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# EFFECTS OF ESG ASPECTS IN TAX AGGRESSIVENESS IN B3 LISTED COMPANIES

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▪ Received: 05/26/2024 ▪ Approved: 01/15/2025

## ABSTRACT

The dynamism currently experienced by companies forces them to be competitive. Nevertheless, despite all the technology seen today, society has easy access to information and can promptly follow how a company acts in society. The aim of this research was to evaluate the effects of ESG aspects and the dismantling of Corporate Governance principles with Tax Aggressiveness. This research analyzed 1,507 observations of B3 open capital Brazilian companies listed in the São Paulo Stock Market and whose ESG score was available on Refinitiv Eiko from 2010 to 2022. The model used for analyzing data was the multiple linear regression technique with a robust standard deviation. Results indicate that companies that invest in ESG aspects are less aggressive tax-wise. Specifically, the findings suggest that governance has been relevant in reducing tax aggressiveness in companies. In a complementary analysis, with the dismantling of governance into principles, the results found indicate that the best levels of adherence to the principles of transparency, fairness and accountability are associated with less aggressive tax practices. However, for companies to improve

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their involvement with corporate governance further, the principle of corporate social responsibility needs to be emphasized. This research contributes to the national literature by demonstrating that Brazilian companies with the best ESG practices, and specifically those with the greatest adherence to CG principles, in average, tend to be less aggressive tax-wise.

**Keywords:** Corporate Governance. ESG. Tax Aggressiveness. Abnormal Book Tax Difference.

## EFEITOS DOS APECTOS ASG NA AGRESSIVIDADE TRIBUTÁRIA EM EMPRESAS LISTADAS NA B3

### RESUMO

A dinamicidade que as empresas vivem atualmente, forçam-nas a serem competitivas. No entanto, a sociedade diante de toda tecnologia existente, tem fácil acesso à informação, acompanhando de forma dinâmica os atos das empresas perante a sociedade. O objetivo desta pesquisa consistiu em avaliar os efeitos dos aspectos ASG e do desmembramento dos princípios da Governança Corporativa na Agressividade Tributária. A pesquisa analisou 1.507 observações de empresas brasileiras de capital aberto listadas na Bolsa de Valores de São Paulo (B3) que possuíam score ASG disponíveis na *Refinitiv Eiko*, durante o período de 2010 a 2022. O modelo de análise dos dados utilizado foi a técnica de regressão linear múltipla com erro padrão robusto. Os resultados indicaram que as empresas que investem nos aspectos ASG são tributariamente menos agressivas. De forma específica, os achados sugerem que a governança tem sido relevante para reduzir a agressividade tributária nas empresas. Em análise complementar pelo desmembramento da governança em princípios, chegou-se aos resultados de que melhores níveis de aderência aos princípios de transparência, de equidade e de prestação de contas, estão associados às práticas tributárias menos agressivas. Contudo, para que as empresas possam melhorar ainda mais o seu envolvimento com a governança corporativa é preciso maior ênfase para o princípio da responsabilidade social corporativa. A presente pesquisa traz contribuições para a literatura nacional ao evidenciar que as empresas brasileiras com melhores práticas de ASG e especificamente com maiores níveis de aderência aos princípios de GC em média tendem a praticar menos atos de agressividade tributária.

**Palavras-Chave:** Governança Corporativa. ASG. Agressividade Tributária. *Book Tax Difference* Anormal.

### 1 INTRODUCTION

Society expects companies to contribute to their environment; thus it monitors these companies through mandatory accounting information as well as

voluntary information, hence assuring that they are following the required and culturally accepted social norms (Mahdi & Acikdili, 2009).

The corporate practices required by society are connected to corporate social responsibility. However, stakeholders are focused on the optimization of costs and the decrease in the tax load with the aim of increasing profit and cash flow (Morais & Macedo, 2020). Tax planning, as a tax evasion practice, has been used to reduce the tax burden of companies (França et al., 2017).

Lisowsky, Robinson and Schimidt (2013) define tax evasion as a subset with little legal backing in its underlying positions. Concomitantly, Lietz (2013) posits that tax evasion is at the limit of tax planning and would not withstand an audit from a competent federal authority. Thus, Tang (2005) and Tang & Firth (2011) created an econometric model to measure tax aggressiveness called the *Abnormal Book Tax Difference* (ABTD). This model aims to identify whether or not there are components that suggest the use of tax aggressiveness practices by companies (Morais & Macedo, 2020).

The ABTD measures possible abnormalities in the value of taxes released on financial statements (Fonseca & Costa, 2017). Stoduto, Rezende and Júnior (2021) posit that the ABTD observes the discretionary tax components that may indicate tax manipulation with the purpose of obtaining tax savings.

All parties concerned are affected by the wrongful expropriation of resources that should be directed to public policies for health, education, and basic sewage treatment; as well as infrastructure, public safety and more (Desai, 2005; Lev & Nissim, 2004; Brunozi Júnior, 2016). Furthermore, companies that adopt tax aggressiveness practices may have their image associated with low empathy by collaborators and business partners (Desai, 2005; Lev & Nissim, 2004).

