

Ownership and control concentration is positively related to company value, by reason of allows majority investors (majors) to better control the managers (Jensen & Meckling, 1976). Unlike this, the authors suggest that majors can benefit from their power to expropriate wealth from minority shareholders (minors), reproducing an entrenchment effect mainly when control rights exceed cash flow rights (Shleifer & Vishny, 1997). In this perspective, majors can incur in earnings management (EM) to distort the perception of minors expropriation risk.

EM occurs when managers exercise discretion in the financial statements, with the intent either to induce stakeholders to errors regarding the true company's financial performance or to influence transactions that depend on accounting numbers (Healy & Wahlen, 1999).

Legal protection depress the opportunity to majors expropriate the minors, reducing the incentives for EM practices as well (Leuz et al., 2003). Despite of that, the Brazilian stock market offers weak legal shareholder protection (Aldrighi & Mazzer Neto, 2005; Fernandes & Novaes, 2017) and concentrates ownership and control rights in the hands of a few shareholders, besides the excess of control rights in relation to cash flow rights handled by the majors (Aldrighi & Mazzer Neto, 2005).

Regarding the identity of the controlling shareholder in state-owned enterprises (SOEs), the majors' ownership rights are held by the Public Treasury while the management of these companies is influenced by politicians, who can use the companies to obtain benefits for themselves and their partners (Shleifer & Vishny, 1994).

Consequently, political influence can negatively affect profitability and efficiency of SOEs (Lazzarini & Musacchio, 2015) and lead to the devaluation of companies (Eckel & Vermaelen, 1986). These companies, in turn, would have incentives to EM practices to distort outsiders perception of negative effects on performance due to the governments opportunistic behavior.

Considering this, we aim to answer the following question: What is the behavior of Earnings Management in SOEs?

Some points relating to EM in Brazilian SOEs motivated this research. First, the Brazilian market is characterized by issues associated with the minors' expropriation risk, such as weak minors legal protection, issuance of two classes of shares (common and preferred), and ownership and control rights concentrated in the hands of a few shareholders. Second, the corruption events involving Brazilian politicians and the biggest national oil firm – Petrobras – is a real example of expropriation practiced by politicians, evidencing the weakness of corporate governance in the Brazilian SOEs.

Few works have examined the effects of state ownership on EM (Capalbo, Frino, Mollica, & Palumbo, 2014; Ding, Zhang, & Zhang, 2007; Lassoued, Ben Rejeb Attia, & Sassi, 2017; Liu, Saidi, & Bazaz, 2014; Poli, 2015; Wang & Yung, 2011), and most of them are directed to the Chinese market. Moreover, their results are debatable, since Lassoued et al. (2017), Liu et al. (2014), and Poli (2015) suggest SOEs manage earnings more than private entities, and Capalbo et al. (2014), Ding et al. (2007), and Wang & Yung (2011) advocate SOEs do manage earnings on a lower level instead.

This is the first Brazilian study that analyzes the effects of state ownership on EM. We innovate by including the interaction of state control and control rights over the majors' ownership rights, making possible an entrenchment effect analysis. In addition, this study addresses EM in both, direction and breadth either.

The remainder of the article is structured as follows. Next sections show related literature, and hypotheses (2), methodology (3), results (4), discussions (5) and conclusions (6).

2 LITERATURE REVIEW

2.1 Earnings management in SOEs

In this work, Martinez's (2008) perspective was adopted to define earnings management (EM) measures. Martinez (2008) states that discretionary accruals (DA) are an empirical proxy for detecting EM in firms.

Accruals are the difference between net income and net operating cash flow, that is, accruals are those profit and loss accounts that have entered the profit calculation, but do not imply cash transitions (e.g., depreciation). Accruals do not suggest accounting manipulation, as they often stem from the regular operations of the company. The problem lies in the fact the manager discretionarily increases or decreases these accruals in order to influence profit and change the company's image before its stakeholders. Hence, emerges the concept of discretionary and non-discretionary accruals. The first (discretionary) are artificial and aim to "manipulate" the financial statements. Non-discretionary occur naturally, according to the reality of the company's business. Positive DA indicates that the earnings were manipulated to be improved (income increasing), while negative DA indicate that the earnings were manipulated to become worse (income decreasing).

In state-owned enterprises (SOEs) the Public Treasury holds ownership rights, but control is influenced by politicians, who can benefit themselves (Shleifer & Vishny, 1994). Musacchio, Lazzarini, & Aguilera (2015) report the frequent participation of ruling political coalition in senior managing SOE positions, providing better bargain opportunities themselves. Such members aim often to achieve goals which do not prevail social welfare, but rather than self-interest, including bribes or kickbacks (Shleifer & Vishny, 1997) and contributor companies with political connections, both through contractual preferences and credit concession at a lower cost (Shleifer, 1998). Thus, environment and reality in which they operate, as SOEs would impact their EM level.

