REVISTA
CONTABILIDADE E CONTROLADORIA
UFPR

Effect of tax aggressiveness on CEO turnover

Antonio Lopo Martinez
Instituição FUCAPE- Business School
antoniolopomartinez@gmail.com

Flavio Oliveira Brito
Instituição FUCAPE- Business School
faviooliveirabrito@hotmail.com

Viviane Ferreira de Oliveira Chiachio
Instituição FUCAPE- Business School
viviane.chiachio@gmail.com

Abstract

This study verifies the influence of corporate tax aggressiveness on replacing the Chief Executive Officer - CEO. Tax Aggressiveness can be a determinant of CEO turnover in companies listed on the Brazilian stock exchange B3. Efficient tax planning is essential for any organization, being a manager's duty to avoid paying unnecessary taxes. Methodologically, the study uses three tax aggressiveness metrics to verify the nature of this relationship from 2010 to 2016, ranking the results by quintile and identifying the high and low extremes of tax aggressiveness. Also, control variables were used to reduce the bias of the proposed regression. Two of the proxies of tax aggressiveness, Cash Effective Tax Rate Long Run Effective Tax Rate, showed significant low tax aggressiveness. The results evidence that less tax aggressive CEOs are more likely to be replaced. For managers, the findings reinforce that tax planning is a determinant factor to remain in the position.

Palavras-chave: Tax Aggressiveness. CEO turnover. Chief Executive Officer. Effective Tax Rate.

PROGRAMA DE PÓS-GRADUAÇÃO EM
CONTABILIDADE
UFPR   MESTRADO E DOUTORADO

1 Introdution

Studies show that some companies maintain effective low tax rates for a long time, while others maintain consistent rates that meet or exceed the statutory or legally anticipated rate (Dyreng, Hanlon & Maydew, 2008; Blouin, 2014). For these authors, this behavior can be attributed, at least in part, to the CEO and their sensitivity to fiscal risk. Other studies reveal that reputational costs are limiting factors, determining how far businesses and managers are willing to minimize their effective tax rates (Desai & Dharmapala, 2006; Cheng, Huang, Li & Stanfield, 2012).

The tax issue may lead to corporate leadership changes, influencing, for instance, a board's decision to replace the company's CEO. In this context, this research intends to empirically verify if companies' tax aggressiveness influences CEO turnover in Brazilian companies. Therefore, this study aims to identify whether high or low tax aggressiveness explains, in part, the replacement of CEOs in companies listed on the Brazilian stock exchange B3. In other words, would the tax planning be a determinant factor to the CEO remain in his position?

Similar research by Chyz and Gaertner (2018), applied to the North American market, found evidence that CEOs bear reputational penalties to avoid paying taxes. The authors also observed that CEOs who are not enough tax aggressive are more likely to be replaced. The studies by Armstrong, Blouin, and Larcker (2012), Rego and Wilson (2012), Gaertner (2014), and Powers, Robinson, and Stomberg (2016) found relationships between CEO compensation and tax aggressiveness in US companies. Graham, Hanlon, Shevlin, and Shroff (2013) found that reputation costs (often referred to as non-tax related expenses) are important factors that limit CEOs tax aggressiveness, which is corroborated with evidence produced by Hanlon and Slemrod (2009) and Graham et al. (2013).

The research by Hanlon and Slemrod (2009) supports the idea that stock prices are negatively impacted when news shows that companies participate in transactions in tax havens. Shareholders (and board members) want managers to adopt the best tax planning, balancing the benefits between tax avoidance and the costs generated by this practice.

Brazilian accounting literature has not explored the relationship between tax aggressiveness and CEO turnover. The hypothesis is that highly tax-aggressive CEOs would be more likely to be replaced since they bring an excessive tax risk to the company, which can be expressed in fines. However, the CEO who tolerates significant tax burdens by reducing profitability would also be exposed to a replacement due to negligence in dealing with tax issues. The particularities of Brazil suggest the need to replicate the research carried out in the American market. The application of such experiments in the Brazilian context, marked as an emerging capital market with legal constraints (substantially different from the American reality), can bring completely different results. Therefore, this study gains importance not only because of the originality when addressing a different context from the USA but also because it may inspire other researchers to examine emerging markets on the issue.

Methodologically, the study used three tax aggressiveness metrics, classifying the quintile results and identifying the high and low extremes of tax aggressiveness. Additionally, control variables were used to determine other possible effects on the dependent variable.

This study is divided into five parts, including this introduction. The next section presents the theoretical framework, introducing a literature review. The third section shows the methodology adopted, followed by analyzing the regression results and the conclusion.

2 Theoretical Framework

2.1 Tax aggressiveness

Studies on tax aggressiveness have increased significantly worldwide. There are, however, relevant gaps to be filled (Martinez, 2017), particularly in Brazil, where research in this area and focused on Brazilian companies is in its early stages (Araújo & Leite Filho, 2017).

There is no definition in Brazilian law or other administrative regulations regarding the meaning of legal, illegal (abusive), or aggressive tax planning (Schoueri & Galendi Júnior, 2017). Companies always have doubts about what can be done when it comes to reducing, delaying, or avoiding the incidence of taxes. There is a particular legal uncertainty in Brazil due to a confusing interpretation of tax authorities that can classify tax planning practices as simulation and fraud (Martinez & Coelho, 2016).

For companies and shareholders, excellent tax planning includes reducing tax costs, reflecting an increase in cash flow and net income (Blouin, 2014). The primary purpose of tax planning is to minimize tax obligations. The extent of tax aggressiveness will depend on the level of intensity and legality of how these practices are adopted, reflecting a significant reduction in explicit taxes (Martinez, 2017).

Hanlon and Heitzman (2010) define tax aggressiveness as the set of practices that reduce or avoid taxes, resulting in tax benefits. This approach does not distinguish legal from illegal, fraudulent, or legally dubious tax practices, but it exposes the company to the risks related to the tax agent interpretation.

More tax aggressive companies use every opportunity to obtain tax reduction. When these operations are under legal uncertainty or open to interpretation, the firms tend to opt for more advantageous tax practices, seeking tax savings, even though tax agents may interpret the patterns as abusive, representing a legal risk (Martinez, 2017).