Therefore, with the purpose of reducing opportunistic practices on the part of management and major shareholders, the government and other stakeholders expect companies to adopt responsible and sustainable corporate practices. ESG (*Environmental, Social and Governance*) has been the focus of companies that aim to improve their image and identify, monitor, and manage corporate risk (Sunarsih & Oktaviani, 2016). The priority of companies that focus on ESG is to gain stakeholder confidence through monitoring mechanisms that are strengthened by Corporate Governance (CG) (Bermejo Climent et al., 2021; Diaye, Ho & Oueghlissi, 2022).

Coleman, Maheswaran & Pinder (2010) define ESG based on three pillars: pillar E - environmental – which involves the effort a company makes to positively impact the environment through compliance with existing rules and acknowledging future impact; pillar S – social – which refers to the fair treatment of the interested parties and the protection of the social ecosystem to which the company belongs; and pillar G – corporate governance – which incorporates the ethics and the integrity of the company, including principles (transparency, fairness, Corporate Social Responsibility – CSR – and accountability) and fair dealings, as well as the efficient operation of the administrative board.

Currently, companies direct resources towards ESG practices to ensure sustainable dealings and in an attempt to reach a balance between their commercial and social aims, as well as to make the best use of scarce resources

(Ullah, Muttakin & Khan, 2019). ESG depends on a solid CG structure to be well-succeeded and bring about the results expected by the parties involved, while CG principles should prevail as a founding pillar for environmental and social actions (Yoon, Lee & Cho, 2021).

CG principles are listed as being Disclosure, Fairness, Accountability and CSR (Silveira, 2006; IBGC, 2015; Dallagnol et al., 2021). Williamson (1979) and IBGC (2015) explain that the association between ESG and CG principles can improve the monitoring of contracts and mitigate agency issues between shareholders and management, and between the interests of major and minor partners.

Previous studies, such as those by Tang and Firth, 2011; Dridi and Boubaker, 2016; Sant'anna and Brunozi Júnior, 2019; Dallagnol et al., 2021; Gomes, Brugni & Beiruth, 2021; Carvalho and Ávila, 2022, provide evidence that investments in ESG and CG principles grant the reputation of a company and reduce the opportunistic behavior of management.

Hence, an updated revision was searched for in the literature regarding the topic, with the investigation of recent research that addresses topics involving ESG aspects, CG principles and the ABTD. However, before this research was carried out, the association of these three elements had not been identified, i.e., studies in the literature addressing the topics of ABTD and ESG, ABTD and governance principles, and ESG and governance principles could be found, but not the combination of the three elements. Thus, the present study fills a gap in this respect and distinguishes itself from studies already done.

Therefore, the research problem can now be presented: what are the effects of ESG aspects and the dismantling of Corporate Governance principles on the tax aggressiveness of B3 companies? Hence, the aim of this research was to analyze the effect of ESG aspects and the dismantling of Corporate Governance principles for tax aggressiveness for B3 companies.

This study presents contributions by indicating if ESG is an ally of stakeholders in reducing possible fiscal sanctions by attitudes and tax decisions that may be connected to the field of tax aggressiveness. In addition, we take a step further by indicating if the governance of ESG dismantled into principles has any added effect in mitigating the opportunistic behaviors of management when facing tax decisions.

## **2 ESG AND TAX AGGRESSIVENESS ON THE PART OF THE ABTD**

The ABTD represents the discretionary part of accounting profit management and tax profit, motivated by the opportunistic behavior to manipulate results on the part of company management. This manipulation determines if accounting profit will be greater or smaller, affecting the value of taxes that should be collected for the public coffers (Tang & Firth, 2011; Brunozi Júnior, 2016).

The ABTD is an efficient method to detect the management of results or the opportunistic behavior of a company, whether it be accounting or tax purposes,

since the aim of the ABTD is to measure the noise in a company's future cash flow results, identifying opportunistic behavior in a company's long term performance (Tang, 2005; Carvalho, 2015).

Brunozi Júnior (2016) demonstrated that, in the national literature, there is a strong tendency for opportunistic behavior by management on their own behalf, satisfying their financial needs through the manipulation of results and increasing the company's net profit while reducing the tax burden. The author demonstrated that opportunistic behavior is identified through the ABTD.

With the goal of reducing the opportunistic practices of management and major shareholders, the government and other stakeholders expect companies to adopt responsible and sustainable corporate practices. ESG has called the attention of companies who aim to improve their image and identify, monitor, and manage corporate risks (Sunarsih & Oktaviani, 2016).

ESG fosters perpetuity and sustainability by generating long-term value for organizations. ESG, in its environmental aspect (E), aims to promote the relationship between the company and the environment, assessing its dependence on natural resources and the concern with impacts on the environment caused by the company's actions in a sustainable manner, ensuring that it can endure for the next generations (Daft, 2010).

Redecker and Trindade (2021) understand the social – S – as a guarantee that every individual is treated with equality and respect, fostering a fair society of social inclusion, focused on the elimination of poverty. This means avoiding any form of human exploitation and aiming for the well-being of the community in general, establishing corporate management based on the commitment of the organization to the development of society's well-being and its improvement. Finally, governance – G – represents the integrity and ethics of the organization; it is responsible for the good relationship of the concerned parties with the company's internal issues, such as fair and transparent negotiations, and an efficient and effective functioning of the administrative board (Coleman et al., 2010).