In order to obtain empirical studies on EM in companies whose the state is the main shareholder, we found Ding et al. (2007), Liu et al. (2014), and Wang & Yung (2011) in the Chinese market, presenting mostly ambiguous results; Capalbo et al. (2014) and Poli (2015) in the Italian market, and Lassoued et al. (2017) covering countries in the Middle East and North Africa.

Ding et al. (2007) studied the effects of state ownership on EM in a sample of 273 SOEs and non-SOEs in China. The results indicated the SOEs presented greater intensity in the relationship between the concentration of ownership and control and EM, indicating that the entrenchment effect tends to be stronger in these companies. In addition, they identified an inverted U-shape relationship between EM and concentration of ownership and control, since EM was positively related to the ownership concentration when the major owns up to 60% ownership interest and negatively related to ownership concentration when the major holds more than 60% ownership interest. Moreover, the private control companies are more inclined to practice income increasing, indicating that these companies suffer more pressure from the market to present better financial performance.

Having as purpose to analyze the effects of state ownership on EM, Wang & Yung (2011) analyzed a sample composed of 557 listed companies in China from 1998 to 2006. The EM metrics adopted by the study were the absolute discretionary accruals, calculated

according to the Jones model (1991), and the quality of the accruals. The results indicated lower levels of EM in SOEs than non-SOEs. According to the authors, SOE managers suffer less market pressure, having less incentive to manage earnings.

Liu et al. (2014) analyzed the influence of state ownership and institutional incentives on the quality of reported results. The study covered a period in which the country was in economic transition (1998–2005), revealing that Chinese SOEs showed lower quality earnings, higher levels of current DA and earnings smoothness, higher frequency of earnings managed to meet market expectations, less frequency of timely recognition of losses and less value relevance.

In an Italian context, Capalbo et al. (2014) expanded the analysis of state influence on EM. The authors analyzed a sample composed of 5,349 non-listed Italian companies aiming to analyze whether the SOEs do EM in a greater proportion than the private companies and under what conditions this behavior is more likely to occur. The results did not evidence state ownership enhances EM practices.

On the other hand, Poli (2015) examined whether and how the ownership structure affects the propensity to earnings discretionary reduction and EM to reduce the earnings smoothing. The study included a sample of 13,724 non-listed firms that operated in Italy between 2012 and 2013. The author identified EM is less recurrent in companies where institutional and foreign investors are proprietors while state ownership increases the propensity for EM practices, unlike Capalbo et al. (2014).

Lassoued et al. (2017) investigated the effects of ownership structure on EM in emerging market banks. The study covered a sample of 134 banks from 12 countries in the Middle East and North Africa. The results showed that the banks with the highest ownership concentration used the discretion in the provisions for losses with loans to incur in EM. The results also indicated state and institutional ownership encouraged EM.

2.2 Research hypotheses

In the light of underlined literature about EM in SOEs, we introduce the hypotheses to be tested along with theoretical framework.

Considering that politicians can use SOEs to benefit their own interests and their allies (Shleifer & Vishny, 1997; Shleifer, 1998), minors of these companies are expected to be more susceptible to expropriation caused by government representatives.

Moreover, given that political influence on SOEs can negatively affect corporate profitability (Lazzarini & Musacchio, 2015) and that the earnings reported are pieces of information used by outsiders to assess corporate performance, SOEs are expected to encourage the practice of EM to manipulate the market perceptions of possible negative effects on performance as a result of political interference in these companies. From this idea, we drafted the following hypothesis:

H1: State-controlled companies have higher levels of DA than privately held companies.

Regarding the direction towards which the earnings are manipulated, some aspects support the hypothesis that SOEs companies seek to improve market expectations by increasing earnings discretion (Shleifer & Vishny, 1997; Shleifer, 1998). Secondly, these companies may have their resources misappropriate in favor of projects without financial or social returns, but benefit politicians and their allies (Shleifer, 1998) instead. All these factors may negatively reflect on the SOEs' profitability (Lazzarini & Musacchio, 2015).

Our research covers a period in which the government actively interfered in the SOEs

management. Petrobras case is an example: the company would have sold oil for a price below the import cost due to a government decision. Later, Banco do Brasil comes up, which have been forced to raise credit of low interest rate (Fernandes & Novaes, 2017). We can also highlight the corruption scandal involving Petrobras, which brought to light schemes where contractors benefited from overpriced contracts and, in return, giving bribes to public agents.

Such episodes may have contributed to the drop of 50% of the market value of Brazilian SOEs between January 2011 and May 2016, corresponding to a devaluation of BRL 279,6 billions against an increase of almost 2% of non-SOEs (BRL 35,1 billions) in the same time range. Considering such statements, state-controlled companies would be encouraged to increase earnings discretion to improve market expectations. Based on that logic, we set up hypothesis H2:

H2: State-controlled companies tend to practice a discretionary increase of earnings.

