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Financial Condition and Government Accounts: An Analysis in the Municipalities of the State of Rio de Janeiro (2009 to 2015)

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ABSTRACT

This research sought to analyze whether the opinion of government accountability of the municipalities of Rio de Janeiro by the Court of Accounts of the State of Rio de Janeiro (TCE-RJ), in the period from 2009 to 2015, considers the financial condition of these municipalities. The financial condition was measured based on the methodology created by the Canadian Institute Chartered Accountants and adapted to the reality of the Brazilian institutional and regulatory environment. Factor analysis was used to select and group the determinants of municipal financial health and the logistic regression analysis to assess whether the result of the opinion of the municipal accounts by the TCE-RJ considered the municipal financial condition. The results were conclusive in relation to the analysis of the accountability of municipal government accounts considering the financial condition factor that deals with the collection, as well as the opinion of the TCE-RJ indicated that it is related to the technical analysis of external control. It was not possible to conclude whether there is political influence from the governor in issuing the prior opinion of the plenary.

Keywords: *Financial Condition; Courts of Accounts; Municipal Management; Government Accountability*

Introduction

The history of economic crises has shown the inefficiency of public management in Brazil, reducing its credibility with the world (Brazil, 1995). This fact demonstrated that the country walked in the opposite direction of the main world economies for several years, while they began

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to implement new models of public policy management (Hyndman & Liguori, 2016). In this scenario, the country, in an attempt to increase fiscal control, published the Fiscal Responsibility Law (LRF) in order to periodically disclose and monitor performance and compliance in public management (Brazil, 2000), however, this standard has not been producing the results expected, mainly, within the municipalities (Sacramento & Pinho, 2007).

Previous studies point out that in the country accountability is only related to the analysis of fiscal responsibility, which is represented by the analysis of compliance, while the analysis by performance is not related to government accounts (Zhang & Barnett, 2014; Cruz & Marquês, 2017). The lack of definition of variables that make it possible to explain the opinion of the accountability of municipal government by internationally accepted performance measures, and not just by legal norms and usual indicators, exposes a gap to be explored in the national literature on municipal finances (Cruz & Afonso, 2018).

Thus, this study aims to verify whether the financial condition of city halls represents the decisions of the Rio de Janeiro State Court of Auditors (TCE-RJ) on municipal government accounts through the correlation of performance indicators. In this context, we intend to answer the following research question: Do the prior opinions of the TCE-RJ plenary on the accountability of municipal governments in the State of Rio de Janeiro consider the financial condition indicators of these municipalities?

The study is justified because there is a gap in the national literature regarding the analysis of the financial condition and its influence on the issuance of previous opinions issued in government accounts by the courts of accounts (Cruz & Afonso, 2018). As well as, the scarcity of studies on the financial condition of municipalities in Brazil and their relationship with government accounts; and the existence of several methods of calculating financial condition (Lima & Diniz, 2016), discussed in the international literature and not yet applied to evaluate municipal government accounts by the Brazilian Courts of Accounts, justify the realization of an experiment with Canadian methodology (CICA) that stands out for the use of new public management indicators (Silva, Alberton, Ferreira, Broietti, & Souza, 2017).

In this work, the factor analysis technique was used to obtain the financial condition factors and then, the collected, indebted factors in the logistic regression were used as an independent variable to measure their relationship with the outcome of the TCE- RJ, dependent variable (tcepleno) and the control variables: tcece, politics and pibpop. Finally, the contributions were the determination of the financial condition factors, the influence of collection indicators with the previous opinion of the TCE-RJ plenary and the relationship of the technical staff report with the plenary opinion.

Theoretical reference

In the public sector, accountability is a normative obligation. However, it should also be seen as a moral and ethical duty, whose administrator of public resources should demonstrate to society all its probity, efficiency, effectiveness, effectiveness and economy in the management and use of resources managed during his term (Brazil, 1988).

The Brazilian Magna Carta establishes that the person responsible for exercising external control in the public administration must be executed by the Legislative Power with the assistance of the Federal Audit Court, as a measure of the balance between the Constitutional Powers (Brazil, 1988).

By symmetry, the TCE-RJ is responsible for issuing the prior opinion of the municipal government accounts of the State, except the capital (Rio de Janeiro, 1989) which is the responsibility of TCM-RJ, while the judgment of the municipal government accounts is up to the City Councils.

The technical staff of the external control of the TCE-RJ is necessarily composed of civil servants approved in a public examination that become part of the institution's state career; therefore, the performance of the technical work in the final activity is the exclusive competence of the civil servants of the permanent staff of the institution. TCE-RJ, who are responsible for producing the report of the prior opinion of government accounts (Rio de Janeiro, 2006). This report is qualified with a technical part, thus relating to the control exercised by authority in maintaining available resources, as a governance factor (World Bank, 1992).