Based on previous studies, Tang and Firth, (2011); Brunozi Júnior, (2016); Dridi and Adel, (2016); Sunarsih and Oktaviani, (2016); Daft, (2010); Redecker and Trindade, (2021); Coleman et al., (2010), the present research suggests that companies that invest in ESG tend to have better results in matters pertaining to the environment, the social and governance, indicating that companies with the best rating in ESG reduce any biased behavior on the part of management and the company, and lead them to a decrease in taxes with the ABTD. Hence, the first hypothesis ( $H_1$ ) of the research is formulated:

$H_1$  – Companies with better (worse) performance in ESG reduce (increase) the occurrence of tax aggressiveness.

## **2.1 Principles of corporate governance and tax aggressiveness with ABTD**

CG is established by a set of rules and practices that aim to reduce conflicts of agency, using incentives and control mechanisms (Silveira, 2003). Rossetti and

Andrade (2011) explain that CG practices must be aligned with the principles of transparency, fairness, CSR, and accountability. The authors state that the development of CG practices is associated with organizational structures which should be useful, with the purpose of developing and understanding the company's internal processes in a continuous and long-lasting manner, encouraging internal stimuli to constantly improve and controlling external pressures.

According to Rossoni, Aranha & Mendes-da-Silva (2018), CG practices in Brazil mold companies according to the institutional environment and local culture. Furthermore, the authors add that the Brazilian stock market created levels of CG adherence (new market, level 1 and level 2) and companies with the best voluntary CG practices are those at the highest CG levels.

In previous studies, Tandean and Winnie, (2013); Dridi and Boubaker, (2016); Sunarsih and Oktaviani, (2016); Rossoni et al., (2018); Sant'anna and Brunozi Júnior, (2019); Morais and Macedo, (2020); Gomes et al., (2021); Carvalho and Ávila, (2022), it was demonstrated that CG, when it is aligned with issues that involve regulators and the concerned parties, reduces the occurrence of ABTD. Hence, the second hypothesis of the research is:

H<sub>2</sub> – Companies with greater (less) adherence to CG principles reduce (increase) tax aggressiveness.

According to the Brazilian Institute of Corporate Governance (IBGC), CG principles aim at aligning interests, preserving, and optimizing the organization's economic value in the long run, facilitating access to resources, contributing to the quality of the organization's management, as well as its longevity and the common good (IBGC, 2015).

In this sense, the aim of the Disclosure principle is to reduce the difference in information that exists between the organization's internal and external agents. Therefore, asymmetry of information is understood as the phenomenon in which some economic agents have more information than others (Williamson, 1988).

Transparency is a voluntary, and not only mandatory (which is regulated by the law), disclosure of information that is considered important to the parties concerned. The main objective of transparency is to have clear and reliable information available for the company to make decisions (IBGC, 2017). According to Dyer Lang & Stice-Lawrence (2016), managers can use voluntary disclosures to mitigate the negative effects of mandatory disclosures which, to a certain extent, are complex.

Therefore, it is expected that the Transparency principle take on the role of transparency among the concerned parties and that CG be transparent to avoid the reduction of taxes. Therefore, the next hypothesis of this research is:

H<sub>2a</sub> – Companies with greater (less) adherence to the Transparency principle reduce (increase) tax aggressiveness.

The Fairness principle is seen as a sense of justice focused on the equitable treatment regarding the rights of the minority and majority shareholders (Andrade & Rosseti, 2012). The IBGC (2017) states that this principle is related to legal science, ensuring the right of equality established by laws, decrees and guidelines that regulate the duties and obligations of companies and their external agents. According to Segundo Caixe, Matias & Oliveira (2013), to meet the criteria of fairness, CG must use the mechanisms that protect minority shareholders, also outlined by free-float and tag along.

The Fairness principle, according to Jacoby et al. (2019) Aguiar (2016) e Lenhardt et al. (2020), has the purpose of ensuring equal treatment and a sense of justice for the parties concerned. However, the present research aims to identify biased behaviors on the part of CG. Hence, the next hypothesis of this research is:

H<sub>2b</sub> – Companies with greater (less) adherence to the fairness principle reduce (increase) tax aggressiveness.

The Principle of Corporate Social Responsibility (CSR) prioritizes that the actions and attitudes of a company be thought of with the aim of long-term perpetuity, considering the idea that companies take on a responsibility that goes beyond legal issues, focusing on environmental, social and economic actions (Andrade & Rosseti, 2012; Aguiar, 2016; Oh, Chang & Kim, 2018).

In order to avoid interference, CSR created a code of conduct that, according to Silva and Leal (2005), is elaborated by CG based on concepts and ideas of the Administrative Board, attributing capacities and obligations to company management and collaborators. According to the authors, there is a need for the code of conduct to resonate with legal, social, and environmental responsibilities due to the importance of CSR in the corporate setting.