It is noteworthy that, for the purposes of the present study, we elaborated H2 hypothesis thinking specifically in the context of the state and also in the period from 2006 to 2015. This study assumes that, in this period, SOEs involved in the scandals tended to seek a management of results to increase their results, given that they were experiencing momentary falls in their market value. The Hypothesis H2 is, therefore, transitory, that is, valid for the period that the state were living, due to the recent scandals in Brazil. According to Dechow, Richardson and Tuna (2003), an indefinite persistence of discretionary gains cannot be assumed, because the discretionary component of accruals is theoretically transitory.

3 DATA AND METHOD

The period of study (2006–2015) covers political and economic factors that may influence EM, such as the global financial crises (Filip & Raffournier, 2014; Flores, Weffort, Silva, & Carvalho, 2016; Persakis & Iatridis, 2016) and corruption scandals involving political agents in Brazilian SOEs.

The initial sample had 339 firms. Observations that had no data for any variable were excluded. The final sample consisted of 250 non-financial companies listed on the Brazilian Stock Exchange (B3) in 2016. We collected the variables from the Economática™ database and analyzed by multiple regression methods with panel data and non-parametric tests.

3.1 Variables

3.1.1 Dependent Variable: Discretionary Accruals

Although widely used in the literature to estimate DA, Jones' model (1991) can lead to misclassification, due to some conditions such as the absence of controlling variables for the changes in expenses and the simultaneity bias since the dependent and independent variables are jointly determined by the accounting principles and standards (Kang & Sivaramakrishnan, 1995; 1999). The most appropriate alternative to avoid such issues is the Kang & Sivaramakrishnan (1995) model, or KS model (Martinez, 2008), which reduces the omitted variables problem.

Besides, KS model mitigates the simultaneity problem through the use of instrumental variables (Martinez, 2008; Thomas & Zhang, 2000). Then, the present study adopted DA as a proxy for EM, evaluating from KS model, which had already been used in other studies in a Brazilian context (Cunha & Piccoli, 2017; Martinez, 2008)

Therefore, we adopted the discretionary accruals as EM proxy, calculated by KS model, which is given by Equation 1 as follows:

$$TA_{i,t} = \varphi_0 + \varphi_1[\delta_1 Rev_{i,t}] + \varphi_2[\delta_2 Exp_{i,t}] + \varphi_3[\delta_3 Perm.A_{i,t}] + \varepsilon_{i,t} \quad (1)$$

where:

$$TA_{i,t} = (\Delta NWC - \text{Depreciation \& Amortization}_{i,t}) / \text{Total assets}_{i,t-1}$$

$$\delta_1 = RA_{i,t-1} / Rev_{i,t-1}$$

$$\delta_2 = (NWC - RA_{i,t-1}) / Exp_{i,t-1}$$

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

$TA_{i,t}$ = total accruals for company i in year t ; Rev is the net revenue (excluding taxation); Exp means Operating Costs and Expenses before Depreciation and Amortization; NWC is Net Working Capital, excluding cash and cash equivalents, short-term financing and provision for payable taxes; $Perm.A$ is Permanent assets (Fixed assets + Deferred charges + Intangible assets + Investments); RA means Receivable accounts; $Deprec$ is Depreciation expenses; Net , Exp , and $Perm.A$ were scaled in terms of total assets of the previous year.

Parameters δ_1 , δ_2 , and δ_3 represent the turnover indicators that control the specific characteristics of the companies (Kang & Sivaramakrishnan, 1999), adopted as instrumental variables.

Discretionary accruals correspond to standard errors ($\varepsilon_{i,t}$) of Equation (1), given by the difference between the total accruals obtained and the total accruals estimated, as in Equation 2:

$$DA_{i,t} = TA_{i,t} - (\varphi_0 + \varphi_1[\delta_1 Rev_{i,t}] + \varphi_2[\delta_2 Exp_{i,t}] + \varphi_3[\delta_3 Perm.A_{i,t}]) \quad (2)$$

where: $DA_{i,t}$ = company's discretionary accruals in year t .

Some studies have adopted the absolute value of DA as proxy to analyze the amplitude of EM (Jiang, Zhu, & Huang, 2013), while others analyzed the direction towards which the earnings were managed (Cunha & Piccoli, 2017), distinguishing DA between positive (income increasing) and negative (income decreasing). Our study conducts a broader analysis, encompassing EM analysis both in terms of breadth and direction.

3.1.2 Independents variables

(a) State control

We considered SOEs as those enterprises in which the government directly detained more than 50% of the voting capital or, indirectly, through the National Economic and Social Development Bank (BNDES) and closed-end pension funds for employees of SOEs (FUNCEF, PETROS, PREVI).

Ding et al. (2007) adopted a dummy variable to represent the control type. Following them, the state control is a dummy variable, which assumes value one for SOEs and zero otherwise.

(b) Ownership and control rights

According to Shleifer & Vishny (1997), majors may try to take advantage of the control power in return of benefits at the minors expenses, which tends to arise in environments with weak legal protection for minors (Claessens, Djankov, Fan, & Lang, 2002).