The power members that make up the full TCE-RJ are responsible for issuing the prior opinion that will be sent to the judgment of the Municipal Legislative Power and have a technical-political analysis character, since the strength of this previous opinion comes from a mix of governance-governance, considering that the technical requirement for the exercise of the position, but the choice of political origin demonstrates a close relationship between the Executive and Legislative Powers (Santos, 1997; World Bank, 1992).

The City Councils have the power to judge the municipal government accounts; thus, the Municipal Legislative Power can only change the prior opinion issued by the TCE-RJ with a quorum of 2/3 (two thirds) of its composition (Rio de Janeiro, 1989). Due to the political character of this vote, as well as the proximity in the relationship between the Executive and Legislative Powers, it can be qualified as an analysis of governance (Santos, 1997).

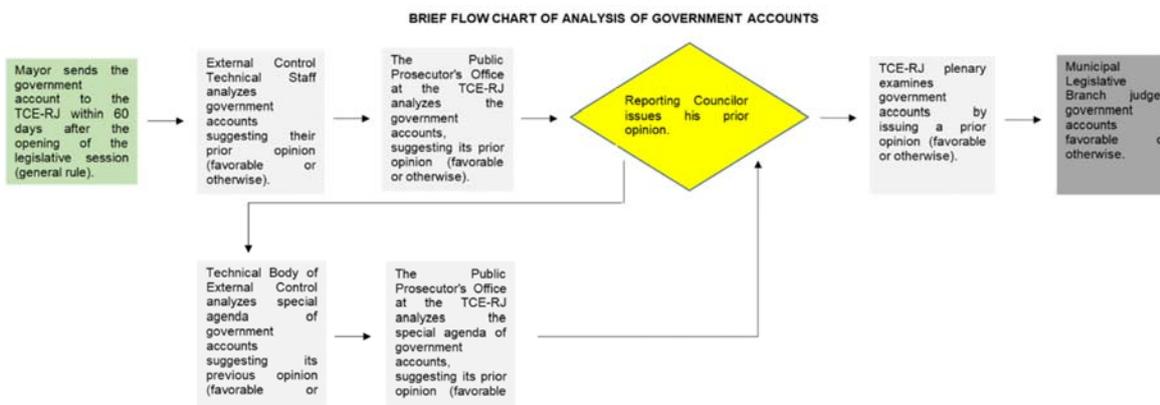


Figure 1. Summary of the Mechanics of Government Accountability

Source: Elaborated by the author based on the Federal Constitution (Brazil, 1988).

Financial condition and its determinants

Between 1980 and 2010, the study of the financial condition produced a series of scientific productions on the subject, which is no different when assessing the management of municipalities or districts worldwide (Guerra, 2016). In Brazil, studies of financial condition and its variables with characteristics common to each other have recently been developed, but with divergent approaches that interest the study of the relationship between the financial condition and previous opinions issued by the TCE's (Silva et al., 2017; Guerra, 2016; Mello & Slomski, 2006; Mello & Slomski, 2007). At the international level, there are traditional approaches that influence the study of financial condition and treat it as financial health, fiscal condition, and financial efficiency demonstrating similarity between the concepts used (Brown, 1993; CICA, 1997, as cited in Lima & Diniz, 2016; Kavanagh, 2007; Office of the Sta Comptroller, 2002; Wang, Dennis & Tu, 2007).

Initially, it is necessary to expose the difference between a financial condition and financial position, since the financial condition reveals a more comprehensive analysis, longer time, allowing a predictive analysis or temporal study of the causes that led to the bad situation, while, the financial position reveals an analysis momentary, a cut from the moment, where the focus is on financial analysis to fulfil short-term obligations (Lima & Diniz, 2016).

The financial condition models were classified as follows:

Closed Model, which promotes an analysis of the government's financial management and fiscal situation based on financial information over several periods (Ramsey, 2013);

Open Model, which adds external factors of the public entity's environment that frequently impact the financial condition (Ramsey, 2013);

Almost Open Model, which performs a mixture of the characteristics of closed and open models (Ramsey, 2013).

In this study the closed calculation mechanism was used, which presents several forms of classification for the factors of the determinants of the financial condition; however, the chosen methodology classifies the factors through the aspects of sustainability, vulnerability and flexibility (CICA, 1997, as cited in Lima & Diniz, 2016).

Sustainability takes into account the power that the public entity has in conserving the public policies used, therefore, maintaining the quality and quantity of the service offered to the population without increasing the public debt (CICA, 1997, as cited in Lima & Diniz, 2016; Ritonga, 2015).

