

## Corporate governance in state-owned companies: effects on performance

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### KEYWORDS

Corporate governance,  
State-owned companies,  
Economic and financial  
performance.

Received 12.02.2021

Reviewed 26.02.2021

Accepted 01.03.2021

ISSN 1980-4431

Double blind review



### ABSTRACT

Based on agency theory, this article analyzes the adoption and the strengthening of corporate governance and their resulting on performance of state-owned companies. Therefore, it was employed as empirical context the Brazilian state-owned companies that, by force of law, adopted and started to monitor corporate governance mechanisms. Thus, a longitudinal approach was adopted, between 2013 and 2019, and a panel data model for the analysis of all Brazilian and federal state companies directly controlled by the Union, dependent and not dependent from federal government. To our analysis, we employed an original database with longitudinal information at firm level. The main results suggest that the adoption and the strengthening of corporate governance mechanisms by state-owned companies can positively influence economic and financial performance and reduce their financial dependence from the government. However, considering the characteristics of public administration, we argue that this effect can be delayed in state-owned companies. This study contributes to the literature in several ways. The study sheds light on the understood aspects of the theme and includes in the discussion the delayed aspect of the effect from corporate governance on state-owned companies. Moreover, the paper also supports managers and formulators of public politics.

### PALAVRAS-CHAVE

Governança corporativa,  
Empresa estatal,  
Desempenho econômico-  
financeiro.

### RESUMO

Fundamentado na teoria da agência, este artigo analisa a adoção e o fortalecimento da governança corporativa e seus resultantes no desempenho de empresas estatais. Para tanto, utilizou-se como contexto empírico as empresas estatais brasileiras que, por força de lei, adotaram e passaram a acompanhar os mecanismos de governança corporativa. Assim, adotou-se uma abordagem longitudinal, entre 2013 e 2019, e um modelo de dados em painel para a análise de todas as empresas estatais federais brasileiras de controle direto da União, dependentes e não dependentes do governo federal. Para nossas análises, utilizamos base de dados original com informações longitudinais e ao nível de empresa. Os principais resultados sugerem que a adoção e o fortalecimento dos mecanismos de governança corporativa pelas estatais podem influenciar positivamente o desempenho econômico-financeiro e reduzir as suas dependências financeiras do governo. Entretanto, considerando as características da administração pública, argumentamos que esse efeito pode ser retardatário em empresas estatais. Esse estudo contribui de diversas maneiras. O estudo lança luz a aspectos subentendidos da temática e incorpora à discussão o aspecto retardatário do efeito da governança corporativa nas empresas estatais. Além disso, fornece subsídios para os gestores e formuladores de políticas públicas.

## 1 Introduction

After Second World War, state-owned companies became essentials to the public power to contribute with the social and economic development of countries that these companies belong, occupying relevant places as different instruments of intervention in economics, social and politics field (Fontes Filho, 2018). However, stages of corruptions, political interference, inefficiencies and losses involving state-owned companies become common at News, bringing lack of mechanisms of corporate governance in public management environment, mainly in emerging markets (Pinho, 2017; Maximiano, 2017).

However, the adoption and the strengthening of corporate governance and their resulting on performance of state-owned companies has showed paradoxical and little understood in the literature (Sanad & Al-Sartawi, 2016; Anup & Cooper, 2017). This phenomenon has challenged researchers from the thematic, because the literature presents several inconclusive aspects related to the corporate governance in state-owned companies, as for example if the adoption and the strengthening of corporate governance promote improvement in performance from companies connected to the public management similarly to the private companies (Grosman, Okhmatovskiy & Wright, 2016; Daiser, Ysa & Schmitt, 2017, Whincop, 2017, Fortini & Shermam, 2017; Coletta & Lima, 2020), considering the specificities of governance directed to companies under public management as well as low performance from institutions in emerging markets (Peng *et al.*, 2016; Whincop, 2017).