2.2 Tax aggressiveness in Brazil

For Martinez (2017), greater tax aggressiveness does not imply tax abuse. However, there are risks that a sharp reduction in explicit tax obligations may indicate the use of controversial or illegal practices. In Brazil, the recognition of abusive tax planning is subject to debate. Brazilian law consists of distinguishing tax evasion (simulated schemes) from authentic tax planning. However, what is observed in administrative courts such as the Administrative Tax Appeals Council (CARF) are decisions about tax cases where the council focuses on the form and the use of practices that seem to "abuse of law" in some tax cases judged by CARF (Schoueri & Freitas, 2010). Martinez (2017) argues that as tax aggressiveness increases, so does the risk that tax authorities may disregard certain transactions.

Figure 1 below by Lietz (2013) adapted by Martinez (2017) illustrates the types of tax planning and the level of tax aggressiveness.

Figure 1: Level of tax aggressiveness and tax planning
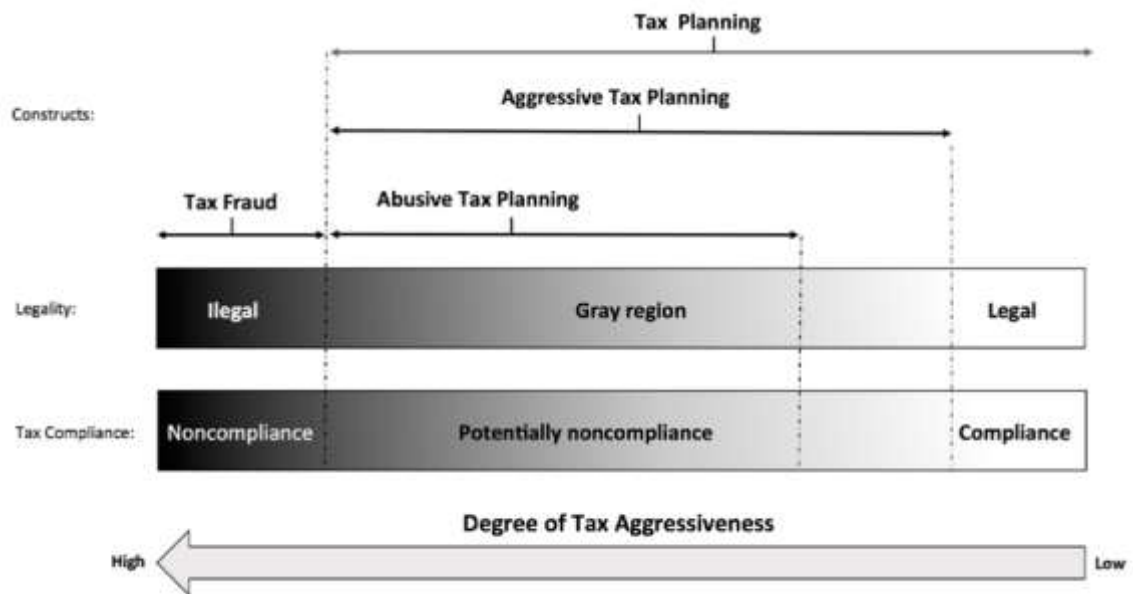
Source: Lietz (2013)
Note: Adapted by Martinez (2017)

Some studies on the reasons to engage in aggressive tax planning, point to elements such as the corporate policy regarding bonuses to executives (which leads to strategies to increasing profit to raise their bonus gains), and the policy of paying executives with stocks (which leads them to take higher risks seeking to obtain higher returns) (Francis, Hasan, Qiang & Meng, 2014). According to Bertrand and Schoar (2003), executives' management of incentives tends to influence the companies' tax aggressiveness.

2.3 Proxies to measure tax aggressiveness

Many articles have developed metrics to assess tax aggressiveness, focusing on explicit taxes, regardless of whether the tax outcome is too aggressive or legally controversial (Brown, 2011; Hanlon & Heitzman, 2010; Lisowsky, 2010; Wilson, 2009).

Martinez (2017) points out that metrics of tax aggressiveness are focused on the company's accounting results, which in Brazil are based on revenue taxes (IRPJ) and the contribution on net profit (CSLL) (both taxes levied on profit). When considering that Brazil adopts a variety of direct and indirect taxes, studies only analyze taxes based on profit narrows the relevance of their conclusions.

The research by Frank, Lynch, and Rego (2009) adopt the Book-Tax Differences (BTD) – the result of the difference between accounting profit and tax profit – as a measure of tax aggressiveness. However, BTD is a biased measure since earnings management strongly influences the proxy's results (Ferreira, Martinez, Costa, & Passamani, 2012).

According to Hanlon & Heitzman (2010), the most widely used proxy for tax aggressiveness is the effective tax rate on accounting profit (ETR), which verifies the total expense with income tax, divided by the profit before income tax. A low ETR indicates that the company is more tax aggressive. Medeiros and Costa (2017) recommend an adjustment to the ETR that is more compatible with the Brazilian reality, where profit before income tax is added by the reversal interest rate on capital (registered against net equity as determined

by Brazilian securities commission (CVM) – Resolution 207/1996) and the adjustments regarding the equity method.

A metric adopted in this research is the Total Value Added Tax (TVAT), which is the product of the tax of the value-added statement (VAS) divided by the total value added to distribute. A Brazilian metric, with no comparison with international studies (Da Silva & Martinez, 2017), the TVAT is part of the VAS. It is different from the most common global metrics in the literature, which only use data from the income statement. It is a metric that enables capturing a broader result of tax aggressiveness compared to the ETR proxy. It measures aggressiveness in several aspects since it works with all the taxes (federal, state, and local) levied on sales (Fernandes, Martinez, & Nossa, 2013). According to Martinez (2017), TVAT is better than the traditional ETR, even though it has limits based on the possibility to capture a broad spectrum of taxes, than only taxes from income. For instance, TVAT includes indirect taxes, and many of them are passed on to the consumer.

2.4 CEO turnover

Although the Brazilian stock market is small and its ownership is more concentrated, it is possible to observe a tendency to replace the companies' leadership when performance is considered insufficient (Matos & Colauto, 2017). CEO turnover is related to internal monitoring by companies' shareholders, controllers, and creditors (Mellone Júnior & Saito, 2004).

Companies with adequate governance structure, counting on the disciplining power exercised by a board of directors, are more likely to replace low-performing executives (Mendes-da-Silva & Grzybovski, 2006). There is also evidence that higher-indebted organizations present higher CEO turnover (Dani, Carmosa, & Hein, 2015).