Vulnerability is associated with indebtedness, as it demonstrates the degree of commitment of its resources over time, enabling an analysis of the trend of debt built or to be built by internal or external financing (CICA, 1997, as cited in Lima & Diniz, 2016; Ritonga, 2015).

Flexibility demonstrates whether or not the entity has the capacity to increase its sources of revenue, whether own or derived, to increase the growing demands of the population, through the expansion of public debt or the increase in taxation, in circumstances of changing economic scenario (CICA, 1997, as cited in Lima & Diniz, 2016; Ritonga, 2015).

The sample studied occurred in 91 municipalities that had 15 performance indicators analyzed distributed among the factors of sustainability, vulnerability and flexibility in order to determine the indicator or indicators of financial condition that is related to the previous opinion of the municipal government accounts, during the years 2009 to 2015.

Sustainability indicators

The financial asset by the payable liability (*afpe*) measures the total financial resources that will be required to pay obligations assumed in the present and the past, or rather, demonstrates the commitment of the financial asset concerning current and non-current liabilities, a fact that aims to measure short-term financial sustainability. The higher the indicator, the better the financial position and when it is less than 1, it indicates that it does not have sufficient financial resources to settle the liability (CICA, 1997, as cited in Lima & Diniz, 2016).

The share of net consolidated debt in GDP (*dclgdp*) shows the share of long-term obligations assumed by the entity given what the region's economy produced. The analysis of this result demonstrates the impact of public policies in the region. Over time, it allows for an assessment of trends if the continuity of applied policies is sustainable. Thus, the lower this indicator, the better the financial position (CICA, 1997, as cited in Lima & Diniz, 2016).

Meanwhile, the solvency indicator (*atpe*) allows assessing the public entity focusing on the existence of equity with the realization of its assets, in case it needs to settle all its short and long term obligations. Thus, this indicator allows to assess the institution's continuity in the long run; therefore, the higher this indicator, the better the financial condition (CICA, 1997, as cited in Lima & Diniz, 2016).

The participation of the consolidated net debt in the RCL (*dclrcl*), which is one of the main indicators of measuring indebtedness, shows the percentage of the current net revenue that is consumed by the founded debt, the lower this indicator, the better the entity's fiscal position (CICA, 1997, as cited in Lima & Diniz, 2016; Brown, 1993; Brazil, 2012).

It is the financial result by GDP (*resfingdp*) that exposes the need for financing resources, exposing whether there is a need for financial support to equalize financial obligations. Thus, the financial condition is healthy, the higher the indicator (CICA, 1997, as cited in Lima & Diniz, 2016).

Flexibility indicators

The tax revenue directly collected by the GDP (*rctribgdp*) shows the portion of the economy that is destined to maintain public spending, exploring how much the government intervenes in the market, its importance is in the assessment of the flexibility that the public entity has to reduce or increase this type of recipe. This indicator is directly associated with the LAFFER curve. Thus, this indicator should not exceed 0.50 (CICA, 1997, as cited in Lima & Diniz, 2016).

Meanwhile, the debt burden for revenue collected (*cargadivida*) assesses the weight of municipal debt in terms of gross domestic product and revenue collected. Thus, the lower this indicator, the less the revenue collected is consumed. (CICA, 1997, as cited in Lima & Diniz, 2016).

Vulnerability indicators

The cost of financing consolidated debt (*jurosrl*) is the impact of current expenditures on borrowing or financing on the collection of municipal revenue over several periods, which may or may not explain a portion of the behaviour of local revenue variation. Thus, the ideal is that this indicator approaches zero in order to demonstrate adequate financial health (Brown, 1993; Brazil, 2012).

Meanwhile, the revenue from the municipalities' participation fund for realized revenue (*fpmrec*) exposes the direct impact on the financial autonomy of the public entity, as it results from the dependence that the Municipal entity has in relation to the Federal entity, in the case of Brazil. It is the evaluation of revenue transferred in the face of all revenue collected, because of the lower this index, the greater its financial independence (CICA, 1997, as cited in Lima & Diniz, 2016).

Likewise, the revenue collected from royalties for the revenue collected (*royaltiesrec*) demonstrates that the financial compensation for extraction of resources extracted from the soil impacts on the increase of public coffers, this impact of royalty revenue in the face of its total revenue shows the positive fluctuation or negative in the collection of the public entity, due to the economic and political variables that it is subject, therefore, its measurement in the evaluation of the financial condition is fundamental due to its flexibility in the collection (CICA, 1997, as cited in Lima & Diniz, 2016).

Indicators from other studies that may be relevant for analysis in Brazil

The share of personnel expenses (*dprcl*) demonstrates the behaviour of personnel expenses as a result of current net revenue. In Brazil, this assessment aims to periodically check whether expenditures are reaching the limits established in the LRF. The level of budgetary and financial commitment of revenues is measured, therefore, having flexibility as a characteristic. In this calculation, the lower this indicator, the lower the commitment of current revenues (Brazil, 2012).