Based on prior studies, Silva and Leal, (2005); Rego, (2010); Andrade and Rosseti, (2012); Aguiar, (2016); Oh et al., (2018), there is a negative relation between the ABTD and the CSR principle, i.e., the better CSR, the less relation there is with the ABTD. Findings demonstrate that, in this sense, companies have a greater involvement with the parties concerned, reducing biased behavior in relation to tax reduction. Therefore, the next hypothesis of the research is:

H<sub>2c</sub> – Companies with greater (less) adherence to the CSR principle reduce (increase) tax aggressiveness.

Finally, the Accountability principle is directly linked to CG agents since one of their attributes is the power to make decisions. Among CG attributes is the responsibility for choices and omissions; hence, accountability should be conducted in a timely and comprehensive manner by any user of information who is interested in analyzing the policies adopted by CG released through reports (Aguiar, 2016).

The IBGC indicate that CG agents are responsible for accountability by releasing accounting reports (Murcia; Carvalho, 2007; IBGC, 2015). Internal and external users must have access to the same quantity and quality of information released by CG, with the aim of reducing informational asymmetry among those involved (internal and external users) (Ajili & Bouri, 2018).

Based on previous studies, Murcia and Carvalho, (2007); Aguiar, (2016); Ajili and Bouri, (2018), it is expected in the present research that, by adopting CG principles, especially in regard to this basis (accountability), company management will not be involved with legal issues and that the administrative board will not serve personal objectives but those of the company, being transparent with those involved. Hence, the next hypothesis is:

H<sub>2d</sub> – Companies with greater (less) adherence to the Accountability principle reduce (increase) tax aggressiveness.

### 3 METHODOLOGICAL PROCEDURES

The population of this research included all B3 Brazilian companies (Brazil, Bolsa, Balcão) between 2010 and 2022. The period of this analysis is justified by the full adoption of the 2010 IFRS norms, called FULL IFRS. Santos *et al.*, (2011) posit that in 2010 it was demanded that Brazilian capital market companies adopt the IFRS norms. This was a crucial factor for corporate accounting to prioritize the disclosure of information to stakeholders, with fiscal aims of income tax calculation being the focus only of fiscal accounting.

To define the sample, it was necessary to exclude B<sup>3</sup> Brazilian companies that were not part of the ESG score based on Refinitiv Eiko data, as seen in Table 1.

Initially, B<sup>3</sup> Brazilian companies with active CNPJ<sup>TN</sup>s were verified, in a total of 464 companies as a part of the research population. Subsequently, 271 companies that were not part of the Refinitiv Eikon base with an ESG score were excluded. In addition, 27 companies in the Finances and Receivables Securitizations sector were excluded because they have a different accounting pattern than non-financial companies. Finally, 6 companies without an ESG score and negative net equity (NE) from 2010 to 2022 were excluded.

**Table 1**  
Outline of research sample

Research population	464
(-) B <sup>3</sup> Brazilian companies without an ESG score on Refinitiv	-271
(-) Brazilian Companies in the Finances and Receivables Securitizations sector	-27
(-) Brazilian companies with no ESG score and negative NE	-6

<sup>TN</sup> CNPJ (short for Cadastro Nacional da Pessoa Jurídica in Portuguese, or National Registry of Legal Entities) is an identification number issued to Brazilian companies by the Department of Federal Revenue of Brazil (in Portuguese, Secretaria da Receita Federal). See: [https://www.protecto.ai/blog/personal-dataset-sample-brazil-legal-entity-numbe-cnpj-download-pii-data-examples#:~:text=CNPJ%20\(short%20for%20Cadastro%20Nacional,%2C%20Secretaria%20da%20Receita%20Federal\).](https://www.protecto.ai/blog/personal-dataset-sample-brazil-legal-entity-numbe-cnpj-download-pii-data-examples#:~:text=CNPJ%20(short%20for%20Cadastro%20Nacional,%2C%20Secretaria%20da%20Receita%20Federal).)



<b>(=) Final sample</b>	<b>160</b>
<b>Sensitivity Analysis</b>	
(-) Brazilian companies ranked by Refinitiv with zero on the ESG score	-98
<b>(=) Final Sample for sensitivity test</b>	<b>62</b>

Source: by the authors.

The sample outline resulted in 160 companies with a total of 1,507 observations with unbalanced data. A sensitivity test was conducted and 98 companies with a zero ESG score were eliminated. Hence, the research sample resulted in 62 companies and 416 observations with unbalanced data. The research sample encompasses 62 companies and ESG data from the most varied sectors of the Brazilian economy. The study's variables can be seen in the research construct.

Table 2 shows the specifications of the variables dependent on tax aggressiveness.

**Table 2**  
Dependent Variable: tax aggressiveness

Scope	Variable	Description	Calculation	Collection source	Technical Support
Tax aggressiveness	ABTD	Book Tax Difference Anormal	$  \begin{aligned}  BTD_{i,t} = & \alpha + \\  & \beta 1 EQUIV_{i,t} + \\  & \beta 2 RECV_{i,t} + \beta 3 IMOB_{i,t} + \\  & \beta 4 INT_{i,t} + \beta 5 JCP_{i,t} + \\  & \beta 6 DPF_{i,t} + \varepsilon_{i,t}  \end{aligned}  $	Economatica®	Carvalho (2015); Brunozi Júnior (2016); Sant'anna e Brunozi Júnior (2019)

Source: By the authors.

