

Corporate Governance and Tax Litigation: Evidence from Brazil's B3 Market

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ABSTRACT

Objective: examine how corporate governance indicators — Novo Mercado (NM), Novo Mercado Index (IGNM), Corporate Governance Index (IGC), and Tag Along Index (ITAG) — relate to tax litigation among B3-listed firms. **Methods:** we analyze 3,290 firm-year observations from 254 B3 companies (2009–2023) using OLS, random effects, difference GMM, system GMM, and quantile regressions, with controls for size, business risk, liquidity, leverage, age, profitability, asset structure, and sector litigiousness. **Results:** governance effects are heterogeneous: NM and IGC are associated with lower tax litigation, consistent with stronger monitoring and compliance, whereas IGNM and ITAG correlate with higher litigation, possibly reflecting greater visibility, complexity, and scrutiny. Quantile estimates show these effects are strongest in the upper tail of the litigation distribution. **Conclusions:** robust governance can reduce tax disputes, but visibility- and rights-driven mechanisms may increase exposure in complex settings. Firms should pair transparency with proactive tax risk governance to balance compliance, scrutiny, and litigation costs.

Data Availability: Lopo Martinez, A., Moraes, A., Sarlo Neto, A., & Reina, D. (2026). Dataset: Corporate Governance and Tax Litigation — Evidence from Brazil's B3 Market [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.19544147>. BAR — Brazilian Administration Review encourages data sharing but, in compliance with ethical principles, it does not demand the disclosure of any means of identifying research subjects.

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INTRODUCTION

Corporate governance plays an increasingly critical role in the sustainability and competitiveness of companies, especially in emerging economies such as Brazil. Effective governance practices align managerial and shareholder interests, enhance transparency, and build stakeholder trust. In this context, governance segments and indices, such as participation in the Novo Mercado (NM), the Novo Mercado Index (IGNM), the Corporate Governance Index (IGC), and the Tag Along Index (ITAG), have become salient signals of governance commitments and market visibility, rather than generic 'tools' for promoting management practices.

The Brazilian business environment presents unique challenges, notably a highly complex and frequently changing tax system that exposes firms to measurable tax litigation (hereafter, TaxLit). In this study, TaxLit refers to the sum of (1) recognized tax provisions (probable outflows) and (2) non-provisioned tax contingent liabilities disclosed in the notes (possible/remote), as defined by CPC 25/IAS 37, scaled by total assets. Robust corporate governance practices may mediate this exposure by improving compliance and disclosure; concurrently, index inclusion can heighten public and regulatory scrutiny, shaping the observed incidence of disputes.

We articulate three complementary channels. First, a monitoring channel: stricter governance standards are expected to curb aggressive positions and improve control quality. Second, a visibility channel: index inclusion (e.g., IGNM, ITAG) can increase information production and scrutiny, potentially revealing more disputes. Third, a complexity channel: larger and more interconnected firms may face more intricate tax positions, which can raise dispute exposure even under sound governance.

Given this backdrop, the present study addresses the following central research question: How are corporate governance indicators, specifically NM, IGNM, IGC, and ITAG, associated with firms' tax litigation in Brazil? Although the broader relationship between corporate governance and financial performance has received extensive attention, the specific link between governance indicators and TaxLit remains underexplored, particularly for B3-listed companies.

Our contribution is twofold. Substantively, we separate governance commitments (NM, IGC) from visibility or rights-based signals (IGNM, ITAG) to explain heterogeneous associations with TaxLit. Methodologically, we operationalize TaxLit from financial statement notes under CPC 25/IAS 37, combining recognized provisions and disclosed non-provisioned contingencies to capture the observable tail of firms' tax risk distribution.

This study analyzes 3,290 firm-year observations for 254 B3-listed firms (2009–2023) across multiple sectors, examining how NM, IGNM, IGC, and ITAG relate to TaxLit, controlling for size, liquidity, leverage, profitability, age, business risk, asset structure, and sector litigiousness. Participation in NM and IGC typically implies adherence to higher governance standards, whereas inclusion in IGNM and ITAG reflects visibility and shareholder rights features that may amplify scrutiny. By clarifying how these indicators relate to tax disputes, the paper offers insights for policy design, board oversight, and investor evaluation.

The remainder of this article is organized as follows. The literature review develops the conceptual framing and testable propositions; the methodology describes the data, measurement (including the CPC 25/IAS 37-based TaxLit construction), and empirical methods; the analysis of results presents the empirical findings, including heterogeneity and robustness analyses; and the conclusion discusses implications, limitations, and avenues for future research.