The active debt for GDP (*dagdp*), on the other hand, allows verifying the relationship between the revenues of the public entity that for some reason were not collected and the municipal gross domestic product, therefore, is characterized by flexibility. Thus, the lower this index, the better the financial situation (National Treasury of Brazil, 2016). As well as, the deviation from the budget forecast (*desviorec*) that aims to demonstrate the variation found in the revenue forecast in the budget and its effective collection, allowing an analysis of this spread; it is one of the causes of the collection insufficiency, compromising the budget increasing the vulnerability. Thus, the lower this spread, the better the financial condition (Brazil, 2012). While, the degree of asset immobilization due to long-term debts (*ancpnc*) verifies the immobilization of resources due to long-term obligations, the greater this ratio, the better the financial health of the institution, therefore, it has a vulnerability characteristic (National Treasury of Brazil, 2016). Finally, the expenditure made per capita (*despercapita*) that indicates an assessment of the cost per inhabitant needed to offer public services, therefore, with a characteristic of vulnerability (Kavanagh, 2007; Ritonga, 2015; Wang et al., 2007).

Measurement of public management

The dependent variable suggestion of opinion from the TCE-RJ instructive body to the plenary (*tcece*) or previous opinion from the plenary (*tcecort*) will be used as determinants of the result of the government accounts (0 (zero) was adopted for “bad” and 1 (one) for “good”) both being dichotomous variables, since they complement the evaluation of the municipal government accounts (Complementary State Law nº 63, 1990, art. 20).

Politic factor (political)

This indicator is a dichotomous control variable whose function is to measure the possible influence of the governor of the State of RJ with the TCE-RJ (0 (zero) was adopted for “without political influence” and 1 (one) for “with political influence”) So that the mayors of the same coalition with the political group of the governor are favoured in the opinions issued by the plenary of the TCE-RJ (Sakai & Paiva, 2016, p.1).

Measurement of municipal GDP control per capita (gdppop)

This indicator’s main function is to distinguish municipalities by the density of wealth produced per inhabitant (Fialho & Filho, 2015).

Research methodology

The empirical-analytical method was used in order to test the hypothesis developed through descriptive research whose main focus will be to verify the correlation of the independent variables (indicators determined through the factor regression), which studied together demonstrate the analysis of the financial condition, among the dependent variable: the prior opinion of the municipal government accounts (*tcepleno*) and controlled by the variables: *tceec*, *politic* and *gdppop*. The sample of this work is constituted of the research in the 91 jurisdicted municipalities of the TCE-RJ, which has the legal obligation to forward the government account payments annually (Brazil, 1988; Rio de Janeiro, 1989). The survey was based on the accounting statements presented during the period from 2009 to 2015 (7 years) to TCE-RJ. The selected period has to do with the availability of the analyzed data. Thus, 15 (fifteen) performance indicators and 03 (three) control variables and 01 (one) independent variable were used. It was expected to generate a database with 12,103 observations; however, 77 data (0.64%) were lost, obtaining 12,026 observations (99.36%), an immaterial data loss. It should be noted that the values were deflated by the IGPM/FGV using the base year 2009 as a reference, in order to compare the real monetary value.

The data used are available on the TCE-RJ website (www.tce.rj.gov.br), through consultation of each municipal government accountability. This fact allows any citizen to have information about the processes with a final decision by the plenary. Also, complementary information was extracted from other databases, such as municipal GDP and population (Brazilian Institute of Geography and Statistics, 2018), inflation indicators (Central Bank of Brazil, 2018) and

information from the heads of the municipal and state executive branches (Superior Electoral Court, 2018).

This research seeks to identify the relationship between the opinion of the TCE-RJ plenary and the performance indicators that determine the financial condition, as well as, if there is the influence of the report produced by the technical staff of the Court of Auditors, of the existing coalition relationship between the Mayors and the Governor and the municipal income structure (Zhang & Barnett, 2014; Cruz & Marquês, 2017). Three hypotheses were developed to explore the theme: From the evidence found by Cruz and Afonso (2018) who analyzed the existence of a relationship between the fulfilment of tax requirements and limits provided for in the LRF and attributes of responsible tax management (budget planning, transparency and control exercised by the courts of accounts) identified that the decisions of these Court of Auditors do not consider performance analysis, but compliance, the first hypothesis was proposed as follows:

H1: Higher levels of financial condition (performance analysis) increase the likelihood that the prior opinion of the TCE-RJ plenary will be favourable in the analysis of government accountability of the municipalities in Rio de Janeiro under its jurisdiction.