Mostly, studies seek to understand the corporate governance in organizational environments under the private management (Detthamrong *et al.*, 2017; Laksmi & Kamila, 2018; Aguilera, Judce & Terjesen, 2018). Moreover, investigations of corporate governance in state-owned companies exclude from their analysis state-owned companies that are dependent from the government. These studies select a sample of state-owned companies non-dependent of the capital from

private propriety, becoming still more limited the knowledge of state-owned companies (Subramanian, 2015; Khongmalai & Distanont, 2017; Shawtari, *et al.*, 2017; Mbo & Adjasi, 2017; Lazzarini & Musacchio, 2018; Coletta & Lima, 2020).

Based on agency theory, this study contributes with the thematic investigating the adoption and the strengthening of corporate governance in state-owned companies and their resulting on performance (Organisation for Economic Co-operation and Development, 2015; Lazzarini & Musacchio, 2018; Fontes Filho, 2018; Daiser & Ysa; Schmitt, 2017; Fontes Filho & Alves, 2018; Lazzarini & Musacchio, 2018; Coletta & Lima, 2020). To achieve this objective, we used as empirical context Brazilian state-owned companies that, by force of law, adopted and started to monitor corporate governance mechanisms. Thus, a longitudinal approach was adopted, between 2013 and 2019, and a panel data model for the analysis of all Brazilian and federal state companies directly controlled by the federal government, dependent and non-dependent from government. Data were obtained from several sources as *Ministério da Economia, da Secretaria de Coordenação e Governança das Empresas Estatais (SEST)*, and documents registered about this theme on government platforms of public transparency.

To test our theorization, we employed an original database with longitudinal information at firm level. The main results suggest a positive relationship between the strengthening of corporate governance mechanisms and economic and financial performance in state-owned companies. Moreover, the results also suggest a negative relationship between the strengthening of corporate governance mechanisms in dependent state-owned companies and the level of financial dependence from the government of this group of companies. In sum, the results consistently indicate that the adoption and the strengthening of corporate governance mechanisms by state-owned companies can positively influence economic and financial performance and reduce their financial dependence from the government. However, these results do not

present a relation with statistical significance lower than the traditional 5%. Then, it is not possible to accept the hypotheses proposed.

A possible explanation for this can be the feature of slowness from state-owned companies, such slowness could impact in adoption and implementation of aspects related to corporate governance resulting from Law number 13.303/2016. Therefore, the effect of the adoption and the strengthening of corporate governance mechanisms by state-owned companies can be latecomers. Allied to the slowness, sometimes they seek for a better economic and financial performance share space with the mission in attending to the public politics, promoting the social, economic and politics development from the context that these companies are inserted.

This study contributes to the literature in several ways. The study sheds light on the understood aspects of the theme and includes in the discussion the delayed aspect of the effect from corporate governance on state-owned companies. In managerial aspects, this study supports managers to make decisions based on the effectiveness from the corporate governance of state-owned companies. Moreover, the paper also supports formulators of public politics and regulated institutions from these companies.

The study is organized in five parts, including this introduction. On second section we present the theoretical contextualization. Next, we bring the method employed to conduct the study. Fourth, we developed the presentation and analysis of the results and finally we bring the final remarks.

## 2 Literature review and hypotheses

Corporate governance can be understood as several mechanisms of control that when they are put in practical in the organizations, they have the objective to decrease agency problems occurred by agent actions in his interest and not by company's interest (Jensen & Meckling, 1976; Eisenhardt, 1989; Chang *et al.*, 2015; Altounian, Sousa & Lapa, 2017; Al-Sartawi, 2018). Then, corporate governance can be understood as a tool used to manage and

control an institution (Rughoobur, 2018; Silva, Santos, Almeida, 2012). This governance is an essential factor to maintain the company with transparency relationship, ethic and productive among the stakeholders, shareholders and agents (Aguilera *et al.*, 2015; Laksmi & Kamila, 2018).

The effective practice of corporate governance brings the insertion of its internal and external mechanisms (Aguilera *et al.*, 2015, Bueno *et al.*, 2018). Internal mechanisms of corporate governance are considered the board of directors and the structure of shareholding (Aguilera *et al.*, 2015). Regarding the external mechanisms, Aguilera *et al.*, (2015) point the following relation: legal system, market for corporate control, external audit, agencies of rating, activism of stakeholders and media. Moreover, though its mechanisms, corporate governance is recognized as an important tool for that companies can achieve the maximum efficiency, sustainability, productivity, and profitability. In other words, for that companies can achieve the best economic-financial performance (Sanad, Al-Sartawi & Abdalmuttaleb, 2016; Anup & Cooper, 2017).