LITERATURE REVIEW

This section discusses the theoretical foundations underpinning the relationship between corporate governance indicators and tax litigation (TaxLit) within Brazilian companies. Attention is given to how factors such as participation in the Novo Mercado (NM), the Novo Mercado Index (IGNM), the Corporate Governance Index (IGC), and the Tag Along Index (ITAG) influence observed disputes, rather than generic 'tax risk.' We distinguish indicators of governance commitments (NM, IGC) from visibility or rights-based indices (IGNM, ITAG), anticipating monitoring versus visibility mechanisms. The discussion contextualizes these elements within Brazil's complex tax system and emerging-market features.

Corporate governance indicators

Corporate governance encompasses the mechanisms and practices aimed at ensuring that corporate decisions align with shareholder interests, transparency, and ethical standards. According to [Hoopes et al. \(2024\)](#), enhanced transparency and disclosure regimes shape monitoring and contracting with capital providers, forming a cornerstone for competitive and sustainable business operations. To assess and monitor the effectiveness of governance practices, various segments and indices have been developed.

[Nguyen and Dao \(2022\)](#) show that corporate governance — measured by indicators such as governance indices and board composition — positively and significantly influences firm value. These practices align man-

agement and shareholders, thereby enhancing organizational performance. This relationship is particularly significant in emerging markets such as Brazil, which are characterized by higher economic volatility and institutional frictions (Attia et al., 2024). Corporate governance in these markets plays a vital role in reducing information asymmetry, enhancing transparency, and fostering investor confidence (Ali et al., 2020; Nguyen & Dao, 2022).

Brazil's commitment to strengthening corporate governance is evident in initiatives from the Brazilian Institute of Corporate Governance (IBGC) and B3. B3 created differentiated listing segments (e.g., NM) and maintains governance-related indices such as IGC and IGM, as well as a rights-based index (ITAG) tied to tag-along protections. Attia et al. (2024) note that such frameworks signal transparency, responsibility, and managerial discipline, which can help attract investment.

Transparency is a central component of these governance indicators. Companies adopting stringent transparency standards typically experience reduced information asymmetry and lower perceived risk (Attia et al., 2024). Such transparency is associated with lower capital costs and improved access to financing (Ali et al., 2020; Cunningham et al., 2024). Importantly, we distinguish 'governance commitments' (NM, IGC) from 'visibility/rights signals' (IGM, ITAG): index inclusion may heighten market and regulatory scrutiny even when the underlying governance standards are high, a distinction we explore empirically.

Protection of minority shareholders, as captured by ITAG, also shapes corporate governance quality. Solid protection mechanisms attract greater investment flows, stabilize stock prices, and minimize manager-investor conflicts (Ali et al., 2020; Nguyen et al., 2023). In Brazil, tag along rights tracked by ITAG have become salient for investor confidence, providing legal security and protecting against detrimental practices in ownership transfers.

In ownership concentrated settings typical of emerging markets, governance mechanisms mitigate agency conflicts and enhance oversight quality (Ararat et al., 2021; Nguyen et al., 2023). Good corporate governance practices also correlate with lower capital costs and enhanced financial performance. Ararat et al. (2021) document positive associations between governance mechanisms, market valuation, and operational efficiency — effects that are especially relevant in environments with elevated information frictions (Ali et al., 2020; Nguyen & Dao, 2022).

For Brazil, recent evidence suggests that stronger governance practices are associated with improved

stakeholder relations and lower exposure to legal/tax frictions (Lopo Martinez et al., 2024). Conversely, inadequate governance exposes firms to reputational risks, higher capital costs, and intensified internal conflicts, often resulting in performance volatility and long-term vulnerabilities (Nguyen & Dao, 2022).

In summary, we treat NM and IGC as governance commitment indicators and IGM/ITAG as visibility or rights-based signals. These markers serve as objective benchmarks for assessing corporate governance quality and market scrutiny. The literature underscores the importance of high governance standards in securing access to capital, lowering funding costs, and improving valuation (Ali et al., 2020; Nguyen & Dao, 2022), while recognizing that visibility can simultaneously increase the detection of disputes, a nuance central to our empirical tests.

Determinants and consequences of tax litigation in Brazil

Tax litigation in Brazil primarily stems from the complexity and frequent changes in the national tax system, leading to persistent disputes between taxpayers and authorities. Lopo Martinez et al. (2024) note that this complexity imposes substantial compliance and dispute-resolution costs, echoing evidence from the World Bank (2020) that Brazilian firms spend considerable time on tax compliance. Such complexity fosters litigation and exacerbates corporate risks.

Baldivieso (2022) observes that habitual litigants use procedural expertise to prolong disputes. Divergent interpretations of tax law are a major source of protracted proceedings, which in turn necessitate the recognition or disclosure of exposures under CPC 25/IAS 37 (provisions for probable outflows; note disclosure for possible/remote obligations). Accordingly, our outcome, TaxLit, captures recognized tax provisions plus disclosed non-provisioned tax contingencies (see Definition of variables).