The second hypothesis was proposed to understand the dynamics of the accountability process and to verify the impacts of the opinion (favourable or unfavourable) issued by the technical staff in the decisions of the TCE-RJ Plenary, in the following terms:

H2: The favourable opinion of the technical staff of TCE-RJ employees increases the likelihood of a favourable decision by the TCE-RJ plenary in the analysis of the rendering of accounts of the municipalities of Rio de Janeiro under its jurisdiction.

Finally, the third hypothesis sought to analyze whether possible institutional pressure or political interference occurs in the performance of the TCE-RJ when the state governor belongs to the same party as the mayor or his coalition. Duque (2017) did not identify interference in the decisions made by the courts of auditors, through the analysis of the party link between the governors and the appointed councilors.

H3: The existence of a link between the mayor's party or coalition and the governor's party increases the likelihood of a favourable decision by the TCE-RJ plenary in the analysis of the accountability of the Fluminense municipalities under its jurisdiction.

Through the analysis of the rendering of accounts of the municipalities sent to the Court of Auditors during the period from 2009 to 2015, we hope that they will be found as results of this research:

The decision of the TCE-RJ plenary does not represent the financial condition of the municipalities in Rio de Janeiro; therefore, it does not show performance, but rather compliance (Cruz & Afonso, 2018).

The plenary decision does not represent the analysis carried out by the external control of the TCE-RJ;

There is political influence in the decisions of the plenary of the TCE-RJ contrasting (Duque, 2017).

Factor analysis on determinants of financial condition

Initially, to identify the main factors that determine the financial condition, the probabilistic model was applied through the multivariate data analysis technique (factor analysis), along the same lines as Mello and Slomski (2006) that they used to select the most representative debt indicators. This procedure was adopted given the large number of variables found in the literature to assess the financial condition factor of public entities (Cruz & Afonso, 2018).

Table 1. Financial condition variables

<i>Variables</i>	<i>Description</i>	<i>Characteristic</i>
<i>afpe</i>	financial asset divided by the payable liability.	The bigger, the better
<i>dclgdp</i>	share of net consolidated debt in GDP.	The smaller, the better
<i>atpe</i>	total assets divided by liabilities payable.	The bigger, the better
<i>dclrcl</i>	share of net consolidated debt in the RCL.	The smaller, the better
<i>resfingdp</i>	financial resultby GDP.	When positive, it is good; when negative, it is bad.
<i>rctribgdp</i>	tax revenue directly collected by GDP.	The greater the dependence on taxation.
<i>cargadivida</i>	debtburdenbyrevenue.	The smaller, the better
<i>jurosrcl</i>	costs of financing consolidated debt.	The smaller, the better
<i>fpmrec</i>	revenue from municipalities' participation fund by realized revenue.	The greater the dependence on transfers from the Union.
<i>royaltiesrec</i>	revenue collected from royalties by revenue collected.	The greater the dependence on royalties.
<i>dprcl</i>	shareofpersonnelexpenses.	The smaller, the better
<i>dagdp</i>	active debt by GDP	The smaller, the better
<i>desviorec</i>	budget accuracy.	the closer to zero the better
<i>ancpnc</i>	degree of asset immobilization due to long-term debt.	The bigger, the better
<i>despercapita</i>	expenditureincurred per capita.	The smaller, the better

Source: Prepared by the author based primarily on the CICA financial condition model,1997, as cited in Lima & Diniz, 2016.

The indicators are represented by 03 (three) factors: sustainability, vulnerability and flexibility (CICA, 1997, as cited in Lima & Diniz, 2016), not forgetting that each factor at least must have 05 (five) indicators for selection carried out by the factor analysis (Hair et al., 2009).

From the above, the total observation for each variable should be 637 observations, therefore, the variable (*dapib*) that had the most data lost, 36 in total, which corresponds to a 5.65% reduction in data per variable, being considered irrelevant and without need for adjustments (Hair et al., 2009, p. 62).

In order to verify the reduction of variables in factors through factor analysis, that is, in how many factors the variables could be represented and if there were variables that could be excluded, 01 (one) factorization was performed, obtaining 03 (three) factors that explain the variance in 93% and selected the variables with a load (coefficient) greater than 0.5 in accordance with the sample adequacy test (Hair et al., 2009, p. 110).