In turn, Jensen & Meckling (1976) pointed out that, as the ownership rights (cash

flow) of the largest shareholder lessen in relation to their control rights, the rights of this shareholder over the earnings also decrease, encouraging this one to use their control power to extract more benefits from the company. In this context, Claessens et al. (2002) suggest that the cash flow rights of the largest shareholder reduce incentives for minors' expropriation.

Considering these statements, we can expect that the higher the concentration of control rights held by the three largest shareholders, the higher the tendency of companies to adopt EM. Likewise, the greater the excess control rights in relation to the ownership rights of the three largest shareholders, the greater the tendency of minors to be expropriated by majors, the greater the tendency of EM practices.

Considering that, we also examined the influence of state ownership on EM, similar to Poli (2015) and Ding et al. (2007). Considering two types of shares in Brazil, the ownership rights of the largest shareholders and the surplus control rights over the ownership rights were analyzed.

We included variables representing the voting capital proportion (control rights) and the excess control rights in relation to the ownership rights (cash flow) of the three largest shareholders in the model.

Ding et al. (2007) combined the ownership rights of the largest shareholder with state or private ownership type to test the entrenchment effect according to the type of control. As we identified autocorrelation problems of the econometric models by combining the control rights with the control type dummy, we chose to test the entrenchment effect in the SOEs, replacing the control rights to their surplus over the ownership rights, thus eliminating the autocorrelation problem. We consider this as the main innovation in the work.

We also tested the entrenchment effect proposed by Claessens et al. (2002) specifically in SOEs, by including, the interaction between dummy variable of state control and the excess of control rights over ownership rights of the three largest shareholders.

(c) Financial Crisis

When analyzing a sample composed of companies from different countries, Persakis & Iatridis (2016) identified a reduction in the quality of earnings reported during the global crisis of 2008. According to the authors, managers are influenced to produce financial information that portrays a positive situation of companies to avoid the risks of bankruptcy during the crisis.

The relationship between crisis and EM is then tested by assigned two values to a dummy variable: one for the crisis years and zero for the other years. We considered 2008 and 2009 for the global crisis (Filip & Raffournier, 2014), and, 2014-2015 for the domestic crisis.

(d) Debt

There are two approaches on the relation between debt and EM. One supports that debt would serve as an incentive for creditors to monitor companies, reducing the opportunities for managers to practice EM (Ghazali, Shafie, & Sanusi, 2015). On the other hand, the other approach argues that managers would be encouraged to manipulate earnings in order to avoid breach of contract and loan clauses (Charitou, Lambertides, & Trigeorgis, 2007). We adopted a variable represented by the liabilities over total assets.

(e) Size

Previous studies on the influence of state ownership on EM, like Capalbo et al. (2014) and Lassoued et al. (2017) have generally adopted a proxy to the firm size. The scrutiny of several market analysts and institutional investors in relation to large corporations represses managers discretionary behavior, hindering their EM practices (Gu, Lee, & Rosett, 2005;

Hochberg, 2012).

Hence, we expect a negative relationship between EM and company size. We added the natural logarithm of the total assets as a proxy for companies' size.

(f) Growth opportunity

Managers of companies with growth opportunities can manipulate earnings to create expectations of future ownership rights for shareholders and potential investors, leading to the appreciation of companies by the market (Hochberg, 2012).

Probably, firms with growth expectations tend to practice EM. This relationship is investigated using market-to-book as a variable in the model.

(g) B3 governance levels

Considering that companies listed in the differentiated levels of corporate governance (Level 1, Level 2 and New Market) of B3 follow more rigorous standards of transparency, such companies are expected to be more transparent and, therefore, less likely to manage their earnings. We included a dummy variable in the model that assumes zero for Level 1 companies and one otherwise.

(h) International Financial Reporting Standards (IFRS)

Prior to the full convergence to the international accounting standards in 2010, Brazilian accounting was heavily influenced by tax legislation, meeting the needs of the tax authorities to the detriment of other users of accounting information. The full adoption of IFRS mitigated this problem, since the Accounting Pronouncements Committee dissociated corporate accounting from tax accounting and generated quality accounting information for creditors and corporate investors (Silva & Nardi, 2017).

In accordance with Pelucio-Grecco, Geron, Grecco, & Lima (2014), the dummy variable was included in the model, which assumes zero for the years 2006 to 2009 and one for 2010 to 2015, because this period covers the IFRS implementation in Brazil.

(i) Sector

Sectorial regulation and the nature of its activities can influence the accruals of companies (Poli, 2015). We included another dummy variable for sector in the model, according to the B3 sector classification.

3.2 Econometric models

Three regression models estimated, alternating the dependent variables as follows: (1) positive DA - income increasing practice; (2) negative DA - income decreasing practice; (3) the modulus of DA representing the extent or breadth of EM.