Tax litigation reduces financial flexibility and strategic choices by increasing uncertainty and tying up resources in provisions and legal costs. Rather than attributing this to a single driver, we note that regulatory shocks and compliance demands can shape external assessments and fees (Burnett et al., 2025), while governance quality and disclosure help manage aggressive tax positions and align reporting incentives (Hoopes et al., 2024; Mansur et al., 2022; Martinez, 2017). These conflicts impose financial burdens that can affect capital structure and efficiency (Cunningham et al., 2024; Kajola et al., 2022). Effective governance mechanisms are thus essential for managing regulatory challenges and sustaining performance (Mitra & Hossain, 2007).

Building on the discussion of corporate governance indicators presented above, we anticipate three channels affecting TaxLit: (1) a monitoring channel (NM/IGC → lower litigation), (2) a visibility channel (IGNM/ITAG → greater scrutiny and potentially higher detected disputes), and (3) a complexity channel (large/connected firms face more complex issues).

Relationship between corporate governance and tax litigation

The literature on the determinants of tax litigation (TaxLit) is relatively scarce, particularly regarding the influence of specific corporate governance indicators – a gap this study addresses. Previous studies, such as [Martinez et al. \(2025\)](#), emphasize the complexity and rigidity of Brazil's tax system as features that substantially affect corporate decision-making and risk management. Companies operating in this challenging environment must manage extensive compliance obligations and navigate frequent tax disputes, which interact with corporate governance structures and with how firms mitigate tax-related exposures ([Cunningham et al., 2024](#); [Nguyen et al., 2023](#)).

Although acknowledging multiple drivers of TaxLit, prior work has largely neglected how NM, IGNM, IGC, and ITAG relate to observed disputes in Brazil. Building on the framing presented earlier in the literature review, we distinguish governance commitment indicators (NM, IGC) from visibility or rights-based indices (IGNM, ITAG). This separation is central because governance can reduce aggressive positions (monitoring channel), while visibility/rights can raise scrutiny and detection (visibility channel) – potentially pushing associations with TaxLit in opposite directions.

To achieve this objective, we formulate one set of hypotheses for governance commitments and pose exploratory research questions for visibility/rights:

H1: Participation in the Novo Mercado (NM) is negatively associated with tax litigation.

The Novo Mercado mandates stricter governance standards – enhanced transparency, shareholder protections, and control systems. Consistent with a monitoring channel, NM firms are expected to exhibit more conservative tax behavior, thereby reducing exposure to disputes.

H2: Participation in the Corporate Governance Index (IGC) is negatively associated with tax litigation.

The IGC comprises firms that voluntarily adhere to higher governance standards; thus, monitoring and

disclosure are expected to decrease the likelihood that aggressive tax positions escalate into disputes.

RQ1 (exploratory): What is the association between inclusion in the Novo Mercado Index (IGNM) and tax litigation, conditional on NM and firm characteristics?

Rationale: IGNM is a subset of NM constituents and proxies market visibility and investor attention. Greater visibility may increase regulatory and market scrutiny, potentially increasing the number of detected disputes even when underlying governance is strong; therefore, the sign is a priori ambiguous.

RQ2 (exploratory): What is the association between inclusion in the Tag Along Index (ITAG) and tax litigation?

Rationale: ITAG captures shareholder rights coverage. Stronger rights can align incentives and curb opportunism (monitoring/compliance), yet greater investor protection and public salience may also amplify scrutiny; the sign is a priori ambiguous.

[Cunningham et al. \(2024\)](#) suggest that robust governance – transparency and strict compliance mechanisms – mitigates regulatory frictions associated with TaxLit. At the same time, greater transparency and index visibility can paradoxically increase the probability that disputes become observable events, a tension consistent with our dual-channel view. [Constantino \(2021\)](#) further notes that TaxLit affects the reliability of accounting estimates for tax provisions and contingent liabilities, complicating risk management.

In summary, we expect governance-commitment indicators (NM, IGC) to be associated with lower TaxLit through monitoring. At the same time, visibility/rights signals (IGNM, ITAG) may show neutral or positive associations through scrutiny – patterns whose magnitudes we also expect to vary across the litigation distribution (tested via quantile methods). This framework positions corporate governance as a salient determinant of variation in TaxLit and provides tractable predictions for Brazilian firms.

METHODOLOGIES

Method

This study uses a quantitative, observational approach, employing regression analyses to test hypotheses and assess associations among variables rather than making strong causal claims ([Kong et al., 2024](#); [Lim, 2025](#)). Panel-data estimators allow us to examine corporate governance indicators and their relationship to tax lit-

igation (TaxLit) across firms and over time, controlling for unobserved heterogeneity and common shocks via firm and year effects.