Companies with an independent board or that adopt a fully independent nominating committee significantly increase their CEO turnover when the executives fail to achieve the expected performance (Guo & Masulis, 2015).

There are several studies in international literature addressing the issue of CEO turnover (Table 1):

Table 1: International studies on CEO turnover

ARTICLE	RESULTS	REFERENCE
Turnover threat and CEO risk-taking behavior in the banking industry	CEOs of the World Bank increase risk-taking when there is a moderate turnover threat and reduce risk-taking when they observe a higher possibility of being replaced.	Chen and Ebrahim (2018)
An Empirical Investigation on CEO Turnover in IT Firms and Firm Performance	CEO turnover is a significant determinant of the company's performance, particularly in the IT sector.	Zhang, Wierschem, Mediavilla, an Hong (2016)
Board Structure and Monitoring: New Evidence from CEO Turnovers	More board independency and total independence of nominating committees lead to more rigorous monitoring and discipline regarding CEO performance.	Lixiong and Masulis (2015)
Executive pay matters: looking beyond the CEO to explore implications of pay disparity on non-CEO executive turnover and firm performance	The position as executive greatly influences the probability of turnover and the company's performance.	Pissaris, Heavey, and Golden (2017)

Financial performance and non-family CEO turnover in private family firms under different conditions of ownership and governance	When a family business is concentrated with few family members or few members of the family participating on the board, the CEOs who are family members are less likely to be replaced after showing low performance.	Visitin, Pittino, and Minichilli (2017)
Managerial Labor Market during Institutional Transition: A study of CEO compensation and voluntary turnover	CEOs who have compensation that is lower than the expected are associated with voluntary turnover in China.	He, Shaw, and Fang (2017)
CEO turnover in large banks: Does tail risk matter?	Systematic risk is only essential for CEO turnover if there is a significant variation in the costs that this risk represents to shareholders and the organization,	Srivastav, Keasey, Mollah, and Vallascas (2017)
The Effect of Ex-ante CEO Turnover Risk on Firms' Discretionary Expenditures	The risk of CEO turnover leads to weak decisions. These decisions will hinder the company's value. Companies sometimes maintain low-performance managers and face the consequences of soft choices that jeopardize the company's performance in the long term.	Changu, Hyung, Byungjin, and Seungwon (2018)
The impact of family owners' monitoring on CEO turnover decisions and the role of trust	Owners of family companies can immediately replace a low-performance CEO only when the CEO is an external professional, not a family member.	Rizzotti and Mazzone (2017)

According to the theoretical framework presented, the research examines the organizations listed in the Brazilian stock exchange B3 from 2010 to 2016, observing their tax aggressiveness and CEO turnover. Based on the international literature analyzed, the hypotheses tested in this study are:

H1: CEO turnover increases when the company is very tax aggressive.

H2: CEO turnover increases when the company is not taxed aggressively enough.

3 Methodology

This study seeks to identify the influence of corporate tax aggressiveness on CEO turnover using multivariate statistical analysis techniques. The proxies chosen as metrics for tax aggressiveness are: i) CASH_ETR, based on Dyreng et al. (2010), which is the amount the company disbursed to pay taxes, excluding deferred income tax; ii) ETR_LONGRUN, which is the total tax paid in the last three years; and iii) the product of the tax at the value-added statement (VAS) on the value-added (TVAT), which is a proxy that better captures the Brazilian reality regarding the level of the organizations' tax aggressiveness.

The study examines tax aggressiveness from companies listed on the Brazilian stock exchange B3, except financial firms, from 2010 to 2016. Financial firms are excluded from the analysis because they have unique tax structures and rates. Data about CEO turnover was obtained from the companies' reference report (document required by B3) and collected at the CVM online platform. Influenced by the work by Chyz & Gaertner (2018), this study expects to find a direct relationship between tax aggressiveness and CEO turnover also in Brazil.

The research uses VAS data, a better metric for tax aggressiveness, considering the Brazilian context (Martinez, 2017). It analyzes the federal, state, and local sales taxes, rather than only on income taxes. The publication of the VAS has been mandatory since 2010, and this study analyzes the documents released from 2010 to 2016. The information about CEO turnover was examined until 2017.

Data on CEO turnover were collected in each company's reference form, published in CVM's online platform. The VAS data were obtained from the standard financial statement for each company/year and disclosed on the CVM's online platform. Other corporate financial data were collected from the Economática database. The study uses panel data with a sample size company/year that oscillates according to the metrics' availability on tax aggressiveness.

3.1 Metrics for tax aggressiveness

The proxies used to measure tax aggressiveness are presented in Table 2:

Table 2: Metrics on tax aggressiveness

Variable	Description	Reference
$CASH\_ETR_{it}$	$\dfrac{Payable\ tax_{t-1}+Total\ expenses\ on\ income\ tax-Payable\ tax_t}{Profit\ before\ income\ tax\ (PBIT)}$	Chyz and Gaertner (2018)
$ETR\_LONGRUN_{it}$	$\dfrac{Total\ expenses\ IRPJ\ and\ CSLL_t+Total\ expenses\ IRPJ\ and\ CSLL_{t-1}+Total\ expenses\ IRPJ\ and\ CSLL_{t-2}}{PBIT_t+PBIT_{t-1}+PBIT_{t-2}}$	Hanlon and Heitzman (2010)
$TVAT_{ti}$	$\dfrac{Total\ tax\ in\ the\ VAS}{Total\ value-added}$	Motta and Martinez (2015)

The first proxy used for tax aggressiveness was the CASH_ETR, which is the measure that calculates the amount of taxes paid by firms to accounting profit. CASH_ETR expresses the amount the company paid and is established for each company/year. (Armstrong et al., 2015). CASH_ETR is used instead of ETR because it is closer to what the company paid to pay taxes in a given year.

The second proxy was the ETR_LONGRUN, which measures the company's total taxes in the last three years, thus excluding deferred tax. It provides a more dynamic measure of tax aggressiveness, including a more extended period, not just a single year such as the CASH_ETR.

The third metric of tax aggressiveness was the TVAT, which encompasses taxes on sales, a type of tax characteristic of the Brazilian context. That represents the majority of the company's tax burden (Motta & Martinez, 2015).