The literature points studies related to this perspective. Scholars as Shehata (2016); Hermasi (2017); Detthamrong *et al.* (2017); Laksmi and Kamila (2018) and Aguilera, Judge and Terjesen (2018) correlated their investigations to the topic of corporate governance and its resulting in economic-financial performance of companies from several countries. Giving this, we can note that studies about the theme of corporate governance has belonging to a scenario studied from researchers and organizations of several parts of the world with the objective to bring new perspectives about how corporate governance behaves and its resulting in different types of economies and companies (Pagnussat *et al.*, 2019).

The debate about corporate governance and its practices on business management had a favorable impact on discussions about corporate governance applied to the governmental context (Marcon & Souza, 2007; Oliveira & Pisa, 2015; Wincop, 2017;

Grosman, Okhmatovskiy & Wright, 2016). Corporate governance applied in companies with public management even that present concepts and common objectives when they are compared to companies with private management, these public companies have an additional proposal because besides the attention to legal issues, boards, accounting, transparency, and economic-financial, they need to achieve the objectives from public politics which are emerged (Organisation for Economic Co-operation and Development, 2015; Peng *et al.*, 2016; Wincop, 2017).

Corporate governance in state-owned companies is more complex in comparison to private companies (Peng *et al.*, 2016; Whincop, 2017), given that the main objective of corporate governance in private companies is in resolving problematics from shareholder interests with the administrators interests. On the other hand, on state-owned companies, the corporate governance face at least three different issues: (1) governors and politicians can make decisions in benefit to public interest that are harmful for state-owned companies results (2) the government has the opportunity to develop role of client, credit offer, shareholder and regulator; (3) and the governors use state-owned companies with the objective to obtain more support from politicians of specific groups of interest (Whincop, 2017).

Although the discussions and debates about the theme of corporate governance in companies assume the hypothesis that the adoption of best practices of corporate governance can positively impact on economic-financial performance from companies through the best decisions as well as more adequate controls and minimize the cost of capital (Chang *et al.*, 2015; Musacchio, Lazzarini & Aguilera, 2015; Sanad, Al-sartawi & Abdalmuttaleb, 2016; Anup & Cooper, 2017; Laksmi & Kamila, 2018; Rughoobur, 2018; Ferreira *et al.*, 2019), still is not clear how corporate governance affects state-owned companies performance (Daiser, Ysa & Schmitt, 2017; Whincop, 2017; Grosman, Okhmatovskiy & Wright, 2016; Fortini & Shermam, 2017; Coletta & Lima, 2020; Cunha,

Freitas & Araújo, 2020).

On international context, 52,6% from empirical studies that approach corporate governance in state-owned companies consider Chinese companies, the greater amount of state-owned companies that exist on China added with the availability of detailed data corroborate these numbers (Daiser & Ysa; Schmitt, 2017). For example, Ding *et al.* (2014) studied state-owned and private companies from China with the objective to analyze the effect of politics influence, resulting from government ownership and from connections of managers, on corporate governance and companies' performance. The results show that the control of companies by agencies from the government significantly increases performance through benefits obtained by the politics influence in these companies.

Even though a greater number of studies focus on state-owned Chinese, the debate about the possible influence that corporate governance can have on economic-financial performance of state-owned companies has receiving more attention by scholars that are considering these kinds of companies from several countries. For example, Subramanian (2015) shows that the practice of corporate governance, through the disclosure of information related to the ownership structure and the shareholder rights and to the structure, process and board of director, positively influences on performance of state-owned companies from India.

Khongmalai and Distanont (2017) analyzed 38 state-owned companies from Thailand with the objective to study the relation between governance practices and performance. The results evidence that only the board of director is unable to conduct a positive performance on state-owned companies investigated. However, the imposition of board for that companies develop areas of activities of internal audit, risk management, internal controls, strategic personnel management and information technology show with effectiveness when the relation of governance is linked to performance.