Table 2 presents the dependent variable created by the Abnormal Book Tax Difference (ABTD). Tax aggressiveness is obtained by the error of the regression seen in the calculation column in Table 3. The result of the largest volume of error represents a greater intensity in a company's tax aggressiveness, while the result of the smallest volume of error of regression represents a lower intensity of a company's tax aggressiveness. In other words, positive values that indicate more tax aggressiveness or negative values that indicate less tax aggressiveness can be seen (Tang, 2005).

The dependent variable used in the model to measure tax aggressiveness refers to the Book Tax Difference (Total BTB). This proxy was demonstrated in studies by Gupta and Newberry (1997), Hanlon (2005), Tang (2005), Tang and Firth (2011), Carvalho (2015), Brunozi Júnior (2016), Sant'anna and Brunozi Júnior (2019), following the formula below:

$$\text{Accounting Profit}_{i,t} = PBT_{i,t} \quad (1)$$

$$\text{Tax Profit}_{i,t} = \text{Desp IR e CSLL}_{i,t} / 0,34 \quad (2)$$

$$\text{Total BTB}_{i,t} = (PBT_{i,t} - \text{Tax Profit}_{i,t}) / \text{Total Active}_{i,t} \quad (3)$$

Therefore, the total BTB is found in the difference between accounting profit (acquired by means of profit before taxes on profit (PBT)) minus tax profit (from

expenses with Income Tax (IT) and Social Contribution<sup>TN</sup> (CSLL)) during the period measured by the IT rate (15% of IT, 10% of additional IT and 9% for CSLL) measured by the total active.

Finally, it was important to demonstrate the independent variables contained in the model of multiple linear regression which represents tax aggressiveness. The EQUIV variable is the result of equity equivalence, and this value available is represented in the demonstrations of company results; the RECV variable is the sales revenue in time  $t$  minus time  $t-1$  divided by  $t-1$ ; the IMOB variable is the company's fixed asset, and this value is available on financial statements; the INT variable is the deferred and intangible asset available on the balance sheet; the JCP is the interest on equity; the value captured is the lowest value resulting from the multiplication of  $PL_t$  by  $TJLP_t$  or 50% of net profit in time  $t$ ; and the D\_PF variable is a dummy of fiscal loss in which, when the provisions of IT and CSLL are  $> 1$ , the result is 1, and zero if the contrary. This data was taken from Economática® (Tang & Firth, 2011; Carvalho, 2015; Bruonozi Júnior, 2016; Sant'anna & Brunozi Júnior, 2019).

For independent variables that are able to measure the ESG pillars, seen in this research as variables that explain tax aggressiveness in items that are a part of the ESG report, these variables were divided into four groups. The first group refers to the ESG group, indicating the average performance of the company in the three ESG dimensions; the second, third and fourth groups refer to the E, S and G variables respectively – separately - indicating the average of the company's performance in issues related to the use of natural resources, policies for the emission of pollutants and investments in environmental innovation (E); matters pertaining to the community, product responsibility, labor and human rights (S); and matters related to shareholder relations, management and CSR strategies (G). The performance metrics varies between 0 points (the lowest score) and 100 points (the highest score). The source was Refinitiv Eikon (Thanetsunthorn & Wuthisatian, 2016).

For the variables that are independent of CG principles, a metric created by Dallagnol et al. (2021) was used, which aims at measuring CG principles. In this study, CG principles are independent variables that explain tax aggressiveness.

Dallagnol et al. (2021) developed questions with the objective of measuring CG principles. To do this, binary (Dummy) and objective metrics were created with the YES answer equal to 1 point if the company used an item of the questionnaire, and NO equal to 0 points if the company did not use an item of the questionnaire.

The Transparency principle is made up of six points: 1) Declaration of specific wages or of its parts earned by the executives; 2) Disclosure of the sustainability report or social balance; 3) Declaration on the implementation of CG principles; 4) Declaration of the policy of allocation of results defined by the administrative board; 5) Guidance Disclosure; 6) Disclosure of the content of the ethics code or code of conduct (Macedo Neto et al., 2014; IBGC, 2017).

The Fairness principle is made up of six points, which are 1) The President of the administrative Board and the Chief Executive Officer (CEO) are not the same person; 2) the company statute establishes a mediation council to resolve

<sup>TN</sup> Social Contribution on Net Income (Brazil).

corporate conflict; 3) 1/3 of the company members are independent from the Administrative Board; 4) Stock free float is greater or equal to the minimum required by Level 1 at Bovespa (25%); 5) The controller group, considering the shareholder agreement, owns less than 50% of shares with the right to vote; 6) The company offers tag along rights beyond the level legally required (80% for common shares and 0% for preferred shares) (Silveira, 2003; Santos Junior, 2004; Martes, 2014; IBGC, 2017; BMF&BOVESPA, 2023).

The CSR principle is made up of four aspects: 1) there is a compliance program; 2) the company did not have any administrative proceedings open in the last year; 3) there is a social-environmental responsibility program; 4) The Chief Financial Officer (CFO) or CEO do not fill in as Chief of Relations with Investors (Silva & Leal, 2005; Lopes & Martins, 2005; IN CVM 480, 2009; IBGC, 2017).