We tested H1 using the model whose dependent variable is the modulus of DA, which can be confirmed by the coefficient of the CEST (state control). In turn, H2 is tested by $DA > 0$. Equation 3 presents the econometric models used in this study:

$$DA = \beta_0 + \beta_1 CEST_{i,t} + \beta_2 IFRS_{i,t} + \beta_3 DIF_{i,t} + \beta_4 (DIF_{i,t} \times CEST_{i,t}) + \beta_5 MTB_{i,t} + \beta_6 LEV_{i,t} + \beta_7 CRISIS_{i,t} + \beta_8 DICON_{i,t} + \beta_9 SIZE_{i,t} + \beta_{10} CGL_{i,t} + \beta_{11} SECTOR_{i,t} \quad (3)$$

where DA is the discretionary accruals for company i in year t; CEST is the state control dummy; DIF means the difference between the control rights and ownership rights of the three largest shareholders; MTB is the Market-to-Book; LEV represents the debt; CRISIS =

crisis period; DICON – sum of the control rights from the three largest shareholders; SIZE – natural logarithm of the total assets; CGL is the listing at one of the differentiated levels of corporate governance; SECTOR – industry classification; and, IFRS – adoption of international accounting standards.

4 EMPIRICAL RESULTS

Table 1 shows the results of the multivariate regression by two-stage least squares method according to the KS model.

Table 1
KS model regression outputs for DA following equation 1.

TA	Coef.	Robust SE	T	P > t	[95% Conf. Interval]	
δ_1 Rev	-0.001	0.003	-0.17	0.868	-0.007	0.006
δ_2 Exp	-0.332***	0.051	-6.52	0.000	-0.432	-0.232
δ_3 Perm.A	-0.506**	0.199	-2.55	0.011	-0.896	-0.117
Cons	-0.008	0.007	-1.10	0.270	-0.021	0.006

Number of observations = 2061

R² = 0.1407

R² Adjusted = 0.139

F = 14.74

Prob > F = 0.0000

Where: $TA_{i,t} = (\Delta NWC - Depreciation \& Amortization_{i,t}) / Total Assets_{i,t-1}$; $\delta_1 = RA_{i,t-1} / Rev_{i,t-1}$; $\delta_2 = (NWC - RA_{i,t-1}) / Exp_{i,t-1}$; $\delta_3 = Deprec_{i,t-1} / Perm.A_{i,t-1}$; $TA_{i,t}$ = total accruals for company *i* in year *t*; Rev is the net revenue (excluding taxation); Exp means Operating Costs and Expenses before Depreciation and Amortization; NWC is Net Working Capital, excluding cash and cash equivalents, short-term financing and provision for payable taxes; Perm.A is Permanent assets (Fixed assets + Deferred charges + Intangible assets + Investments); RA means Receivable accounts; Deprec is Depreciation expenses; Net, Exp, and Perm.A were scaled in terms of total assets of the previous year.

Notes: (i) The Hausman Test rejected the null hypothesis of random effects (Prob > chi2 = 0.000). The Chow test verified the most appropriate model (fixed effects or pooled). (ii) The pooled model chosen (Prob > F = 0.6669). Heteroscedasticity and autocorrelation problems treated by White robust estimators. (iii) Significance levels: 1% (***), 5% (**), 10% (*).

Regarding state control, we identified 26 non-financial corporations controlled by Federal, District, State and Municipal governments, pension funds of state-owned enterprises (PREVI, PETROS and FUNCEF) and the BNDES.

In the cases of the companies Lupatech, Tupy, and Invepar, the federal state-controlled them through more than one state entity, and the sum of the voting rights of two or more of them was higher than 50% of the voting capital, giving the Federal indirect control of these companies.

In order to reduce outlier effects, we winsorized continuous variables with parsimony by checking the boxplot one by one and thus applying the required level in each case. In short, we adjusted the following variables (levels in parenthesis): Discretionary Accruals (6%), Market-to-Book (10.5%), Leverage (3.4%), and Size (6%). When analyzing the results of the descriptive statistics, Table 2 shows that SOEs provided a higher average of positive accruals, while non-state-controlled companies presented a higher average of negative accruals. Regarding the extent of EM practices, the descriptive statistics indicated there was no difference between state-owned and private companies.

Table 2
Descriptive statistics divided in two groups: SOEs and non-SOEs.

Variable	State control (SOEs)					Private control				
	Obs	Mean	Std. Dev	Min.	Max.	Obs	Mean	Std. Dev	Min.	Max.
DA>0	65	0.04	0.03	1.10E-06	0.07	495	0.03	0.03	1.50E-04	0.07
DA<0	99	-0.02	0.02	-0.09	-8.4E-05	1220	-0.04	0.03	-0.09	-4.5E-04
DA	164	0.03	0.02	1.10E-06	0.09	1715	0.03	0.03	1.50E-04	0.09
MTB	205	1.34	1.29	0.14	4.88	2449	1.95	1.40	0.014	4.88
LEV	231	0.13	0.16	0	0.79	2480	0.2	0.21	0	0.79
SIZE	231	14.99	1.65	9.16	16.81	2480	13.7	2.2	8.31	16.81
DICON	207	85.01	15.78	50.26	100	2484	72.54	23.16	0.14	100
DIF	233	6.88	8.08	0	18.52	2486	5.48	7.9	0	18.52

DA>0 represents income increasing practice; DA<0 represents the income decreasing practice; |DA| represents the EM extension; MTB represents Market-to-Book; LEV stands for debt; SIZE is the firm's size; DICON represents the control rights held by the three largest shareholders; DIF represents the difference between the right of control and the property right held by the three largest shareholders.