We estimate (1) pooled OLS with robust errors, (2) random-effects (RE) models with year dummies (and fixed effects as a robustness check), (3) difference GMM and system GMM to address dynamic persistence and potential endogeneity (using internal instruments based on lagged levels and differences), and (4) quantile regressions to capture heterogeneity across the distribution of TaxLit. Standard errors are heteroskedasticity-robust and clustered at the firm level. Model-selection diagnostics (e.g., Hausman for FE versus RE, and instrument-validity and serial-correlation tests in GMM) are reported in the results section.

A thorough literature review informed the theoretical model, estimator choice, and variable set. Studies such as Lopo Martinez et al. (2024), Irawan et al. (2025), Quao (2025), He et al. (2025), and Mishra (2024) motivate the links among governance, litigation-related exposures, and firm characteristics. All continuous variables are winsorized at the 1st and 99th percentiles to limit outlier influence, and variables are defined in the Definition of variables subsection (TaxLit construction under CPC 25/IAS 37 and controls).

Data collection procedures

Initially, the study identified a population of 386 companies listed on B3 between 2009 and 2023. Following the application of exclusion criteria, a final sample comprising 254 companies was selected, resulting in 3,290 firm year observations (Table 1). Data sources include the Brazilian Securities and Exchange Commission (CVM) and the Comdinheiro financial database. Governance segment/indices (NM, IGNM, IGC, ITAG) follow B3's official definitions.

Table 1. Sample selection process for companies listed on B3.

Selection criteria	Number of companies
Companies initially listed on B3	386
Exclusions (financial companies)	-34
Exclusions (lack of data on tax contingencies)	-46
Exclusions (incomplete data)	-52
Final sample	254
Total observations	3,290

Note. 'Financial companies' include banks, insurers, and other regulated financials. 'Tax contingencies' refer to the availability of notes on provisions and contingent liabilities required for TaxLit measurement. Source: Authors' calculations based on CVM/Comdinheiro.

The Comdinheiro database provides comprehensive financials (e.g., market value, shareholders' equity, total assets, net revenue, non-current liabilities) and

flags for governance segments/indices (NM, IGNM, IGC, ITAG). Annual firm-level data for the 254 companies over 2009–2023 are organized in an unbalanced panel, enabling longitudinal analyses of company-specific outcomes. Detailed subsector coverage is presented in Table 2. As a robustness exercise, we (1) exclude subsectors with fewer than three firms or fewer than 15 firm-years and (2) aggregate sparse subsectors into 'Other Manufacturing/Services'; results remain qualitatively unchanged.

Table 2. Sample composition by subsector (B3listed firms).

Subsector	Companies	Observations
Agriculture	4	51
Water and Sanitation	4	55
Processed Foods	10	141
Cars and Motorcycles	2	30
Drinks	1	13
Trade	3	36
Trade and Distribution	4	32
Retail	16	202
Construction	15	214
Construction and Engineering	4	45
Packaging	1	15
Electricity	32	437
Equipment	1	7
Real Estate Operations	15	198
Gas	2	30
Hotels and Restaurants	3	45
Wood and Paper	5	75
Machinery and Equipment	13	168
Miscellaneous Materials	1	15
Transport Equipment	8	112
Mining	3	29
Oil, Gas, and Biofuels	12	127
Personal Care and Cleaning Products	2	30
Chemicals	7	95
Health	18	202
Miscellaneous Services	5	53
Educational Services	5	74
Steel and Metallurgy	8	111
Fabrics, Clothing, and Footwear	14	207
Information Technology	6	61
Telecommunications	4	42
Transportation	12	164
Household Utilities	4	56
Travel and Leisure	10	118
Total	254	3,290

Note. Counts reflect the baseline sample; robust adjustments described in text. Source: Authors' calculations from B3 (sub-sector classification) and CVM/Comdinheiro.

Data analysis procedures

Following Deyganto (2021), this study employed a quantitative analytical approach. Data were organized into an electronic database and analyzed using descriptive statistics such as means, medians, and standard deviations. A Pearson cross-sectional correlation matrix was reported, with Spearman's correlation used

as robustness checks, and multicollinearity was assessed via VIF. Correlation analyses examined relationships among variables. Additionally, regression models appropriate for panel data (pooled OLS, RE/FE, GMM, and quantile) identified key determinants affecting tax litigation (TaxLit). Statistical significance was tested with two-tailed tests at the 1%, 5%, and 10% levels – denoted by *, **, and ***, respectively (Lim, 2025). Standard

errors were heteroskedasticity-robust and clustered at the firm level.

Definition of variables

This section outlines the variables employed in the study, primarily derived from financial data from the Comdinheiro platform. Consistent with CPC 25/IAS 37, the variables selected for hypothesis testing and their definitions are summarized in Table 3.

Table 3. Variables used in the study and related literature.