The use of this set of metrics sought to capture the variation in the company's tax planning and tax avoidance compared to other companies of the same size, sector, and year.

3.2 Regression Model

The following regression inspired by the study by Chyz and Gaertner (2018) was applied:

$$CEO\ Turnover_{i,t+1} = \beta_0 + \beta_1 high\ tax\ aggressiveness_{i,t} + \beta_2 low\ tax\ aggressiveness_{i,t} + \beta \sum_3^6 Controls_{i,t} + I_j + T_t + \varepsilon_{i,t}\ (1)$$

Where:

Table 3: Regression model

Variable	Description
CEO Turnover	It is the dependent variable that identifies whether there was CEO turnover in the company. It is 1 for the company/year where the CEO was replaced and 0 when there was no CEO turnover.
High tax aggressiveness	It is an explanatory variable, equals 1 for observations in the lower quintile of tax aggressiveness and 0 for other observations.
Low tax aggressiveness	It is an explanatory variable, equals 1 for observations in the highest annual quintile of tax aggressiveness, and 0 for other observations.
Controls	Control variables.
E	Error variable.

In the regression model, β_1 is the coefficient of high tax aggressiveness, and β_2 is the coefficient of low tax aggressiveness.

Equation 1 reports a logit panel regression model's marginal effects where the dependent variable is CEO turnover. Linear probability models generate estimates of a binary dependent variable. This design choice helps the economic interpretation of the coefficient of interest of this study. The definitions of the equation variables are as follows: CEOTurnover is the variable that indicates whether there was a CEO replacement in the company (it equals 1 for company/years where there was the event, and 0 when there is no CEO turnover. So, for any occasion where there was no CEO turnover in the panel company/year, the variable CEOTurnover was attributed 0. For example, if the company 'A' replaced the CEO in 2011, it was attributed 1 for CEOTurnover for that year. If the same company did not replace its CEO in 2012, the variable was considered 0.

High tax aggressiveness is an explanatory variable that equals 1 for observations in the lowest quintile of CASH_ETR/ETR_LONGRUN/TVAT, and 0 for other observations; low tax aggressiveness is an explanatory variable that equals 1 for observations in the highest annual quintile of CASH_ETR/ETR_LONGRUN/TVAT, and 0 for other observations; I is a fixed effect vector of industry sector; T is a fixed effect vector of the year, β_0 is an intercept, β_1 is the coefficient of high tax aggressiveness, β_2 is the coefficient of low tax aggressiveness, and ε is the error variable. The model and current results are estimated separately for CASH_ETR (Chyz & Gaertner, 2018), TVAT (Da Silva & Martinez, 2017; Motta & Martinez, 2015), and ETR_LONGRUN (Hanlon & Heitzman, 2010). The use of quintile is compatible with the use in the literature for the extreme position in tax aggressiveness

Hypothesis 1 states that CEO turnover is more likely to happen in companies with a relatively low effective tax rate. In regression (1), the hypothesis should be supported by a positive and significant β_1 coefficient.

Hypothesis 2 states that CEO turnover is more likely to happen in companies with a relatively high effective tax rate. In regression (1), the hypothesis should be supported by a positive and significant β_2 coefficient.

A set of control variables was added, using variables already adopted in previous accounting research, which tends to influence CEO turnover (Menon & Williams, 2008).

Table 4: Control variables

Variable	Description	Reference
SIZE	Size of the company, established by the natural log of the company's total asset in the previous year.	Hamori and Koyuncu (2015).
DeltaROA	Return on current assets before taxes, minus return on assets before taxes in the previous year.	Zajac (1990)
LEV	Long term debt related to total assets.	Jianxin and Yuching (2011)

State control	Binary variable indicating if the firm is a state-owned enterprise.	Nossa (2017).

Previous studies report that company size (SIZE) tends to influence CEO turnover (Hamori & Koyuncu, 2015). Return on assets (DeltaROA) variation is well known and widely used to measure CEO turnover research (Zajac, 1990). Financial Leverage (LEV) is another variable that tends to influence CEO turnover (Jianxin & Yuching, 2011). State control may affect the likelihood of CEO turnover regarding political issues not related to performance.

4 Results Analysis

4.1 Descriptive statistics

Table 5 presents the descriptive statistics of the observations, covering the periods from 2010 to 2016. The independent variables of high and low tax aggressiveness are listed, together with the control variables: Return on asset variation (DeltaROA), leverage (LEV), company size (SIZE), and state control.

Table 5 also shows the observations (the number of information contained in the database, considering each variable's company/year). The mean and standard deviation, the minimum and maximum values, and the 1st and 3rd quartile of the sample are also indicated in the table.

Table 5: Descriptive statistic after Winsor

Variable	Observ. Comp/year	Mean	Standard deviation	Min.	1st Quartil	3rd Quartil	Max.
HTAcash_etr	5384	0.08	0.27	0.00	0.00	0.00	1.00
LTAcash_etr	5384	0.76	0.43	0.00	1.00	1.00	1.00
HTAetr_longrun	5384	0.18	0.38	0.00	0.00	0.00	1.00
LTAetr_longrun	5384	0.52	0.50	0.00	0.00	1.00	1.00
HTAtvat	5384	0.08	0.28	0.00	0.00	0.00	1.00
LTAtvat	5384	0.66	0.47	0.00	0.00	1.00	1.00
SIZEw	3279	13.43	3.05	2.20	12.41	15.30	18.23
DeltaROAw	3226	-2.32	102.65	-614.78	-3.54	2.07	601.27
LEVw	2996	202.25	1512.59	0.00	0.04	2.01	13678.91
StateControl	3703	0.05	0.21	0.00	0.00	0.00	1.00
CEOTurnover	3703	0.57	0.49	0.00	0.00	1.00	1.00

Note: HTAcash_etr, HTAetr_longrun, HTAtvat are binary variables of high tax aggressiveness, of different tax aggressiveness metrics. LTAcash_etr, LTAetr_longrun, LTAtvat are binary variables of low tax aggressiveness of different metrics of tax aggressiveness. SIZE: company size, established by the natural log of the asset in the previous year. DeltaROA: variation of the

return on assets. LEV: Leverage. StateControl: binary variable of state control. CEOTurnover: binary dependent variable of CEO turnover. To minimize the effects of the *outliers* in variables SIZE, DeltaROA, and LEV, the Winsor estimator was used (1% in each distribution tail)

The variables HTAcash_etr, HTAetr_longrun, HTAtvat are binary independent variables, where 1 represents the high tax aggressiveness and 0 the opposite. This result is found by applying a quintile in the CASH_ETR, ETR_LONGRUN, and TVAT variables where companies in the lowest quintile (0% to 20%) are classified as highly tax aggressive.