SOEs had an average market value of 34% higher than the book value, while private companies had an average market value of 95% higher than the book value. This result indicates that SOEs are less valued by investors, supporting the idea that state ownership has a negative effect on firm value (Eckel & Vermaelen, 1986; Wang & Yung, 2011).

On average, the three largest shareholders had 85% of the voting capital of SOEs while 72.54% in non-SOEs. These results corroborate the control concentration in the Brazilian market (Aldrighi & Mazzer Neto, 2005). These numbers also reveal a greater ownership concentration in companies controlled by the government.

In addition, SOEs presented, on average, 6.88% excess control right over ownership right of the three largest shareholders, a result greater than the one observed in private companies.

In order to test the differences of the variables DA, DICON and DIF between SOEs and non-SOEs, we applied the Shapiro-Wilk (SW) test to verify if these variables follow a normal distribution. The results in the Table 3 rejected the normality hypothesis of the variables DA, DICON and DIF, so we compared these variables in SOEs and non-SOEs through the nonparametric Wilcoxon-Mann-Whitney test.

Table 3
Shapiro-Wilk normality test results.

Variable	Obs.	W	V	Z	P > z
DA>0	640	0.893 _{SEP}	44.973	9.248	0.000
DA<0	1421	0.920	69.261	10.642	0.000
DA	2061	0.915	103.889	11.825	0.000
DICON	2692	0.929	110.087	12.087	0.000
DIF	3385	0.903	185.391	13.532	0.000

DA>0 represents income increasing practice; DA<0 represents the income decreasing practice; |DA| represents the EM extension; MTB represents Market-to-Book; LEV stands for debt; SIZE is the firm's size; DICON is the control rights held by the three largest shareholders; DIF represents the difference between the right of control and the property right held by the three largest shareholders.

Table 4 presents the Wilcoxon-Mann-Whitney test results. Regarding negative accruals, the results rejected the hypothesis of equal medians between SOEs and non-SOEs, suggesting that non-SOEs were more inclined to manage earnings in a way that would worsen

them.

Table 4
Wilcoxon-Mann-Whitney test results.

Variable/group	CEST=0	CEST=1	Z	Prob > z/
DA<0				
Obs.	1220	99		
Median	-0.03	-0.014	5.304	0.000
DA>0				
Obs.	495	65		
Median	0.021	0.03	-2.282	0.023
DA				
Obs.	1715	164		
Median	0.027	0.021	2.901	0.004
DICON				
Obs.	2484	207		
Median	75.266	89.881	-6.995	0
DIF				
Obs.	2486	233		
Median	0	0.701	-3.426	0.001

Notes: (i) DA>0 represents income increasing practice; DA<0 represents the income decreasing practice; |DA| represents the EM extension; DICON represents the control rights held by the three largest shareholders; DIF represents the difference between the right of control and the property right held by the three largest shareholders.; (ii) the test was performed considering the negative discretionary accruals flagged. Significance levels: 1% (***), 5% (**), 10% (*)

Positive accruals showed a statistically higher median in SOEs, indicating that these companies managed earnings in order to increase them. The absolute accruals presented greater amplitude in private companies, suggesting that these companies practiced EM to a greater extent.

There was a greater concentration of control in state-owned enterprises, as well as greater excess control rights in relation to the ownership rights held by the three largest shareholders. These results are consistent with the priority given by government representatives to the preservation of the control rights over ownership rights, since the former would give the rulers greater bargaining power (Shleifer & Vishny, 1994).

5 DISCUSSION

In this session, we discuss the results, considering the main regressions. Table 5 shows the results of regressions. The dependent variable of model M1 is the absolute value of the negative discretionary accruals, which represent discretionary reduction of the results. In this model, we identified a negative relationship between income decreasing and company size, indicating that larger companies are less likely to reduce outcomes at their discretion. In the model M1, income decreasing presented a positive relationship with market to book, suggesting that companies with growth expectations tend to discretionarily reduce earnings.

Table 5
Results of the regression models.