Variable	Definition	Related studies
TaxLit	Tax litigation (TaxLit) = recognized tax provisions (probable outflows) + nonprovisioned tax contingent liabilities disclosed in notes (possible/remote), both under CPC 25/IAS 37, scaled by total assets.	Lopo Martinez et al. (2024); Martinez (2017); Mansur et al. (2022)
NM	Dummy = 1 if firm is listed on B3's Novo Mercado (NM), 0 otherwise.	Bowen et al. (2023); Chen et al. (2020); Hoopes et al. (2024)
IGNM	Dummy = 1 if firm is constituent of the Novo Mercado Index (IGNM), 0 otherwise (visibility proxy among NM firms).	Bowen et al. (2023); Chen et al. (2020); Hoopes et al. (2024)
IGC	Dummy = 1 if firm is a constituent of the Corporate Governance Index (IGC), 0 otherwise (governancecommitment proxy).	Ararat et al. (2021); Black et al. (2019); Chen et al. (2020)
ITAG	Dummy = 1 if firm is constituent of the TagAlong Index (ITAG), 0 otherwise (shareholderrights/visibility proxy).	Black et al. (2023); Carvalho et al. (2021); Sella and Bortolon (2022)
Size	Natural log of total assets.	Ararat et al. (2021); Bowen et al. (2023)
BRisk	Business risk: coefficient of variation of operating cash flows (CFO) over a rolling three-year window, divided by average total assets.	Cunningham et al. (2024); Hoopes et al. (2024)
CLiq	Current ratio: current assets / current liabilities.	Nowicki et al. (2024)
Indbt	Leverage: total liabilities / total assets.	Bowen et al. (2023)
LAge	Natural log of the company's age.	Lim (2025); Shakhathreh and Alsmadi (2021)
Prof	Profitability (ROA): net income / total assets.	Chen et al. (2020); Jia and Gao (2025)
Ast	Asset structure: (fixed assets + inventories) / total assets.	Dao (2021); Phan and Hoang (2024); Nowicki et al. (2024)
HighRisk	Dummy = 1 for firms in the 17 subsectors with the highest average TaxLit (top ~50% by sector litigiousness), 0 otherwise.	Authors' classification (sectoral TaxLit)

Note. TaxLit constructed per CPC 25/IAS 37 from financialstatement notes. Source: Authors' compilation from CVM/Comdinheiro.

The HighRisk dummy identifies companies in subsectors most exposed to tax litigation, ranking subsectors by average TaxLit over 2009–2023. The top 17 subsectors – Personal Care and Cleaning Products; Miscellaneous Materials; Travel and Leisure; Beverages; Oil, Gas, and Biofuels; Transport Equipment; Fabrics, Clothing, and Footwear; Real Estate Operations, Trade and Distribution; Mining; Household Utilities; Steel and Metallurgy; Electricity; Telecommunications;

Retail; Construction and Engineering; and Information Technology – are classified as high risk. Incorporating HighRisk isolates sector-specific effects on TaxLit.

Econometric model

Effects of corporate governance on tax litigation

To empirically test the hypotheses, we specify a panel data model relating TaxLit to corporate governance indicators and firm controls:

(Static baseline)

$$\text{TaxLit}_{it} = \alpha + \beta_1 \text{NM}_{it} + \beta_2 \text{IGNM}_{it} + \beta_3 \text{IGC}_{it} + \beta_4 \text{ITAG}_{it} + \gamma' X_{it} + \mu_i + \tau_t + \varepsilon_{it} \quad (1)$$

Where $X_{it} = \{\text{"Size"}, \text{"BRisk"}, \text{"CLiq"}, \text{"Indbt"}, \text{"LAge"}, \text{"Prof"}, \text{"Ast"}, \text{"HighRisk"}\}$, μ_i are firm effects and τ_t year

effects. All continuous variables are winsorized at the 1st/99th percentiles.

(Dynamic robustness)

$$\text{TaxLit}_{it} = \alpha + \rho \text{TaxLit}_{i,t-1} + \beta_1 \text{NM}_{it} + \beta_2 \text{IGNM}_{it} + \beta_3 \text{IGC}_{it} + \beta_4 \text{ITAG}_{it} + \gamma' X_{it} + \mu_i + \tau_t + \varepsilon_{it} \quad (2)$$

Estimated via difference GMM and system GMM with internal instruments to address persistence and potential endogeneity.

We implement pooled OLS (robust), RE with year dummies (FE reported as robustness), GMM DIF/GMM SYS, and quantile regressions. Hausman guides FE ver-

sus RE; Breusch–Pagan indicates heteroskedasticity (hence robust clustering at firm level). For GMM, we report Arellano–Bond AR(1)/AR(2) and Sargan/Hansen tests of overidentifying restrictions; Wald assesses joint significance. In our sample, the Hausman test yielded $\chi^2 = 18.295$ ($p = 0.107$), supporting RE; the Breusch–Pagan test indicated heteroskedasticity ($BP = 144.52$; $p < 0.01$). Arellano–Bond detected AR(1) but not AR(2), and Sargan supported instrument validity; Wald confirmed overall significance. Quantile estimates reveal heterogeneous effects along the TaxLit distribution.