The variables LTAcash_etr, LTAetr_longrun, LTAtvat are binary independent variables, where 1 represents low tax aggressiveness and 0 the opposite. This result is found by applying a quintile to the CASH_ETR, ETR_LONGRUN, and TVAT variables, where companies in the highest quintile (80% to 100%) are classified as less tax aggressive.

The STATA Winsor command was used on the DeltaROA, LEV, and SIZE variables for adjustments of possible outliers. The values 1% in the limit of the left tail and 1% in the right limit were changed by values close to the extremes. No exceptional observations were rejected, and the values were changed to a similar and reliable observation. Indispensably, the winsorized variables' size must be the same as the originals collected; thus, the averages are more stable (Turkey, 1962).

The variable size (SIZE) resulted in a mean of 13.43, with values ranging from a minimum of 2.2 to a maximum of 18.23. For the variable return on assets variation (DeltaROA), an average value of -2.32 was obtained, with values ranging from a minimum of -614.78 to a maximum of 601.27. Regarding the leverage variable (LEV), an average weight of 202.25 was found, with values ranging from a minimum of 0 to a maximum of 13,678.91.

The StateControl variable is a binary variable related to the state's control over the company, where 1 is attributed to companies that are state-owned enterprises and 0 for the opposite. The variable CEOTurnover is the regression dependent variable, where 1 is attributed to companies that had CEO turnover and 0 the opposite

4.2 Correlation matrix

The correlation matrix in table 6 showed the correlation between the variables of the proposed model, observing the tax aggressiveness metric CASH_ETR.

Table 6: Correlation matrix using CASH_ETR as metrics to tax aggressiveness

	CEOTurnover	HTAcash_etr	LTAcash_etr	StateControl	SIZE	DeltaROA	LEV
CEOTurnover	1.0000						
HTAcash_etr	0.0660***	1.0000					
LTAcash_etr	-0.1372***	-0.4066***	1.0000				
Statecontrol	-0.0106	-0.0294*	0.0186	1.0000			
SIZE	-0.0103	-0.0369**	-0.2110***	0.1445***	1.0000		
DeltaROA	0.0050	0.0138	0.0081	-0.0180	-0.0692***	1.0000	
LEV	-0.0074	0.0281	0.0772***	-0.0247	-0.3273***	-0.0374*	1.0000

Note: ***, ** and * significant at the levels 1%, 5%, and 10% respectively.

Table 6 highlights the relationship of the high tax aggressiveness (HTAcash_etr) and low tax aggressiveness (LTAcash_etr) variables, with the dependent variable CEOTurnover as a 99% significance index.

The correlation matrix in Table 7 shows the correlation between the proposed model's variables, using the tax aggressiveness metric ETR_LONGRUN.

Table 7: Correlation matrix using CASH_ETR as metrics to tax aggressiveness

Identificação do viés	Retorno acima da média		Controle sobre investimentos		Relação com outros motoristas	
	Frequência	Percentual	Frequência	Percentual	Frequência	Percentual
Presença do viés	208	53%	206	52%	276	70%
Ausência do viés	187	47%	189	48%	119	30%

Note: ***, ** and * significant at the levels 1%, 5%, and 10% respectively.

Table 7 highlights the low tax aggressiveness variable (LTAetr_longrun) with the dependent variable, CEOTurnover, as a 95% significance index.

A correlation matrix was developed for the tax aggressiveness metric TVAT. There was no correlation between the dependent variable CEOTurnover and the model's independent variables: high tax aggressiveness and low tax aggressiveness, as shown in Table 8.

Table 8 – Correlation matrix using TVAT as metric of tax aggressiveness

	CEOTurnover	HTAtvat	LTAtvat	StateControl	SIZE	DeltaROA	LEV
CEOTiurnover	1.0000						
HTAtvat	0.0295	1.0000					
LTAtvat	-0.0187	-0.3825***	1.0000				
StateControl	-0.0106	-0.0217	0.0495***	1.0000			
SIZE	-0.0103	-0.0647***	-0.1590***	0.1445*	1.0000		
DeltaROA	0.0050	-0.0149	0.0158	-0.018	-0.0692*	1.0000	
LEV	-0.0074	0.0627***	0.0862***	-0.0247	-0.3273*	-0.0374*	1.0000

Note: ***, ** and * significant at the levels 1%, 5% and 10% respectively

The correlation matrix with significant variables between CEO turnover and high and low aggressiveness indicators shows the potential for a significant relationship between the variables. However, the robust results are those presented by multivariate regressions.

4.3 Results of regression

For the regression model, the data were studied using the three metrics on tax aggressiveness: CASH_ETR, ETR_LONGRUN, and TVAT. Three statistical methods were used to estimate the data: ordinary least squares, panel regression, and logit regression, for each of the tax aggressiveness metrics. The most accurate method was panel logit regression, with the fixed effect of the company and year.

According to the panel logit regression model with fixed effect 'company and year,' using the CASH_ETR tax aggressiveness metric, the model was estimated based on 6 interactions and counting 2,250 observations.

Table 9: Results of regression with CASH_ETR

CEOTurnover	Coeff.	Std. Err.	Z	P>|z|	[95% Conf. Interval]	
StateControl	-0.167118	0.1971136	-0.85	0.397	-0.5534536	0.2192176
HTAFcash_etr	-0.0232353	0.1402686	-0.17	0.868	-0.2981566	0.251686
LTAcash_etr	0.1789121	0.1011695	1.77	0.077*	-0.0193765	0.3772006
SIZEw	-0.0244108	0.0168523	-1.45	0.147	-0.0574408	0.0086191
DeltaROAw	0.0037287	0.0303469	0.12	0.902	-0.0557501	0.0632075
LEVw	0.0016042	0.0232155	0.07	0.945	-0.0438973	0.0471057

Note: * relation at 90% confidence interval

Table 9 presents the result of the regression using CASH_ETR as a tax aggressiveness metric, pointing out only one variable that was related to CEO turnover, LTA (low tax aggressiveness), with 90% confidence represented by its p-value (P>|z|) less than 10% (0.077). The estimated ratio is approximately 18% (0.1789121), meaning that with each 1% increase in the degree of low tax aggressiveness, the CEO will have an additional 18% chance of being replaced. However, one cannot discard the variable SIZE, which presented a relevant result for its p-value (P>|z|) of 0.147.