The study of Shawtari *et al.* (2017) investigated state-owned companies from

Malaysia with the objective to analyze the relation between the features from the board of director and the performance from the companies between 2002 and 2011. The research points a negative relationship between the size of the board and performance, concluding that big board's harm performance, giving that the process of coordination and communication are more difficult. Moreover, the study evidences that the functions of CEO and president of board of director by the same person has a negative relationship with performance.

Mbo e Adjasi (2017) employ agency theory to analyze the determinants of performance in state-owned companies from Sub-Saharan Africa from 1994 to 2013. Using profitability, productivity and operational efficiency as performance measuring, the authors conclude that strengthened board in diversity and competence is positively related to performance by the profit perspective. However, stakeholder's diversity in board results in a negative correlation with performance.

Colleta and Lima (2020) realized a longitudinal study between 2002 and 2017. The authors analyzed state-owned companies' non-dependents from the government, classified as societies of mixed economy and publicly listed. The objective was analyze if the strengthening of corporate governance, analyzed by the board of director and measured by the index of board structure, has positive relationship with performance of the companies. Results indicated that there was a positive and significant relationship between board structure and performance.

Additionally, Colleta and Lima (2020) considered the fact that the law number 13.303/2016 was inductor of best governance practices to the state-owned companies besides to point as limitation of the study the observation to the mechanism "board of director" as indicator of corporate governance. The authors also observed state-owned companies that are publicly listed and made suggestions that novel studies may advance in possible exploitation resulting from the strengthening of corporate governance broader

measured and that evolve listed and non-listed companies. In order to fill this gap, Pellegrini (2019) points that state-owned companies and dependent from the government have an additional particularity and specific in comparison to non-dependent companies from the government. Dependent companies need resources from the Union to pay current and capital expenditure, consequently this need results in more financial dependence from the government.

The governance seeks solutions to agency problems through a conciliation of different stakeholders (Chang *et al.*, 2015; Al-sartawi, 2018; Laksmi & Kamila, 2018; Fontes Filho, 2018), in order to aggregate value to the business and leverage captation of resources and investments, perpetuity of the organizations (Instituto Brasileiro de Governança Corporativa, 2015; Musacchio & Lazzarini, 2015; Laksmi & Kamila, 2018; Coletta & Lima, 2020, Cunha, Freitas & Araújo, 2020). Moreover, the strengthening of corporate governance in state-owned companies results in process more assertive in relation to the choice and selection of their leaders, distancing these companies from the mismanagement political and focusing on technical indications (Silva, 2019; Ferraz, 2018b).

Thus, the discussions and debates around the theme of corporate governance assume the hypothesis that best practices of corporate governance can positively impact on economic-financial performance from the companies through the best decisions, more adequate controls and decreasing of capital cost (Chang *et al.*, 2015; Musacchio, Lazzarini & Aguilera, 2015; Sanad, Al-Sartawi & Abdalmuttaleb, 2016; Anup & Cooper, 2017; Laksmi & Kamila, 2018; Rughoobur, 2018; Ferreira *et al.*, 2019; Cunha, Freitas & Araújo, 2020).

We can note this through the strengthening and structuring of the board of director and fiscal, internal audit, statutory audit and eligibility committees, regime for appointing directors, as well the elaboration of annual letter with the achievement commitments from the objectives of political

public (Martins, 2018; Fontes Filho, 2018). Taken together, these elements result in more administrative and economic-financial efficiency, taking the decreasing of failures, unnecessary costs arising with the rework and in decisions more assertive with the company's objectives, improving their results and, consequently, affecting their economic-financial performance.

Thus, the adoption and improvement of corporate governance in state-owned companies reflects, for example, in more profitability, indicating a better economic-financial performance for state-owned companies or a decreasing in the need of financial support realized by the government to cover loss from state-owned and dependent companies from the government, indicating lower level of financial dependence from the government.

Hence, we hypothesize that:

H1. There is a positive relationship between the adoption and the strengthening of corporate governance practices and the economic-financial performance of state-owned companies.