The Accountability principle is made up of five issues: 1) Auditing is carried out by a Big Four; 2) Members of the council serve a one-year term; 3) The company has monitoring committees (compensation, nomination and/or auditing); 4) there is a permanent Fiscal Council; 5) auditing reports on financial statements were issued without caveats (Silva & Leal, 2005; IBGC, 2015).

Hence, in formulating the indicator of the CG principles, the sum of items met divided by the total number of items (21) of the construct was considered, producing a quotient that varies from 0 to 1. This procedure was conducted in the individualized indicators of transparency, fairness, equity, CSR, and accountability.

Finally, the variables of control, ROA, is return on total asset (Net profit/ Total asset); TAM is a company's asset capacity (Logarithm of the total assets at the beginning of the year); LEVER is the financial leverage of the company (long term debt/total asset of the previous year), INTANG is the degree of intangibility (Intangible asset/total asset), and INTES is the degree of immobilization of assets (fixed asset/total asset). Data was obtained with Economatica® (Gupta & Newberry, 1997; Martinez & Ramalho, 2017; Martinez & Reinders, 2018; Santos & Oliveira, 2020).

Data was quantified and tabulated on an electronic spreadsheet (Microsoft Excel). Subsequently, ABTD aggressiveness indexes were calculated as an independent variable, as well as indexes that measure the CG principles (Transparency, Fairness, CSR and Accountability) and the ESG aspects as dependent variables and control variables (ROA, TAM, LEVER, INTANG and INTES). After that, descriptive statistics were used, encompassing average, median, standard deviation, minimum value, and maximum value to fully understand the data being worked on.

To verify the relation between the index of aggressiveness, CG principles and ESG, multiple linear regression was used with a robust standard error and an unbalanced data sample since it combined sectional and temporal data that enable the analysis of the same companies (the number of companies is different for each year) at different periods of time. Besides that, a control per sector and year was conducted. This allowed a dynamic analysis of the relationship between variables, improving the efficiency of the estimators due to a greater amount of data, increasing degrees of freedom and mitigating problems related to

multicollinearity. The software used to analyze data was Stata (© Copyright 1996–2023 StataCorp LLC).

The equations of linear regression of the ordinary least squares (OLS) represent the models used in the research.

$$ABTD_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 VAR.CONTROL_{it} + \varepsilon$$

$$ABTD_{it} = \beta_0 + \beta_1 ESG\_SOCIAL_{it} + \beta_2 ESG\_GOV_{it} + \beta_3 ESG\_AMB_{it} + \beta_4 VAR.CONTROL_{it} + \varepsilon$$

$$ABTD_{it} = \beta_0 + \beta_1 ESG\_SOCIAL_{it} + \beta_2 ESG\_AMB_{it} + \beta_3 TRANSP_{it} + \beta_4 EQUID_{it} + \beta_5 RESP\_CORP_{it} + \beta_6 PREST\_CONT_{it} + \beta_7 VAR.CONTROL_{it} + \varepsilon$$

$$ABTD_{it} = \beta_0 + \beta_1 ESG\_SOCIAL_{it} + \beta_2 ESG\_AMB_{it} + \beta_3 PRINC\_GOV_{it} + \beta_5 VAR.CONTROL_{it} + \varepsilon$$

In relation to the premises, normality was relaxed in all models when considering the Central Limit Theorem which indicates the validity of normality in samples over 100 observations (Gujarati, 2011). To correct the possibility of homoscedasticity issues, robust regression models were used with White's correction. For multicollinearity, the Variance Inflation Factor (VIF) test was used and is presented in the results table.

## 4 ANALYSIS AND DISCUSSION OF RESULTS

It was expected that CG principles (Transparency, Fairness, CSR and Accountability) and the Environmental and Social aspects were negatively related to tax aggressiveness ( $-p < 0,05$ ) (Tang e Firth (2011)). In this sense, CG principles and Environmental and Social aspects should function as mitigating factors of undesirable tax practices (Brunozi Júnior, 2016).

In regard to control variables, it is observed that there is an expectation for a positive relation between asset return, the size of the company, leverage, intangibility, and capital intensity with tax aggressiveness. In this sense, companies with higher profitability, which are larger in size, have more leverage financially, greater intangibility and greater capital intensity, present a greater propensity to use undesirable practices of tax economy. Table 3 demonstrates the influence of ESG on tax aggressiveness.

The results seen in Table 3 suggest that companies that have ESG scores in all three dimensions negatively influence tax aggressiveness. When analyzing model 1, focusing specifically on ESG aspects as a whole and individually in model 2, a 5% significance is identified in model 1, while in model 2, the 5% significance was seen in the social and CG pillars. The results also demonstrate a 5% significance for the control variables ROA, TAM and INTANG.