For the logit panel regression model, with the company and year's fixed effect and adopting the tax aggressiveness metric ETR_LONGRUN, six interactions were used to estimate the model, counting 2,544 observations.

Table 10: Results of regression with ETR_LONGRUN

CEOTurnover	Coeff.	Std. Err.	Z	P>z	[95% Conf. Interval]	
StateControl	-0.0493924	0.1871823	-0.26	0.792	-0.416263	0.3174783
HTAetr_long	-0.1403001	0.102867	-1.36	0.173	-0.3419157	0.0613155
LTAetr_long	0.1898604	0.1059129	1.79	0.073*	-0.0177251	0.3974459
SIZE	-0.0068916	0.0156358	-0.44	0.659	-0.0375373	0.023754
DeltaROA	-0.0005962	0.000397	-1.50	0.133	-0.0013744	0.000182
LEV	0.000042	0.0000334	1.26	0.208	-0.0000234	0.0001075

Note: * relation at 90% confidence interval

Table 10 presents only one variable related to CEO turnover, LTA (low tax aggressiveness), with 90% confidence represented by its p-value (P>|z|) below 10% (0.073). The estimated ratio is approximately 19%, i.e., for each 1% increase in the degree of low tax aggressiveness, there are 19% chances of CEO replacement. However, one cannot discard the DeltaROA variable, which presented a relevant result for its p-value (P>|z|) of 0.133. According to the panel logit regression model, with the fixed effect of company and year, using the TVAT tax aggressiveness metric, six interactions were used to estimate the model, counting on 2,544 observations.

Table 11 shows the regression results using the TVAT tax aggressiveness metric, not related to any model variable with 99, 95, and 90% confidence, represented by its p-value (P>|z|) lower than 10, 5, and 1%. However, one cannot discard the variable DeltaROA that presented a relevant result for its p-value (P>|z|) of 0.134, and the LEV that also showed a relevant result for its p-value (P>|z|) of 0.166.

Table 11: Results of regression with TVAT

CEOTurnover	Coeff.	Std.Err.	Z	P>|z|	[95% Conf. Interval]	
StateControl	-0.0736107	0.187	-0.390	0.695	-0.441046	0.2938246
HTAtvat	-0.0685431	0.1300795	-0.530	0.598	-0.3234942	0.186408
LTAtvat	0.0365225	0.0935233	0.390	0.696	-0.1467798	0.2198248
SIZE	-0.0045730	0.0156745	-0.290	0.770	-0.0352944	0.0261484
DeltaROA	-0.0005994	0.0004004	-1.500	0.134	-0.0013842	0.0001854
LEV	0.0000461	0.0000333	1.380	0.166	-0.0000192	0.0001115

The results corroborate the findings obtained by Chyz and Gaertner (2018), evidencing that CEOs who are not sufficiently tax aggressive are more likely to be replaced. Despite there being legal uncertainties regarding tax avoidance, CEOs in Brazil prefer to pay fewer taxes even though the practice may incur reputational penalties, avoiding being replaced.

Besides, a test for omitted variables was performed to check if an explanatory variable was missing in the model, ensuring that the model is well specified. One of the premises of the linear regression model is that variables X and Y are linearly related. The Ramsey-RESET (1969) test revealed that in H0, there are no omitted variables, and the model is well specified, i.e., X and Y are linearly related. In H1, the model has omitted variables, which generates a bias in the coefficient estimates. The command estatovtest in the STATA software was used to carry out this test. As p-value> 5% in all OLS models, this problem was not detected, and this test is only valid for OLS.

5 Conclusion

This study verified whether more or less tax-aggressive Brazilian companies tend to change the CEO. Methodologically, from the data collected from the ECONOMÁTICA and CVM database from 2010 to 2016, the research conducted a multiple linear regression among the dependent variable CEOTurnover, the explanatory variables high and low tax aggressiveness, and the control variables (StateControl, SIZE, DeltaROA, and LEV), which sought to avoid bias in the results.

Three tax aggressiveness metrics based on the literature were used (CASH_ETR, ETR_LONGRUN, and TVAT). The results of these metrics were classified in a quintile, which made it possible to highlight companies that were less or highly tax aggressive. The result analysis observed that the metric TVAT did not

present significant results. However, the proxies of tax aggressiveness CASH_ETR and ETR_LONGRUN showed significant results for low tax aggressiveness (LTA).

The research found that CEO turnover is sensitive to the outcome of the CASH_ETR and ETR_LONGRUN metrics. When analyzing all taxes using the TVAT metric (which considers indirect taxes), no correlation was found between the variables tax aggressiveness and CEOTurnover. Why could this non-significance have occurred? A possible hypothesis for this would be why a decision is made on the Income Statement and not on the VAS. Another possible theory has to do with the metric itself. This VAS metric captures the effect of all taxes, including sales taxes, but the company does not owe these taxes: they are collected from customers and passed on to the government. On the other hand, the taxes on income are due to the company. Therefore, the focus, apparently, maybe on these taxes, and therefore, there may have been the statistical significance of the variable LTA to the two ETR regressions.

Overall, the results show evidence that CEOs with a profile related to low tax aggressiveness are more likely to be replaced. The findings reinforce the relevance of tax planning as a determining factor to remain in managers' position.

This study's limitation is related to the fact that it works only with companies listed on the Brazilian stock exchange B3, which is a small number of organizations (just over 500). In more developed markets, such as in the US, there are more than 3,000 listed companies.

Finally, this study may inspire further research connecting tax aggressiveness and CEO turnover, observing, for instance, the CEO's profile regarding their education level (degree, master, or Ph.D.), whether they were trained in a public or private educational institution, the CEOs background, religious preferences, whether they had military training, or present a narcissistic profile.

References

Araújo, R. A. M. & Leite Filho, P. A. M. (2017). Análise da Relação entre o Nível de Agressividade Fiscal e a Rentabilidade das Empresas da BM&FBovespa e NYSE. Anais do Congresso Anpcont, Belo Horizonte, MG, Brasil, 11.