H1a. There is a negative relationship between the adoption and the of strengthening corporate governance practices in state-owned and dependents companies and their level of financial dependence from the government.

### 3 Method

The population of this study represent 46 Brazilian state-owned companies with direct control of the Union. These companies are divided in 18 financially dependent from the government and 28 non-dependent from the government. Data about governance and performance were collected from official website of *Secretaria de Coordenação e Governança Ministério da Economia, da Secretaria de Coordenação e Governança das Empresas Estatais (SEST)*, and documents registered about this theme on government platforms of public transparency. We adopt as proxy of corporate governance the indicator of State Corporate Governance (IGSEST); for performance, ROA, ROE and IDT, (this last

was considered for the group of state-owned and dependent companies from the government. As control variables, we use size, debt, groups (dependent versus non-dependent), type (state-owned company x mixed economy) and capital (publicly traded x non-publicly). The longitudinal analysis corresponds between 2013 and 2019. We highlight that in 2016 happened the publication of law number 13.303/2016.

The law of state-owned companies number 13.303/2016 stablish several mechanisms of governance to be analyzed by the state-owned companies in order to become these companies more able to broad their results and improve their economic-financial performance (Zymler, 2017; Gomes, 2017; Fontes Filho, 2018; Martins, 2018; Ferraz, 2018b; Silva, 2019). The law number 13.303/2016 considers state-owned companies in a broad way. In other words, this law considers stat-owned companies, mixed economy, dependent and non-dependent from the government, publicly traded and non-publicly traded and that explore economic activities and offer public services (Antunes, 2017; Ferraz, 2018a).

This law also establish mandatory of Brazilian state-owned companies institute and review their internal politics, which are: policy and corporate governance practice; policy of indication from administrators and board of directors; policy of shareholdings proportional to the relevance, materiality and business risks; policy of disclosure information; policy of people management; policy of administration remuneration; policy of transactions with related parts; policy of dividend distribution; policy of risk management; and internal controls and integrity policies (Ferraz, 2018b, Martins, 2018; Fontes Filho, 2018; Silva, 2019).

Considering the objective of this study and the features from the data, we adopted regression for panel data. We also evaluate the model of Pooled, fixed and random effects. For all the tests, we adopt the level of 5% of significance. The statistical analysis was realized using *Stata*. The variables employed are showed in Table 1.

Table 1. Variables

Variable	Theoretical perspective	Operational definition	Prior studies
<b>Independent variables</b>			
IGSEST: Indicator of State Corporate Governance	Measure the quality of corporate governance practices after the law number 13.303/2016 (SEST, 2017).	Indicator composed by questionnaire in three dimensions: Management, Control and Audit; Information transparency; and Boards, Committees and Directors.	Cabral et al. (2019), SEST (2020); Da Silva & Nunes (2019)
<b>Dependent variables</b>			
ROA: <i>Return on Assets</i>	Measure the efficacy of company's administration in relation to the profits from the assets (GITMAN, 2004).	Net profit ----- Total asset	Subramanian (2015); Lazzarini & Musacchio (2018); Ding et al. (2014); Colleta & Lima (2020)
ROE: <i>Return on Equity</i>	Measure return obtained from the equity investment (GITMAN, 2004).	Net profit ----- Net equity	Colleta & Lima (2020)
IDT: Index of dependence on Treasury / government resources	Indicates the percentage of expenses not covered by the company's own revenues. The higher the index, the greater the dependence on Treasury / government resources (SEST, 2020).	$\frac{\text{Total income} + \text{total expenditure}}{\text{Total expenditure}}$	Pellegrini (2019); SEST (2020)
<b>Control variables</b>			
DEBT: Level of debt	Indicates the proportion in which total assets are financed by third party capital (GITMAN, 2004).	Total liabilities ----- Total asset	Ding et al. (2014); Lazzarini & Musacchio (2018); Colleta e Lima (2020)
SIZE: Company size	Company's size has relevant effect on financial variables (DANG; LI; YANG, 2018).	Neperian logarithm of book value of total asset	Ding <i>et al.</i> (2014); Lazzarini & Musacchio (2018); Colleta & Lima (2020)
GROUP: <i>Dummies</i> of groups	Decisions and results of state-owned companies can be influenced by their constitutional objective (PELLEGRINI, 2019).	Dependent from the government x non-dependent from the government	Pellegrini (2019); SEST (2020)
TYPE: <i>Dummies</i> of types	Decisions and results of state-owned companies can be influenced by the shareholding composition.	State-owned company x mixed economy	Pellegrini (2019); SEST (2020)
CAPITAL: <i>Dummies</i> of share capital	Decisions and results of state-owned companies can be influenced by the type of capital.	Publicly traded x non-publicly traded	Pellegrini (2019); SEST (2020)