**Table 3**  
Influence of ESG on tax aggressiveness

Explicative Variables	Mod. 1		Mod. 2	
	Coef.	Sig.	Coef.	Sig.
ESG	-0,000702	0,023*	-0,0013505	0,000*
ESG_SOCIAL				

ESG_GOV			-0,0010581	0,000*
ESG_AMB			0,0015285	0,000*
ROA	0,2260533	0,000*	0,1247425	0,021*
TAM	-0,0194129	0,009*	-0,0227177	0,001*
LEVER	0,0035673	0,794	-0,0208761	0,110
INTANG	0,2490518	0,000*	0,2266976	0,000*
INTENS	-0,0184121	0,426	0,0046687	0,851
_CONS	0,2664401	0,033*	0,3638085	0,002*
No. Observations	416		416	
Sig. of Model	0,0000*		0,0000*	
R <sup>2</sup>	0,4086		0,4796	
Max VIF.	1,77		2,38	

Note: representing the statistical significance at 5% when  $p < 0.05^*$ , and at 10% when  $p < 0.10^{**}$ .  
Source: by the authors.

These results suggest that companies with a positive score in ESG tend not be aggressive tax-wise (model 1). However, when ESG aspects were studied individually, different scenarios were found.

Model 2 demonstrates ESG pillars separately – for social and governance. Results demonstrate that companies are engaged with the social aspect and CG and are concerned about issues involving the social environment in which they find themselves, demonstrating that they are attuned to issues involving employees and society as a whole. The same can be said of CG, in which they adopt measures to reduce tax aggressiveness.

Previous studies present comparable results as those in Table 3: Tang and Firth (2011), Tandean and Winnie (2013), Dridi and Boubaker (2016), Sunarsih and Oktaviani (2016), Silva et al. (2018), Sant'anna and Brunozi Júnior (2019), Morais and Macedo (2020), Gomes et al. (2021), Carvalho and Ávila (2022) all suggest that engaging with ESG aspects mitigate behaviors that harm a company's behavior and ethics.

Results also suggest that smaller-sized companies tend not to have opportunistic behaviors in regard to tax reduction. This is different from companies with a larger ROA and greater intangibility since they are a significant 5% in both models.

With the aim of studying the most relevant factor to minimize opportunistic tax behavior in the CG pillar, CG was separated into four principles. Hence, Table 4 demonstrates the influence of CG principles on tax aggressiveness for the sample of companies with ESG scores.

The results of Table 4 suggest that companies that meet the principles of transparency, fairness and accountability have a negative influence on tax aggressiveness. When analyzing model 3, the social and environmental pillar were compared to CG principles (transparency, fairness, CSR and accountability). Results suggest that companies that focused on the principles of transparency, fairness and accountability tend to be concerned about social and environmental issues, hence contributing in mitigating ABTD practices.

**Table 4**

## Influence of the Principles of Corporate Governance on tax aggressiveness

Explicative Variables	Mod. 3		Mod. 4	
	Coef.	Sig.	Coef.	Sig.
ESG_SOCIAL	-0,0008300	0,008*	-0,001806	0,000*
ESG_ENV	0,0009563	0,002*	0,0015719	0,000*
TRANSP	-0,1807741	0,000*		
FAIRNESS	-0,1272800	0,001*		
CORP RESP	-0,0019840	0,939		
ACCOUNT	-0,1122593	0,000*		
GOV PRINC			0,0070839	0,915
ROA	0,1905037	0,001*	0,1604122	0,008*
TAM	-0,0151514	0,040*	-0,0229128	0,000*
LEVER	-0,0255033	0,049*	-0,008247	0,676
INTANG	0,2018414	0,000*	0,2140342	0,000*
INTENS	0,0089572	0,707	-0,0152905	0,607
_CONS	0,5338519	0,000*	0,3263557	0,001*
No. Observations	416		416	
Sig. of Model	0,0000*		0,0000*	
R <sup>2</sup>	0,5357		0,4575	
Max. VIF	2,58		1,77	

Note: represents the statistical significance of 5% when  $p < 0.05^*$ , and 10% when  $p < 0.10^{**}$ .

Source: by the authors.

In model 4, CG principles were isolated separately and also unified as a group. Results suggest that companies that meet CG principles as a group do not have the power to mitigate tax aggressiveness. They also point to low adherence to CSR. However, companies engaged with social and environmental aspects tend to mitigate the power of ABTD.

The results of Table 4 also suggest that CG principles are strong allies of legal practices and the use of mechanisms that tend to mitigate tax reduction. However, to improve Corporate Governance performance, results suggest that issues involving CSR should be improved in the companies analyzed since they are significant in model 3.

Nevertheless, results also show that companies with a higher ROA and greater intangibility positively influence tax aggressiveness. In the case of smaller companies with lower intangibility, the practice of ABTD is reduced. Previous studies prove the findings in Table 4.

Montenegro (2021) established that in countries with a strong CG, and that adhere to CG principles and ESG practices, corrupt company practices are reduced. Also, Lee et al (2021) concluded that companies that strongly adhere to CG and ESG principles are positively linked to taxes with a reduction in tax aggressiveness.

Gomes et al. (2021) infer that companies with higher levels of ABTD tend to have higher financial restrictions. This demonstrates more clearly the opportunistic behavior of practicing tax aggressiveness. Tandean and Winnie (2013) evidence that auditing committees have a positive effect on CG, contributing to the reduction of tax aggressiveness.

Results suggest that it is possible to accept research hypothesis H<sub>1</sub>. This is demonstrated significantly in Table 3, with robust results and the demonstration of

the engagement of companies that invested in ESG to mitigate the practice of tax aggressiveness. In other words, companies are engaged in issues related to the environment, social and governance.