Armstrong, C. S., Blouin, J. L., Jagolinzer, A. D., & Larcker, D. F. (2015). Corporate governance, incentives, and tax avoidance. Journal of Accounting and Economics, 60(1), 1–17. https://doi.org/10.1016/j.jacceco.2015.02.003

Armstrong, C. S., Blouin, J. L., & Larcker, D. F. (2012). The incentives for tax planning. Journal of Accounting and Economics, 53(1), pp. 391–411. doi: https://doi.org/10.1016/j.jacceco.2011.04.001

Blouin, J. (2014). Defining and Measuring Tax Planning Aggressiveness. National Tax Journal, 67(4), pp. 875– 900. http://www.jstor.org/stable/24370010

Brown, J. L. (2011). The Spread of Aggressive Corporate Tax Reporting: A Detailed Examination of the Corporate-Owned Life Insurance Shelter. The Accounting Review, 86(1), pp. 23–57. doi: https://doi.org/10.2308/ accr.00000008

Changu, K. Hyung, T. K. Byungjin, K., & Seungwon, L. (2018). The Effect of Ex-ante CEO Turnover Risk on Firms' Discretionary Expenditures. Quarterly Journal of Finance & Accounting. Vol. 56 Issue 1/2, p53-90. 38p.

Chen, Z; Ebrahim, A. (2018). Turnover threat and CEO risk-taking behavior in the banking industry. Journal of Banking & Finance. Vol. 96, p 87-105. https://doi.org/10.1016/j.jbankfin.2018.08.007

Cheng, C. S. A., Huang, H. H., Yinghua Li, & Stanfield, J. (2012). The Effect of Hedge Fund Activism on Corporate Tax Avoidance. The Accounting Review, 87(5), pp. 1493–1526. doi: https://doi.org/10.2308/accr-50195

Chyz, J., Gaertner, F., (2018) Can Paying "Too Much" or "Too Little" Tax Contribute to Forced CEO Turnover? The Accounting Review, Vol. 93, No. 1, pp. 103-130. https://doi.org/10.2308/accr-51767

Dani, A. C., Carmona L. J. M., & Hein, N. (2015). Turnover de CEO, reputação corporativa e desempenho econômico-financeiro das empresas brasileiras de capital aberto. Anais do Egema, São Paulo, SP, Brasil.

Da Silva, R., & Martinez, A. L. (2017). Restrição Financeira e Agressividade Fiscal nas Empresas Brasileiras de Capital Aberto. Anais do Congresso Anpcont, Belo Horizonte, MG, Brasil, 11.

Desai, M. A., & Dharmapala, D. (2006). Corporate tax avoidance and high-powered incentives. Journal of Financial Economics, 79(1), pp. 145–179. doi: https://doi.org/10.1016/j.jfineco.2005.02.002

Dyreng, S. D., Hanlon, M., & Maydew, E. L. (2008). Long-Run Corporate Tax Avoidance. The Accounting Review, 83(1), pp 61–82. doi: https://doi.org/10.2308/accr.2008.83.1.61

Dyreng, S. D., Hanlon, M., & Maydew, E. L. (2010) The Effects of Executives on Corporate Tax Avoidance. The Accounting Review 85 (4): 1163-1189. https://doi.org/10.2308/accr.2010.85.4.1163

Fernandes, V. L., Martinez, A. L., & Nossa, V. (2013). The Influence of the Best Corporate Governance Practices on the Allocation of Value Added to Taxes. A Brazilian Case. Contabilidade, Gestão e Governança, 16(3), pp. 58–69.

Ferreira, F. R., Martinez, A. L., Costa, F. M. Da, & Passamani, R. R. (2012). Book-tax differences e gerenciamento de resultados no mercado de ações do Brasil. Revista de Administração de Empresas, 52(5), pp. 488–501. doi: https://doi.org/10.1590/S0034-759020120005000002

Francis, B. B., Hasan, I., Qiang Wu, & Meng Yan. (2014). Are Female CFOs Less Tax Aggressive? Evidence from Tax Aggressiveness. Journal of the American Taxation Association, 36(2), pp. 171–202. doi: https://doi.org/10.2308/atax-50819

Gaertner, F. B. (2014). CEO After-Tax Incentives and Corporate Tax Avoidance. Contemporary Accounting Research 31 (4): 1077-1102. https://doi.org/10.1111/1911-3846.12058

Graham, J. R., Hanlon, M., Shevlin, T., & Shroff, N. (2013). Incentives for Tax Planning and Tax Avoidance: Evidence from the Field. The Accounting Review 89(3): 991-1023. https://doi.org/10.2308/accr-50678

Guo, L., & Masulis, R. W. (2015). Board Structure and Monitoring: New Evidence from CEO Turnovers. Review of Financial Studies. 28, 10, 2770-2811, Oct. 2015. https://doi.org/10.1093/rfs/hhv038

Hamori, M., & Koyuncu, B. (2015). Experience matters? the impact of prior ceo experience on firm performance. Human Resource Management, 54(1), 23-44. https://doi.org/10.1002/hrm.21617

Hanlon, M., & Heitzman, S. (2010). A review of tax research. Journal of Accounting and Economics, 50(2), pp. 127–178. doi: https://doi.org/10.1016/j.jacceco.2010.09.002

Hanlon, M. & J. Slemrod. (2009). What does tax aggressiveness signal? Evidence from stock price reactions to news about tax aggressiveness. Journal of Public Economics 93 (1-2): 126-141. https://doi.org/10.1016/j.jpubeco.2008.09.004

He, L. Shaw, T. S. Fang, J. (2017). Managerial Labor Market during Institutional Transition: A study of CEO compensation and voluntary turnover. Corporate Governance: An International Review. May, Vol. 25 Issue 3, p167-185. https://doi.org/10.1111/corg.12187

Jianxin Gong, & J; Yuching Wu, S. (2011). CEO Turnover in Private Equity Sponsored Leveraged Buyouts. Corporate Governance: An International Review. 19, 3, 195-209. https://doi.org/10.1111/j.1467-8683.2010.00834.x

Lietz, G. (2013). Tax Avoidance vs. Tax Aggressiveness: A Unifying Conceptual Framework (SSRN Scholarly Paper No. ID 2363828). Rochester, NY: Social Science Research Network. Obtido de doi: https://papers. ssrn.com/abstract=2363828