Source: Elaborated by the authors (2021).

## 4 Results

Table 2 presents descriptive statistics of the sample (data are from December 2019). On Table 1, we can analyze that majority of companies (60,9%) are non-dependents, while 39,1% are dependents; 67,4% are state-owned companies, while 32,6% are mixed economy; and finally, 13% are publicly traded, while 87% are non-publicly traded.

Table 2. Features from companies

Item	N	%
Group	Dependent	18 39,1%
	Non-dependent	28 60,9%
Type of company	State-owned	31 67,4%
	Mixed economy	15 32,6%
Share capital	Publicly traded	6 13,0%
	Non-publicly traded	40 87,0%

Source: Elaborated by the authors (2021).

Table 3 presents the descriptive statistics from the variables. In this table, we can note that IGSEST varied between 1,020 (min) and 10,0 (max), with a mean of 6,498 and moderate variability (CV = 40,7%). Size presented a mean of 119321,023, but with high variability (CV > 80%), what can be observed by the minimum and maximum values. Companies debt had a mean of 0,785, but with high dispersion of values (CV > 80%). Moreover,

we also can note that companies are heterogeneous (CV > 80%) in relation to the ROA and ROE, however they are more homogeneous for the index of dependence on Treasury / government resources (IDT) (CV < 30%). In relation to the median, 50% from the companies present IGSEST under 6,610; size under 1795; Debt under 0,620; ROA under -0,168; ROE under 0,156 and IDT under 86,6.

**Table 3.** Descriptive measurement from the variables

Variables	Min	Max	Median	Mean	S.D	Coefficient
IGSEST	1,02	10	6,61	6,498	2,647	40,70%
Size	0,864	1989086,08	1795,591	119321,02	376297,2	315,40%
DEBT	0,006	7,893	0,62	0,785	0,969	123,50%
ROA	-120,439	58,861	-0,168	-4,496	19,269	-428,60%
ROE	-236,199	168,086	0,156	-7,165	41,134	-574,10%
IDT	14,85	100	86,657	79,318	21,492	27,10%

*Note.* Values calculated without consider the year (Pooled).  
Source: Elaborated by the authors (2021).

Table 4 presents correlation matrix from the variables. The greatest positive correlation recorded was between the variables ROA and ROE ( $r = 0,6536$ ;  $p < 0,05$ ). Also, high negative correlation and significant happened between the index of IDT and ROA and ROE ( $r = -0,6457$  e  $r = -0,6202$ ,  $p < 0,05$ ), consistently signaling that the increase on ROA and ROE

promotes decreasing of companies' dependence from the government. We also found a negative correlation between ROE and debt ( $r = -0,3896$ ,  $p < 0,05$ ). Another positive correlation was between size and IGSEST ( $r = 0,4087$ ,  $p < 0,05$ ), signaling that larger companies tend to have higher levels of corporate governance.

**Table 4.** Correlation matrix

Variables	1	2	3	4	5	6	7	8	9
1 ROA	1.0000								
2 ROE	0.6536*	1.0000							
3 IDT	-0.6457*	-0.6202*	1.0000						
4 IGSEST	0.0509	0.1381	-0.1025	1.0000					
5 Size	-0.0131	0.0378	-0.1836	0.4087*	1.0000				
6 DEBT	-0.0242	-0.3896*	-0.0277	-0.0382	0.1129*	1.0000			
7 Group	-0.0282	-0.0919	.	-0.1966*	-0.3643*	0.1923*	1.0000		
8 Type	0.0747	-0.0566	.	-0.0522	-0.1682*	0.1035	0.5577*	1.0000	
9 Capital	-0.0373	0.0556	.	0.2958*	0.5294*	0.0852	-0.3105*	-0.5568*	1.0000

*Note.* \*  $p < 0.05$ .