Table 2. Data of the financial condition variables

Variables	Observations	Average	Standard Deviation	Minimum	Maximum
<i>afpe</i>	629	0,88	1,36	0,02	21,50
<i>dclgdp</i>	636	- 2,20	58,75	- 948,02	709,29
<i>atpe</i>	631	3,20	4,37	0,07	38,90
<i>dclrcl</i>	636	0,00	0,18	- 0,82	0,80
<i>resfingdp</i>	632	38,22	128,71	- 70,52	1.621,83
<i>rctribgdp</i>	636	13,22	22,21	0,03	300,20
<i>cargadivida</i>	636	0,00	0,00	- 0,00	0,00
<i>jurosrcl</i>	636	0,00	0,02	-	0,56
<i>fpmrec</i>	635	0,14	0,06	0,02	0,28
<i>royaltiesrec</i>	634	0,15	0,14	0,01	1,49
<i>dprcl</i>	636	0,48	0,07	0,25	0,77
<i>dagdp</i>	601	31,75	51,25	0,05	619,62
<i>desviorec</i>	637	- 0,00	0,15	- 0,61	0,55
<i>ancpnc</i>	627	32,21	288,83	0,00	6.554,10
<i>despercapita</i>	637	3.663,31	11.488,94	115,28	128.670,00

Source: Prepared by the author based on the rendering of government accounts by the municipalities under the jurisdiction of the TCE-RJ.

The first factor of financial condition (*collected*) was formed by the weighted average of loads of the variables: *resfinpib* (positive or negative effect), *rctribpib* (positive effect), *dapib* (negative effect) and *despercapita* (negative effect).

The second factor of financial condition (*indebted*) was formed by the weighted average of loads of the variables: *afpe* (positive effect), *dclpib* (negative effect), *dclrcl* (negative effect) and *cargadivida* (negative effect).

The third factor is represented only by the *atpe* indicator (positive effect).

It was admitted that the negative or positive effect should be treated as the value that each indicator contributes to the formation of financial condition factors, assuming that the negative (result below zero) contributes to a “bad financial condition” and positive (greater than zero) contributes to a “good financial condition”.

Finally, the sample adequacy analysis using the KMO method found a result of 0.6363, which is considered average (Kaiser, 1958).

Statistical model

It was necessary to mount a logistic regression in order to verify the correlation of the plenary decision (dependent variable *tceecort*) between the financial condition variables (independent variable determined through the selection of financial condition indicators), analysis of the external control (independent variable *tceec*), political factor (independent variable of political control), *gdppercapito* (independent variable of *gdppop* control), as well as, checking the odds ratio each independent variable has to influence the dependent variable, as shown in Table 3. As for the odds ratio, it assumes that in the logistic regression the dependent variable is dichotomous and has values between 0 and 1, making it possible to measure the intensity that the impact of the independent variables on the dependent variable (Kleinbaum, 2002).

Table 3. Statistical model variables

<i>Variables</i>	<i>Description</i>	<i>Characteristic</i>
<i>tceecort</i>	dichotomous variable that depicts the plenary decision on government accountability (dependent variable)	0 – contrary; 1 – favourable.
<i>collected</i>	variable that depicts the municipal financial condition (independent variable)	Continuous
<i>indebted</i>	variable that depicts the municipal financial condition (independent variable)	Continuous
<i>atpe</i>	variable that depicts the municipal financial condition (independent variable)	Continuous
<i>tceec</i>	dichotomous variable that depicts the first analysis performed by the external control (control variable)	0 – contrary; 1 – favourable.
<i>political</i>	dichotomous variable that measures whether there is a political relationship between the mayor and the governor (control variable)	0 – without political influence; 1 – with political influence.
<i>gdppop</i>	control variable that measures GDP by population.	demonstrates the density of income on the population.

Source: Prepared by the author based primarily on the CICA financial condition model, 1997.

The logistic regression equation takes the following form:

$$\text{Logit}(tceecort) = \beta_0 + \beta_1 \text{collected} + \beta_2 \text{indebted} + \beta_3 \text{atpe} + \beta_4 \text{tceec} + \beta_5 \text{political} + \beta_6 \text{gdppop}$$

In the logistic regression (*logit*), the command *vce(robust)* was applied in order to solve any problem of heteroscedasticity, as well as in the adjustment of variables with outliers (Levine, 2016).

Data analysis

During the period studied, there was a predominance of opinions favourable to the jurisdiction by the plenary of the Court of Auditors in Rio de Janeiro, of which 673 were issued, 584 were favourable, demonstrating that more than 90% of those subject to jurisdiction had their accounts approved in the period, as Table 4.

Table 4. Frequency of decisions

<i>tceecort</i>				
<i>tceec</i>	<i>contrary</i>	<i>favourable</i>	<i>Total</i>	<i>%</i>
<i>contrary</i>	50	386	436	68.45
<i>favourable</i>	3	198	201	31.55
<i>Total</i>	53	584	637	
<i>%</i>	8.32	91.68		

Source: Prepared by the author based on the rendering of government accounts by the municipalities under the jurisdiction of the TCE-RJ.

In the same period, it was observed that there is a significant portion of mayors who have a relationship with the political party or with the coalition of the governor of the state of Rio de Janeiro, since of the 636 observations, 433 have a political relationship, demonstrating that 68.08

% of the heads of the municipal executive branch are not opposed to the head of the state executive branch, as shown in Table 5.