Variable	DA < 0 (M1)	DA > 0 (M2)	DA (M3)
CEST	-0.001	0.011*	0.003
IFRS	0.002	-0.006**	-1.77E-04
DIF	-7.09E-05	-9.69E-05	-1.16E-04
DIF*CEST	2.11E-04	-4.24E-04	-2.33E-05
MTB	0.001*	0.002***	0.001**
LEV	0.005	-0.004	0.003
CRISIS	-0.001	0.001	1.74E-04
DICON	-7.09E-05	4.02E-05	-4.75E-05
SIZE	-0.003***	-0.004***	-0.003***
CGL	4.05E-05	0.001	8.17E-05
Classification			
Oil, gas	0.009	0.01	0.01
Basic materials	0.010**	0.003	0.010**
Capital goods	0.002	0.006	0,004
Non-cycl. cons.	0.020***	-0.006	0.017***
Cyclical cons.	0.006	0.009	0.006
Health	0.021**	-0.027***	0.019**
Technology	0.015**	0.014	0.016**
Telecom.	0.006	0.014	0.012*
Public interest	-0.005	0.003	-0.002
_cons	0.068***	0.076***	0.075***
N (obs)	1313	550	1863
N (groups)	225	150	250
R ² = 0.1205			
Wald Chi2 = 70.11			
Prob > Chi2 = 0.0000			
Breusch-Pagan test			
Prob>chi2=	0.000	0.000	0.000
Hausman test			
Prob>chi2=	0.239	0.482	0.783

Notes: (i) DA>0 represents income increasing practice; DA<0 represents the income decreasing practice; |DA| represents the EM extension; CEST is a state-control dummy variable; IFRS is a dummy variable of adoption to IFRS; DIF represents the difference between the right of control and the property right held by the three largest shareholders; MTB represents Market-to-Book; LEV stands for debt; CRISIS is a dummy variable for crisis; DICON represents the control rights held by the three largest shareholders; SIZE represents the firm's size; and CGL is the adoption dummie variable at B3 levels 2 and 3 of corporate governance. (ii) Model M1 adopted the negative DA as dependent variable while model M2 adopted positive DA, and model M3 adopted the absolute value of DA. The VIF test (Variance Inflation Factor) did not find problems of multicollinearity among the independent variables. Breush Pagan and Hausman test indicated that the model of random effects best suited in all regression models. We estimated regressions according to the model of random effects. White robust estimators treated heteroscedasticity and autocorrelation issues. Significance levels: 1% (***), 5% (**), 10% (*).

The dependent variable of model M2 is the positive discretionary accruals (income increasing). In model M2, state control presented a positive relationship with income increasing, suggesting that SOEs have greater opportunities for income-increasing. We could infer based on this result that SOEs differ from non-SOEs in earnings management practices.

Regarding the variable DIF*CEST (the interaction between dummy variable of state control and the excess of control rights over ownership rights of the three largest shareholders), there is no significant contribution. Although SOEs have the effect of intensifying the shareholding concentration (Ding et al., 2007), these results cannot confirm as expected. Hence, H1 (SOEs have higher levels of DA than non-SOEs) was only partially proven, given the positive estimate of the CEST coefficient in model M2.

On the other hand, these results confirm the hypothesis H2, suggesting that SOEs may have performed an income increase practice to improve market expectations. An interesting result can be observed when the accruals signal is disregarded, that is, in the M3 model that consider the accruals module, no statistically significant relation between accruals and the state controller identity was found. However, in the models where $DA > 0$ (income increasing) this link was confirmed, demonstrating the relevance of fragmenting the analysis of accruals (income increasing, income decreasing and absolute accruals). In addition, results evidenced the innovative variable of this work - State Control, presenting a result consistent with the literature (Ding et al., 2007).

Regarding M2, we can note a positive relationship between Market-to-Book and positive accruals, indicating that growth opportunities encourage income-increasing. Reinforcing the assumption that large companies are closely monitored by various institutional investors and market analysts, the results of model M2 point out a negative relationship between company size and positive discretionary accruals, suggesting that larger companies are less prone to increase earnings discretion, which underlines the findings of previous studies (Capalbo et al., 2014; Pelucio-Grecco et al., 2014; Wang & Yung, 2011).

The improvement in the quality of accounting information after the adoption of IFRS is verified in the M2 model. As a result, IFRS adoption reduces opportunities for income increasing practices.

The dependent variable for M3 represents the EM extension. This model identified a positive relationship between EM and company growth expectations, reiterating that companies with growth expectations are more likely to practice EM. The results did not indicate any difference between state-owned and private companies regarding the extent to which the earnings are managed. Moreover, a negative relationship between company size and absolute discretionary accruals was identified. One possible explanation is that larger companies are less prone to perform EM. All models supported the logic that scrutiny by institutional investors and market analysts towards large companies reduced the opportunities for managers to manipulate earnings (Gu et al., 2005; Hochberg, 2012).

None of the models identified a relationship between EM and ownership concentration, and between EM and excess control rights over the ownership rights held by the three largest shareholders. Similar to Moura et al. (2017), the listing of the differentiated corporate governance levels did not seem to affect EM practices.