Source: Elaborated by the authors (2021).

To test the hypotheses, we adopt regression model for panel data. Then, we analyzed the adequation to use the models

pooled, random effects (RE) or fixed effects (FE). To choose between the models RE and FE, we employ Hausman test, which did not

reject the hypothesis null (sig.  $x^2 > 0,05$ ), leading us to use RE model. To choose between the models RE and pooled, we employ the test of LM from Breusch-Pagan, which did not indicate rejection from the hypothesis null related to the adequation of model pooled in relation to the model RE (sig.  $x^2 < 0,05$ ). Therefore, we employ to the analysis of the data a panel data with random effects and robust standard errors the heteroscedasticity and potential autocorrelation.

Table 5 presents the results based on the regression of panel data. We use different models of regression and proxies (ROA, ROE and IDT) to test the hypotheses. First, we only include control variables (Models 1, 4 and 7). Second, we estimated the effects of improvement from the governance on performance without the controls (Models 2, 5 and 8) and, finally, we use the complete models (Models 3, 6 and 9).

**Table 5.** Regression results

Variables	ROA			ROE			IDT		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>Hypothesized effect</i>									
IGSEST		0.09 (0.11)	0.11 (0.12)		0.04* (0.02)	0.04 (0.02)		-0.13 (0.10)	-0.13 (0.12)
<i>Controls</i>									
Size	0.00 (0.04)		-0.02 (0.03)	0.00 (0.00)		-0.00 (0.00)	-0.06 (0.04)		-0.06 (0.04)
DEBT	-0.17 (0.41)		0.16 (0.44)	-0.18*** (0.04)		-0.05* (0.02)	0.25*** (0.06)		-0.05 (0.24)
Group	-0.05 (0.23)		-0.06 (0.25)	0.01 (0.03)		-0.01 (0.02)	0 (.)		0 (.)
Typo	0.20 (0.25)		0.04 (0.27)	0.00 (0.03)		0.03 (0.02)	0 (.)		0 (.)
Capital	0.11 (0.33)		-0.00 (0.30)	0.03 (0.02)		0.036 (0.02)	0 (.)		0 (.)
Constant	2.46*** (0.31)	2.48*** (0.22)	2.49*** (0.29)	5.46*** (0.02)	5.36*** (0.03)	5.39*** (0.04)	4.54*** (0.29)	4.50*** (0.15)	4.91*** (0.29)
Observations	273	121	121	320	137	137	107	53	53
Companies	46	44	44	46	46	46	18	18	18
R-sq: within	0.01	0.01	0.00	0.15	0.02	0.08	0.11	0.00	0.00
R-sq: between	0.00	0.00	0.02	0.31	0.03	0.02	9.8e-09	0.08	0.1
R-sq: overall	0.01	0.00	0.01	0.17	0.02	0.05	0.01	0.01	0.03

Note. \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ . Models 7 to 9 test H1 and then, they only consider state-owned companies dependent from the government.

Source: Elaborated by the authors (2021).

Hypothesis 1 predicts a positive relationship between the adoption and the strengthening of corporate governance practices and the economic-financial performance of state-owned companies. Models 3 and 6 show the main tests from H1. We found a positive and insignificant effect of corporate governance on ROA ( $\beta = 0,11$ ,  $p > 0,05$ ) and ROE ( $\beta = 0,04$ ,  $p > 0,05$ ). The directions of the effects are aligned with the

prediction of H1, however there is no significance, leading us to conclude that H1 is partially supported.

Hypothesis 1a predicts a negative relationship between the adoption and the strengthening of corporate governance practices in state-owned and dependents companies and their level of financial dependence from the government. Model 9 reports the main test of H1a. We found a

negative and insignificant effect of corporate governance on the level of dependence from the government ( $\beta = -0,13$ ,  $p > 0,05$ ). The direction from the effect also is aligned with the prediction of H1a, however, there is no significance, leading us to partially support H1a.