Table 5. Frequency of political influence

tcecart				
<i>political</i>	<i>contrary</i>	<i>favourable</i>	<i>total</i>	<i>%</i>
<i>withoutinfluence</i>	21	182	203	31.92
<i>withinfluence</i>	32	401	433	68.08
<i>Total</i>	53	583	636	
<i>%</i>	8.32	91.68		

Source: Prepared by the author based on the rendering of government accounts by the municipalities under the jurisdiction of the TCE-RJ.

Regarding the financial condition factors, it was verified the continuous values of the collected and indebted factors. It was considered that for the values greater than zero, the municipality would have a good financial condition. In contrast, for the values less than zero, the municipality would have bad condition financial, so there is a considerable number of municipalities that have the negative financial condition, since for determining the collection of 597 observations, 239 have a bad financial condition, representing 40.03%, as shown in Table 6.

Table 6. Factor frequency raised

<i>collected</i>	<i>observations</i>	<i>%</i>
<i>Bad financial condition</i>	239	40.03
<i>Good financial condition</i>	358	59.97
<i>Total</i>	597	100.00

Source: Prepared by the author based on the rendering of government accounts by the municipalities under the jurisdiction of the TCE-RJ.

As for the determinant indebtedness, of the 629 observations, 264 have a bad financial condition, representing 41.97%, as shown in Table 7.

Table 7. Independent factor frequency

<i>indebted</i>	<i>observations</i>	<i>%</i>
<i>Bad financial condition</i>	264	41.97
<i>Good financial condition</i>	365	58.03
<i>Total</i>	629	100.00

Source: Prepared by the author based on the rendering of government accounts by the municipalities under the jurisdiction of the TCE-RJ.

Results

Basic information for a period from 2009 to 2015: number of observations, average, standard deviation, minimum and maximum values, according to Table 8.

Table 8. Data of the variables of the statistical model

<i>variables</i>	<i>observations</i>	<i>avarage</i>	<i>standard deviation</i>	<i>mínimum</i>	<i>máximum</i>
<i>tceec</i>	637	-	-	0	1
<i>tcecort</i>	637	-	-	0	1
<i>political</i>	636	-	-	0	1
<i>collected</i>	597	7.261062	33.53822	-78.98565	374.9978
<i>indebted</i>	629	0.690167	13.06403	-156.0215	208.9301
<i>atpe</i>	631	3.201525	4.367785	0.065657	38.90411
<i>gdppop</i>	637	37.22462	112.5232	1.011221	2642.491

Source: Prepared by the author based on the rendering of government accounts by the municipalities under the jurisdiction of the TCE-RJ.

In this chapter, the results of this research are presented. To verify the existence of a relationship between the opinion of the TCE-RJ plenary and the selected variables that portray the management performance analysis (financial condition), the logistic regression technique was used, with a significance level for a p-value of 0, 05. Below, Table 9 shows the main results:

Table 9. Logistic regression

<i>tcecort</i>	coefficient	Odds ratio	standard deviation	t	p-value	95% confidence interval	
<i>collected</i>	0,0348075	1,0354204	0,0133764	2,60	0,009	0,0085903	0,0610247
<i>indebted</i>	0,0007871	1,0007874	0,0237810	0,03	0,974	-0,0458228	0,0473970
<i>atpe</i>	0,0724180	1,0751046	0,0486453	1,49	0,137	-0,0229251	0,1677611
<i>tceec</i>	1,8535910	6,3826987	0,6130204	3,02	0,002	0,6520933	3,0550890
<i>political</i>	0,2686954	1,3082566	0,3273584	0,82	0,412	-0,3729154	0,9103061
<i>gdppop</i>	0,0011558	1,0011564	0,0023192	0,67	0,502	-0,0029882	0,0061031
constant	1,6118300	5,0119748	0,2623793	6,14	0,000	1,0975760	2,1260840

Wald Test = 27.76; Prob>chi2 = 0.0001; Pseudo R2 = 0.1018; Number of interactions = 5; Likelihood Analysis = -151.96081

Source: Research data applied in STATA.

Note: (a) tcece was significant at 1%. (b) The sensitivity analysis considered a cutoff = 0.5.

It was found that the coefficients of the independent variables are not equal to zero (prob>chi2 = 0.0001), that there are significant coefficients to explain the null hypothesis (Wald chi2 = 27.76).