Collectively, these estimators provide a comprehensive assessment of how governance commitments (NM, IGC) and visibility/rights signals (IGNM, ITAG) relate to TaxLit, while accounting for unobserved heterogeneity, persistence, and sectoral litigiousness.

ANALYSIS OF RESULTS

This section presents the study's empirical findings. We first report univariate evidence – descriptive statistics,

frequencies of categorical variables, the distribution of TaxLit quartiles, selected scatterplots, and a correlation matrix – to characterize the data and assess multicollinearity. Subsequently, we present panel data results, emphasizing the impact of corporate governance indicators on tax litigation (TaxLit) using multiple estimators and quantile analyses of the dependent variable's distribution.

Results

Descriptive statistics

The econometric analysis is based on a dataset comprising 3,290 firm-year observations. The descriptive statistics of the continuous variables utilized in the study are detailed in Table 4. Unless otherwise noted, descriptive statistics refer to the raw (pre-winsorization) data; estimation uses winsorized values at the 1st/99th percentiles (see Definition of variables).

Table 4. Descriptive statistics for continuous variables.

Variables	Minimum	1st quartile	Median	Average	3rd quartile	Maximum	Standard deviation
TaxLit	2.59e-6	0.0115	0.0394	0.179	0.114	7.29	0.597
Size	1.7 e-1	7.11	8.22	8.30	9.46	13.9	1.77
BRisk	2.92e-7	0.0113	0.0233	0.113	0.0531	36.4	0.924
CLiq	7.24e-3	1.03	1.49	1.91	2.14	49.8	2.38
Indbt	1.68e-2	0.461	0.603	7.29	0.749	1472	96.8
LAge	1.39e-2	2.88	3.74	3.47	4.11	4.83	0.850
Prof	-8.26e+2	-0.615	3.56	1.37	7.40	167.	21.3
Ast	0.000	0.139	0.345	0.341	0.508	3.63	0.249

Note. TaxLit = tax disputes scaled by total assets (CPC 25/IAS 37); Size and LAge are the natural logs of total assets and firm age, respectively; BRisk is CFO-based business risk measure; CLiq = current assets/current liabilities; Indbt = total liabilities/total assets; Prof = ROA; Ast = (fixed assets + inventories)/total assets. Descriptive statistics are raw; models use winsorized values (1st/99th percentiles). Source: Authors' calculations.

The median of TaxLit is 0.0394 with a substantial standard deviation of 0.597, indicating significant variability in litigation levels across firms. The maximum of 7.29 highlights extreme cases, often found in highly regulated industries (e.g., telecommunications and energy). Because estimation uses winsorized data, model coefficients are not driven by these extremes.

Size (ln assets) shows a median of 8.22 ($sd = 1.77$), reflecting heterogeneity in firm scale. BRisk (mean = 0.113; $sd = 0.924$) indicates sizable dispersion in operating-cash-flow volatility. CLiq (median = 1.49; $sd = 2.38$) suggests a wide range of liquidity positions. Indbt exhibits an unusually high mean (7.29) and sd (96.80), consistent with raw outliers; the median (0.603) is more representative of typical leverage. LAge (median = 3.74) implies an average firm age of ~42 years when exponentiated. Prof and Ast also display marked dispersion, consistent with cross-sector differences in performance and asset composition.

Frequencies of dummies variables

Dummy variables capture institutional and strategic attributes related to governance and sectoral litigiousness. Table 5 summarizes their frequencies.

Table 5. Frequencies of dummy variables.

Variables	Category	Absolute frequency	Relative frequency (%)
NM	0	1,546	46.99
	1	1,744	53.01
IGNM	0	1,986	60.36
	1	1,304	39.64
IGC	0	1,783	54.19
	1	1,507	45.81
ITAG	0	1,886	57.33
	1	1,404	42.67
HighRisk	0	1,415	43.01
	1	1,875	56.99

Note. NM, IGNM, IGC, and ITAG are dummies equal to 1 for firms in B3's Novo Mercado, Novo Mercado Index, Corporate Governance Index, and TagAlong Index, respectively; HighRisk = 1 for firms in the 17 subsectors with the highest average TaxLit. Source: Authors' calculations from B3/CVM/Comdinheiro.

The results reveal that 53.01% of firm years are in NM, suggesting broad adoption of stricter governance standards. About 39.64% are included in IGMN, reflecting notable market visibility among NM firms. IGC participation reaches 45.81%, consistent with adherence to advanced practices, while ITAG coverage (42.67%) signals the prevalence of minority shareholder protections. Additionally, HighRisk = 1 in 56.99% of firm years, underscoring the relevance of sectoral characteristics for TaxLit.