Likewise, we must look at the third research hypothesis,  $H_{2a}$ , that aimed at demonstrating that companies with the greatest adherence to the transparency principle reduce tax aggressiveness. This is significant in Table 4, where the reduction in ABTD practices is shown to be effective, indicating that companies that are more transparent tend to be strongly in touch with legal aspects, assisting accounting regulators and meeting the tax legislation in effect in Brazil.

However, when investigating the conformity to CG principles as a whole ( $H_2$ ), as well as conformity to the fairness principle ( $H_{2b}$ ), to the CSR principle ( $H_{2c}$ ) and to the accountability principle ( $H_{2d}$ ), the present research tends to reject these hypotheses.

We can observe the significance of hypothesis  $H_2$  in Table 4, indicating that the sample of the companies studied can effectively mitigate the ABTD. The same can be said about hypotheses  $H_{2b}$  and  $H_{2d}$  – there is a strong push to mitigate the ABTD in the sample of companies studied, which indicates that the companies have the power to mitigate the BTB. As for  $H_{2c}$ , there is no significance in the model, i.e., the CSR principle does not contribute to legal issues in assisting accounting regulators and meeting tax legislation in effect in Brazil. Results also suggest that CSR is not a mitigating factor of biased behavior on the part of CG or in reducing aggressive practices in reducing taxes.

Apropos, one can state that during the period in which this research was put together, the CSR principle was the most studied principle available for collection. However, CSR always stands out in relation to the topics proposed; although, when studied as a whole with other CG principles, in a triad with ESG aspects to reduce ABTD, it is an ineffective principle in reducing ABTD or potentializing ESG aspects.

## 5 FINAL CONSIDERATIONS AND RECOMMENDATIONS

This study analyzed the effects of ESG aspects and the dismantling of CG principles in tax aggressiveness. Thus, B3 open capital Brazilian companies were analyzed with ESG scores ranked on Refinitiv Eikon for 13 years (2010 – 2022). The final sample was 62 companies and a total of 416 observations. To analyze data, the technique of multiple linear regression and robust models was used, with unbalanced data samples, since they combine sectional and temporal data that allow the analysis of the same companies at different periods of time, leading to a dynamic analysis of the relationship between variables.

Findings indicate that, in average, Brazilian companies tend not to practice tax aggressiveness, which demonstrates their commitment with legal and fiscal aspects. Furthermore, this study indicates that the companies are highly involved with ESG issues, as well as the principles of transparency, fairness, and accountability. However, for companies to enhance their involvement with corporate governance, there should be greater emphasis on the principles of corporate social responsibility.

Hence, companies with lower profit, which are smaller in size and assets, with less leverage financially, and lower intangibility and capital intensity (control variables) present a lower tendency to use undesirable tax economy practices. This suggests that companies that adopt ESG practices have a negative influence on tax aggressiveness and are a strong ally against antithetical and unwanted tax practices.

Companies that adopt ESG practices can create greater confidence and credibility when they adopt tax practices that do not go against national tax legislation. Findings also show that companies with a good score in ESG aspects diverge from tax aggressiveness methods, aiming at creating a better reputation with internal users and society as a whole. This demonstrates there is a distancing from the self-centered actions of managers who want to increase profit at any cost, with personal benefit in mind, such as the bonus they might earn when financial aims are reached.

In general, the current study contributes theoretically to the combined research of ABTD and ESG, and to the individual aspects E, S and G, dismembering the G into CG principles. These topics are extremely relevant to companies, society, users of this information and the government. The research contextualizes the importance of fostering the growing relevance of companies adopting ESG practices and strengthening CG, therefore bolstering the principles of corporate social responsibility to reach a point where there is a smaller number of companies practicing acts of tax aggressiveness.

For the national literature, the current study contributes by demonstrating that, in average, Brazilian companies tend not to practice acts of tax aggressiveness. It also contributes in combining the most recent national and international literature on the subject studied. However, this research has a few limitations: the database in Brazil for studies related to Corporate Governance, ESG aspects and ABTD presents complexities, with information mostly collected manually. A part of the collection was done on Economatica®, on the B3 site by filling out a reference form, and on company sites, after which, with all the data collected, these were compiled to enable the needed analyses.

Another limitation can be attributed to the ABTD. In order to successfully analyze this data, accounting reports released by companies need to present a level of quality they do not always have since the operationalization of quantitative results depends on reliable data. When these are concealed or manipulated, the results compromise the structure of the model under study. To minimize possible inconsistencies, we applied a robustness test and added control variables.

Finally, we suggest that future research add analyses with global companies, considering ABTD and ESG aspects with tax aggressiveness to identify if the behavior of international companies is similar to that of Brazilian companies. Furthermore, we suggest comparing the national culture and taxing in other countries, observing similarities in tax aggressiveness, with ESG aspects and CG principles, between developed and underdeveloped countries.

Likewise, the structure of property could also be included to identify companies with the largest concentration of property in the hands of a few



shareholders; if the concentration of property tends to have a positive CG and if ESG aspects are a source of investment for long term benefits. As an added suggestion for future research, this study can be repeated by adding to the ABTD the Effective Tax Rater (ETR) model to verify if results converge or diverge from the current study.

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