When testing the entrenchment effect in SOEs, represented in this study by the DIF*CEST variable, a statistically significant relation was not found. Companies with state control (CEST) and, at the same time, with a high control concentration over the ownership concentration (DIF) would tend to expropriate more the minors' rights, and therefore practicing more EM. However, this hypothesis could not be confirmed, contrary to Ding et al. (2007). One possible explanation to this result is the different cultures between China and Brazil, mainly when the SOEs management processes are examined.

Basic Materials, Non-cyclical Consumption and Technology sectors presented similar results, namely: positive and significant relationship with $DA < 0$ and absolute DA either, indicating that firms in these sectors: (a) practice EM for decreasing them; (b) do that in a wider range; (c) technology companies practice more EM than firms of other sectors.

The result obtained for the Health sector was also interesting. First, health companies practice more income decreasing earnings. Second, the negative relationship between income increasing and the fact that it belongs to the health sector reinforces first result. Third, the absolute DA are greater than the absolute DA of firms in other sectors. As the health sector is, for the most part, composed of companies with state control, this result corroborates the central hypothesis of this study.

In sum, our analysis suggests that Brazilian SOEs are more prone to practice EM, in particular the income increasing type, highlighting there is a need to develop strategies in the corporate governance systems of these companies.

6 CONCLUDING REMARKS

This study aimed to analyze the behavior of EM in Brazilian state-owned companies as well as discuss about the relationship between ownership and control structure and EM levels. The search period covered the years from 2006 to 2015, with a sample of 250 companies, out of which 26 had the government as their majority shareholder.

When conducting the descriptive analysis in order to verify possible differences between private companies and SOEs, we verified that: (a) private companies were more inclined to manage earnings in a way that would worsen them; (b) SOEs manage their earnings with the objective of increasing them; (c) there is a greater control concentration in SOEs, as well as greater control over the cash flow rights held by the three largest shareholders, corroborating Shleifer and Vishny (1994).

Nevertheless, the regression analysis generates the following main results: (a) the hypothesis of the firms that have state controller manage the earnings more, and in positive way, that is, they are more prone to do income increasing, which corroborated H2 and at least partially corroborated H1; (b) the IFRS adoption led to a reduction in the level of EM, in special the positive trend; (c) the higher the market value of firms, the higher the EM; (d) larger firms manage their results less; (e) firms from the health sector practice more EM than others, in particular, for diminishing them; (f) basic materials, non-cyclical consumption and technology are companies that practice more EM, and the meaning of such management is negative (income decreasing).

Given the fragile period corporate governance of these companies covered by the study, and considering the corruption scandals involving companies and Brazilian politicians, it's possible that these companies might have incurred in income increasing practices to generate positive expectations to the market. As a contribution, this study indicates that political influence in SOEs can induce the information asymmetry. Among the limitations of this study we can mention the non-inclusion of all companies controlled by the Brazilian government during the period of analysis, since it also participates as a majority shareholder in financial sector companies.

For future studies, the analysis of EM by operational choices in state-owned enterprises could be examined. In addition, since the literature on earnings management and voluntary disclosure is still scattered and inconclusive, another interesting subject of research is the relationship between voluntary disclosure and EM in SOEs.

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Descobrir um Santo para Cobrir Outro: O gerenciamento de resultados em estatais brasileiras

RESUMO

Objetivo: *As informações contábeis podem ser manipuladas para mudar a percepção dos acionistas minoritários sobre a situação real da empresa. No caso de empresas estatais (EE), esses acionistas podem ter sua riqueza expropriada pelo comportamento oportunista de políticos e burocratas, o que é um incentivo à prática de gerenciamento de resultados (GR). Este estudo analisa os efeitos da propriedade estatal sobre o GR no Brasil e a ligação entre GR e estruturas de propriedade e controle.*

Método: *Foram usados dados de 2006 a 2015, em uma amostra de 250 empresas brasileiras, das quais 26 são estatais. A análise é fundamentada em regressão com dados em painel.*

Originalidade/Relevância: *Este estudo inova pela análise da interação entre controle estatal e excesso de direitos de controle sobre os direitos de propriedade dos acionistas majoritários, e, ainda, analisa o efeito entrenchamento. Ademais, aborda o GR tanto em termos de direção quanto de amplitude.*

Resultados: *Os resultados mostram que as EE tendem a adotar práticas de aumento de lucros, que persistiram mesmo após a adoção das IFRS. No entanto, isso reduziu o GR, em especial a tendência positiva. Constata-se, também, que o valor de mercado e o tamanho das empresas são significativos para explicar o GR.*

Contribuições teóricas/metodológicas: *Este estudo contribui para a compreensão do comportamento diferenciado das empresas controladas pelo governo brasileiro. Observa-se que a influência política das EE pode induzir a uma maior assimetria informacional e que o controle acionário é mais concentrado nas EE, o que supostamente eleva os riscos de expropriação dos acionistas minoritários. Tais resultados indicam a necessidade de melhorias quanto à transparência dessas empresas.*

Palavras-chave: *Empresas estatais; Gerenciamento de resultados; Estrutura de propriedade e controle; IFRS.*

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