Percentage distribution of quartiles for the tax litigation variable

Analyzing TaxLit by quartiles clarifies dispersion across firms. Table 6 reports the upper cutoff for each quartile, revealing pronounced heterogeneity and a heavy right tail.

Table 6. Quartile cutoffs for TaxLit.

Variables	Q1 (25%)	Q2 (50%)	Q3 (75%)	Q4 (100%)
TaxLit upper quartile limit	0.012	0.039	0.114	7.293

Note. TaxLit = recognized tax provisions + nonprovisioned tax contingent liabilities disclosed in notes (CPC 25/IAS 37), scaled by total assets. Cutoffs computed on the raw (prewinsorization) distribution used for descriptive statistics; estimation uses winsorized values (1st/99th percentiles). Source: Prepared by the authors.

A notable difference emerges between the lowest quartile (Q1 ≤ 0.012) and the highest (Q4 up to 7.293), with an interquartile range of 0.102 (0.114 – 0.012). This wide spread supports the use of quantile methods and reflects sectoral and regulatory heterogeneity: high litigation firms typically operate in heavily regulated or capital intensive industries (e.g., energy, telecommunications, infrastructure), whereas lower quartile firms tend to have simpler structures and fewer disputes. These patterns reinforce the role of governance and visibility channels discussed earlier.

Table 7. Correlation matrix.

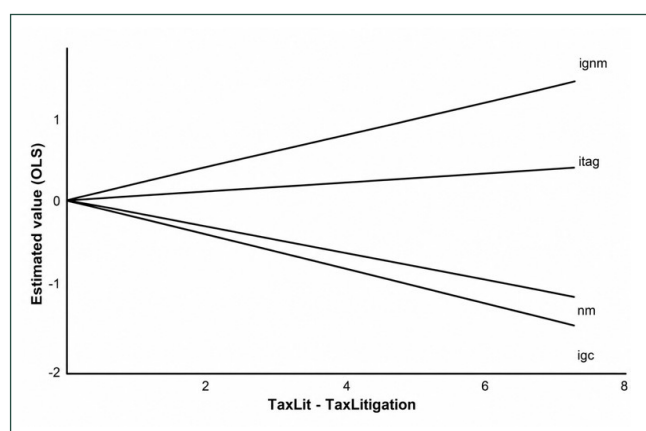
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) TaxLit		-0.039	0.108	-0.211	0.141	0.172	-0.076	-0.038
(2) Size	-0.162		-0.333	0.022	-0.025	-0.076	0.122	-0.237
(3) BRisk	0.010	-0.157		-0.101	0.188	0.036	-0.142	0.024
(4) CLiq	-0.095	0.104	-0.022		-0.518	-0.044	0.308	0.035
(5) Indbt	-0.018	0.025	-0.004	-0.025		0.076	-0.404	0.100
(6) LAge	0.051	-0.055	0.025	-0.024	0.043		0.036	0.214
(7) Prof	-0.124	0.166	-0.101	0.133	0.014	-0.002		-0.125
(8) Ast	0.066	-0.204	-0.012	-0.095	-0.023	0.181	-0.071	

Note. Above diagonal = Spearman; below diagonal = Pearson. TaxLit as defined in Section 3 (CPC 25/IAS 37); Size, LAge = ln(assets), ln(age); BRisk = CFObased businessrisk measure; CLiq = current assets/current liabilities; Indbt = liabilities/assets; Prof = ROA; Ast = (fixed assets + inventories)/assets. Source: Prepared by the authors.

Scatter plot

The scatter plots illustrate unconditional relationships between TaxLit and governance variables – NM, IGMN, IGC, and ITAG. Linear trend lines show negative slopes for NM and IGC, suggesting that participation in these governance commitment markers is associated with lower litigation. Conversely, positive slopes for IGMN and ITAG suggest that visibility/rights signals may coincide with higher observed disputes, consistent with heightened scrutiny or complexity among prominent issuers.

These bivariate patterns are diagnostic, not causal; they complement the panel data results reported below and align with the monitoring-versus-visibility framework developed in the literature review.



Source: Prepared by the authors based on OLS estimates of TaxLit on each governance dummy (NM, IGMN, IGC, ITAG), using data from B3/CVM/Comdinheiro (2009–2023).

Figure 1. Governance and tax litigation.

Variable correlation matrix

We examine the correlation matrix using Pearson and Spearman coefficients. Because normality is often violated (Shapiro–Wilk tests, not shown), we also report Spearman, which is robust to non-normality/outliers. Table 7 displays Pearson below the diagonal and Spearman above the diagonal.