Lisowsky, P. (2010). Seeking Shelter: Empirically Modeling Tax Shelters Using Financial Statement Information. The Accounting Review, 85(5), pp. 1693–1720. doi: https://doi.org/10.2308/accr.2010.85.5.1693

Lixiong G. & Masulis, R. W. (2015). Board Structure and Monitoring: New Evidence from CEO Turnovers. Review of Financial Studies. Vol. 28 Issue 10, p 2770-2811. https://doi.org/10.1093/rfs/hhv038

Martinez, A. L. (2017). Agressividade tributária: um survey da literatura. REPeC – Revista de Educação e Pesquisa em Contabilidade, v.11, Edição Especial, art. 6, p. 106-124, 201. doi: http://dx.doi.org/10.17524/repec.v11i0.1724

Martinez, A. L., & Coelho, L. F. D. A. (2016). Planejamento tributário com operações societárias: critérios de validade utilizados pelo CARF. Revista Contemporânea de Contabilidade, 13(30), pp. 193–213. doi: https://doi.org/10.5007/2175-8069.2016v13n30p193

Martinez, A. L., & Martins, V. A. M. (2016). Alavancagem financeira e agressividade fiscal no Brasil. Revista de Contabilidade da UFBA, Salvador, BA, v. 10, n. 3, p. 5 – 22.

Matos, R. M.; & Colauto, R. D. (2017) Justificativas do Turnover de Ceos: Estudo em Companhias Brasileiras Investidas por Fundos de Pensão. Revista de Contabilidade e Organizações, v. 11, n. 30, p. 24-35. http://dx.doi.org/10.11606/rco.v11i30.134430

Mellone Junior, G. & Saito, R. (2004) Monitoramento interno e desempenho da empresa: determinantes de substituição de executivos em empresas de capital aberto no Brasil. Revista de Administração, v. 39, n. 4, p. 385-397.

Mendes-Da-Silva W., & Grzybovski, D. (2006) Efeitos da governança corporativa e da performance empresarial sobre o turnover de executivos no Brasil: comparando empresas familiares e não-familiares. Revista de Administração Mackenzie, v. 7, n.1, p. 45-70.

Menon, K. E, & Williams, D. D. (2010), Management Turnover Following Auditor Resignations. Contemporary Accounting Research, v. 25, N. 2, p. 567-604 https://doi.org/10.1506/car.25.2.10

Motta, F., & Martinez, A. (2015). Agressividade Fiscal em Sociedades de Economia Mista. Anais da Enanpad, Belo Horizonte,MG, Brasil, 39.

Pissaris, S. Heavey, A. Golden, P. (2017). Executive pay matters: looking beyond the CEO to explore implications of pay disparity on non-CEO executive turnover and firm performance. Human Resource Management. Vol. 56 Issue 2, p307-327. https://doi.org/10.1002/hrm.21766.

Powers, K., J. R. Robinson, & B. Stomberg. (2016). How do CEO incentives affect corporate tax planning and financial reporting of income taxes? Review of Accounting Studies 21 (2): 672-710. DOI 10.1007/s11142-016-9350-6

Rego, S. O., & Wilson, R. (2012). Equity Risk Incentives and Corporate Tax Aggressiveness. Journal of Accounting Research 50 (3): 775-810. https://doi.org/10.1111/j.1475-679X.2012.00438.x

Rizzotti, D. F., & Mazzone, R. (2017). The impact of family owners' monitoring on CEO turnover decisions and the role of trust. Journal of Management & Governance. Vol. 21 Issue 3, p599-621. DOI 10.1007/s10997-016-9367-z

Schoueri, L., & Freitas, R. de (EDS.). (2010). Planejamento tributário e o «propósito negocial»: mapeamento de decisões do Conselho de Contribuintes de 2002 a 2008. São Paulo: Quartier Latin.

Srivastav, A. Keasey, K. Mollah, S., &Vallascas, F. (2017). CEO turnover in large banks: Does tail risk matter? Journal of Accounting & Economics. Vol. 64 Issue 1, p37-55. 19p. https://doi.org/10.1016/j.jacceco.2017.05.001

Wilson, R. J. (2009). An Examination of Corporate Tax Shelter Participants. The Accounting Review, 84(3), pp. 969–999. doi: https://doi.org/10.2308/accr.2009.84.3.969.

Zajac, E. J. (1990). CEO selection, succession, compensation and firm performance: A theoretical integration and empirical analysis. Strategic Management Journal, 11: 217-230. https://doi.org/10.1002/smj.4250110304

Zhang P., Wierschem. D., Mediavilla, F. A. M., & Hong, K. P. (2016). An Empirical Investigation on CEO Turnover in IT Firms and Firm Performance. Journal of International Technology & Information Management., Vol. 25 Issue 2, 67-82. https://scholarworks.lib.csusb.edu/jitim/vol25/iss2/5

DADOS DOS AUTORES

Antonio Lopo Martinez
FUCAPE – Instituição Business School
País: Portugal
E-mail: antoniolopomartinez@gmail.com

Flavio Oliveira Brito
FUCAPE – Instituição Business School
País: Brasil
E-mail: faviooliveirabrito@hotmail.com

Viviane Ferreira de Oliveira Chiachio
FUCAPE – Instituição Business School
País: Brasil
Email: viviane.chiachio@gmail.com

Contribuição dos Autores:

Contribuição	Antonio Lopos Martinez	Flavio Oliveira Brito	Viviane Ferreira de Oliveira Chiachio
1. Concepção do assunto e tema da pesquisa	100%		

2. Definição do problema de pesquisa	50%	50%	
3. Desenvolvimento das hipóteses e constructos da pesquisa (trabalhos teórico-empíricos)	50%	50%	
4. Desenvolvimento das proposições teóricas (trabalhos teóricos os ensaios teóricos)			
5. Desenvolvimento da plataforma teórica	50%	50%	
6. Delineamento dos procedimentos metodológicos	50%	50%	
7. Processo de coleta de dados		50%	50%
8. Análises estatísticas	50%	50%	
9. Análises e interpretações dos dados coletados	50%	50%	
10. Considerações finais ou conclusões da pesquisa	50%	50%	
11. Revisão crítica do manuscrito	50%	50%	
12. Redação do manuscrito	50%	50%	