Although no significant, results are consistent with Subramanian (2015), Mbo and Adjasi (2017) and Colleta and Lima (2020), when these scholars suggest a positive relationship between corporate governance and economic-financial performance of state-owned companies. The absence of significance also can be related with a greater complexity when compared to the governance of private companies (Organisation for Economic Co-operation and Development, 2015; Peng *et al.*, 2016; Wincop, 2017), as well the additional need to meeting public policies inclines decision-making for the benefit of political interests and not in relation to state-owned companies and the slowness feature of state-owned institutions and companies. Therefore, we may consider that this fact can explain the absence of significance on results of the relation between governance and performance.

Thus, results founded are partially aligned with the literature and with the argument that corporate governance is a tool that promotes organizations, become them more effective and able to generate value through the improvement of their administrations, the way to manage and face responsibilities, impacting in a better economic-financial performance (Musacchio, Lazzarini & Aguilera, 2015; Sanad, Al-Sartawi & Abdalmuttaleb, 2016; Anup & Cooper, 2017; Ferreira *et al.*, 2019).

## 5 Final remarks

Based on agency theory, this study seeks to contribute to the thematic analyzing the adoption and the strengthening of corporate governance and their resulting on performance of state-owned companies. Therefore, it was employed as empirical context the Brazilian state-owned companies that, by force of law, adopted and started to monitor corporate

governance mechanisms. Thus, a quantitative and longitudinal approach was adopted, between 2013 and 2019, for the analysis of all Brazilian and state-owned companies directly controlled by the Union, dependent and not dependent from the government.

The main results suggest a positive relationship between the adoption and the strengthening of corporate governance mechanisms and economic-financial performance of state-owned companies. Moreover, results also suggest a negative relationship between the strengthening of corporate governance mechanisms in dependent state-owned companies and the level of financial dependence from the governments. In sum, results indicate that the adoption and the strengthening of corporate governance mechanisms by state-owned companies can positively influence economic-financial performance and reduce companies' financial dependence from the government. However, these results did not present a significant statistical relation lower than 5% and, therefore, we cannot accept our hypotheses proposed.

A possible explanation for this can be the feature of slowness from state-owned companies, such slowness could impact in adoption and implementation of aspects related to corporate governance resulting from Law number 13.303/2016. State-owned companies may comply with an entire legal framework and a set of norms from the direct and public administration that imposes to the state-owned companies the obligation to comply with rites and requirements that directly impact in the adoption and the effects of corporate governance. For example, the law that established obligation in the adoption of the corporate governance mechanisms was approved in 2016, however, its obligation started next year.

Moreover, managers from state-owned companies do not have all the mechanisms that managers from private companies have to implement new projects and achieve objectives, for example, hiring and firing, remuneration and incentive policies as well as relatively strong syndicates. State-owned

companies also do not have the guarantee that in case of damage or financial difficulties will receive government support to face these problems. Therefore, the effect of the adoption and the strengthening of corporate governance mechanisms by state-owned companies can be latecomers. Allied to the slowness, sometimes the seek for a better economic and financial performance share space with the mission in attending to the public politics, promoting the social, economic and politics development from the context that these companies are inserted.

This study contributes to the literature in several ways. The study helps to shed light on the understood aspects of the theme and includes in the discussion the delayed aspect of the effect from corporate governance on state-owned companies. In managerial aspects, this study supports managers to make decisions based on the effectiveness from the corporate governance of state-owned companies. Moreover, the paper also supports formulators of public politics and regulated institutions from these companies.

This study also has limitations that, even with scholas efforts, they exist and can offer an avenue for future researches. The companies from the sample are from a unique country. Moreover, the time of analysis after the law that obligate the adoption of corporate governance mechanisms can be relatively short. The techniques employed can limit the understanding of the relation. Thus, we suggest that future studies extend the period of analysis and incorporate other countries as well comparative analysis among countries. Future studies also can adopt qualitative analysis and case studies of "success" and "failure" in the adoption and strengthening of corporate governance mechanisms and their effects on economic-financial performance. Finally, we also suggest that scholars include state-owned companies that belong to the state (federal government) and cities.

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