It was found that the financial condition indicator collected is significant in the issuance of the previous opinion of the TCE-RJ plenary, since the factor rejected the null hypothesis (p-value = 0.009), however, with an odds ratio of 1,035 impacting the result of the opinion demonstrating that the LRF somehow captures aspects of financial condition. The indebted factor and the *atpe* indicator were not significant in issuing the opinion of the TCE-RJ plenary, as they did not reject the null hypothesis (p-value = 0.974 and 0.137), respectively. In general, the result differs from previous studies on fiscal management indicators, which concluded that the Courts of Accounts seek to measure compliance, not showing management measures by performance, since only the

factor collected was significant, presenting a percentage 3.5 % of the influence on the prior opinion when favourable (Cruz & Afonso, 2018).

On the other hand, it was found that the favourable report of the technical staff of the TCE-RJ has a significantly positive influence on the issuance of the previous opinion of the plenary, since the variable *tcece* rejected the null hypothesis (p -value = 0.002), diverging from the result expected. The positive coefficient found shows that when the instructing body issues a favourable opinion, it increases the probability of the jurisdiction to have a favourable opinion by the plenary of the Court of Auditors, a fact evidenced in the odds ratio of (6.38) much higher than 1 (Hair et al., 2009).

As for the political influence, represented by the proximity of the relationship between the mayors and the governor, the non-significant result due to the null hypothesis (p -value = 0.412) does not allow to conclude whether or not there is political influence from those closest to the state governor from Rio de Janeiro. This result is in line with the result found in the study carried out at the Minas Gerais Court of Auditors that found no evidence of political influence in the decisions of the Minas Gerais court (Duque, 2017).

Concerning the municipal income structure, measured by GDP per capita, the null hypothesis was not rejected (p -value = 0.512); therefore, it was not significant, that is, it did not influence the issuance of the opinion of the plenary.

The results of the final judgments of the rendering of accounts of the Executive Power of the municipalities of the State of Rio de Janeiro, carried out by the respective Legislative Chambers, referring to the studied period were not located, neither with the TCE-RJ nor in the websites of the respective Legislative Powers, as consult the websites of the City Councils, as well as, at the Court of Auditors' website <https://www.tce.rj.gov.br/consulta-processo/Processo>. Such facts made it impossible to use the results of the judgments carried out by the City Councils as the main dependent variable, exposing a gap for future studies in the process of analyzing the variables that impact the issuance of the opinion of the accountability of the municipal governments in the State of Rio de Janeiro. The process of convergence of Brazilian public accounting to international accounting standards brought limitations in data collection since the accounting criteria used for municipalities from 2012 onwards underwent changes in the bookkeeping (Brazil, 2012) and many municipalities had difficulties in providing accounts during the implementation of the new standards to date.

Final considerations

This research sought to analyze the impacts of the financial condition of the municipalities of the State of Rio de Janeiro, in the period from 2009 to 2015, in the issuance of a favourable opinion by the plenary of the Court of Accounts of the State of Rio de Janeiro.

It is concluded that the performance dimension, measured by the financial condition of the municipality, was present in the process of analyzing government accountability of municipalities in the State of Rio de Janeiro. This fact can be explained by the overlap of international

performance indicators and the LRF, for example, the *resfinpib*, which measures the financial result of the period, in this application in a static way.

It is worth mentioning that the financial result indirectly impacts the conclusion of the previous opinion, since its analysis is direct only in the end of term exercises, reporting us for an evaluation as to the need for its analysis in the government accounts in all fiscal years and not only in the end-of-term exercises, thus expanding the scope of articles 1 and 42 of the LRF.

As for the relationship between opinion of the plenary and opinion of the technical staff, a positive and significant relationship was found, in which the favourable opinion of the technical staff of TCE-RJ increases the probability of the opinion of the plenary of TCE-RJ by six times also being favourable to the approval of the accounts; therefore, the plenary session of the Fluminense court of accounts does not differ from its assessment when the opinion is favourable to the jurisdiction, however, when the technical staff issues an unfavourable opinion, there is no indication that the plenary follows its suggestion for an opinion.

The possibility of the existence of political influence by the State Executive Branch with the TCE-RJ was not proven in the present study, despite the existence of several studies that criticize how the councillors enter the Courts of Accounts, since they are appointed by politicians of the Branch Legislative and by the Governor, opening the possibility of conflicts of interest, and this issue should be expanded in future studies (Duque, 2017; Paiva&Sakai, 2014).

The present study fosters the discussion on accountability and the accountability process of municipal governments, opening the debate for advances in the duty of accountability, so that the analysis can be expanded according to the performance of the public manager and not only due to compliance standards since society is increasingly demanding of primary public services with a high level of quality, however, it is facing waste, whether active (corruption) or passive (inefficiency).

Finally, subsequent studies will be able to apply other models of the financial condition described in the international literature and repeat the present evaluation in other municipalities or states of the Federation, bringing a vision for regional characteristics, as well as, conducting more comprehensive research on the political influence in the organs of control.

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