Correlations are generally weak to moderate. The strongest negative association is CLiq versus Indbt ($\rho = -0.518$), suggesting that higher liquidity coincides with lower leverage. LAge versus Ast ($\rho = 0.214$) indicates that older firms tend to hold more fixed assets/inventory. Prof versus BRisk ($\rho = -0.142$) suggests that greater operating risk is associated with lower ROA.

For TaxLit, we observe negative associations with CLiq ($\rho = -0.211$) and weak positive associations with LAge ($\rho = 0.172$) and BRisk ($\rho = 0.108$). These bivariate relations motivate, but do not substitute for, the multivariate analysis. Multicollinearity diagnostics show VIFs below 10 (e.g., IGNM = 6.27; ITAG = 6.48; IGC = 5.49; NM = 2.30) and 1/VIF above 0.15 across variables (e.g., BRisk = 0.96; CLiq = 0.96; Indbt = 0.97; Prof = 0.94),

indicating no severe multicollinearity – as expected, governance indices exhibit moderate collinearity due to overlapping constituents; results are robust to dropping one index at a time

Discussion

Table 8 reports pooled OLS, random effects (RE, with year dummies), difference GMM (GMM DIF), system GMM (GMM SYS), and quantile ($\tau = 0.25, 0.50, 0.75$) estimates with firm clustered robust standard errors. We interpret coefficient signs and statistical significance across specifications, recognizing that dynamic estimators are more conservative because they control for persistence and potential endogeneity.

Table 8. Regression of governance and financial indicators on tax litigation.

Independent variables	Dependent variable						
	TaxLitigation						
	OLS	RE	GMM-DIF	GMM-SYS	$\tau = 0.25$	$\tau = 0.50$	$\tau = 0.75$
NM	-0.159*** (0.030)	-0.028 (0.035)	0.010 (0.023)	0.015 (0.024)	0.001 (0.001)	-0.002 (0.004)	-0.040*** (0.011)
IGNM	0.198*** (0.051)	-0.006 (0.027)	-0.023 (0.018)	0.029 (0.037)	0.001 (0.004)	0.006 (0.008)	0.043* (0.025)
IGC	-0.206*** (0.047)	-0.034* (0.018)	0.021 (0.018)	-0.059* (0.034)	0.001 (0.002)	-0.023*** (0.006)	-0.115*** (0.021)
ITAG	0.054 (0.051)	0.015 (0.015)	-0.010 (0.014)	0.018 (0.031)	-0.001 (0.003)	0.014* (0.009)	0.072*** (0.024)
Size	-0.041*** (0.006)	-0.029* (0.017)	-0.014 (0.039)	-0.009 (0.007)	0.001** (0.001)	0.001 (0.001)	-0.005** (0.002)
BRisk	-0.012 (0.011)	0.004 (0.008)	0.001 (0.004)	-0.001 (0.005)	0.001 (0.001)	-0.000 (0.003)	0.002 (0.011)
CLiq	-0.021*** (0.004)	-0.011** (0.005)	-0.007 (0.005)	-0.008 (0.006)	-0.001*** (0.000)	-0.003*** (0.001)	-0.008*** (0.001)
Indbt	-0.000 (0.001)	0.000 (0.000)	-0.001 (0.003)	-0.000 (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
LAge	0.001 (0.013)	0.028 (0.032)	0.025 (0.023)	0.032* (0.018)	0.006*** (0.001)	0.013*** (0.002)	0.007* (0.004)
Prof	-0.002*** (0.001)	-0.000 (0.000)	0.000 (0.0003)	-0.001 (0.001)	-0.000 (0.000)	-0.000 (0.000)	-0.002** (0.001)
Ast	0.123*** (0.042)	0.072 (0.072)	-0.043 (0.095)	0.025 (0.088)	0.002 (0.002)	0.000 (0.006)	0.038* (0.021)
HighRisk	0.259*** (0.021)	0.235*** (0.034)	0.220** (0.092)	0.106*** (0.034)	0.008*** (0.001)	0.027*** (0.004)	0.128*** (0.012)
Constant	0.452*** (0.072)	0.198* (0.111)			-0.020*** (0.002)	-0.016 (0.004)	0.125*** (0.012)
Observations	3,290	3,290	3,290	3,290	3,290	3,290	3,290
R ²	0.1005	0.0163					
Adjusted R ²	0.0972	0.0127					
Residual EP	0.5672	333.93					
F-statistics	30.51***	42.151***					
Sargan			27.364	14.067			
AR(1)			-1.821*	-1.558			
AR(2)			0.2185	-0.093			
Wald		56.2405***	22.951**	84.122***			

Note. ***, **, and * indicate statistical significance at 1%, 5%, and 10%. Firmclustered robust SEs. RE includes year dummies. GMM diagnostics (AR(1)/AR(2), Sargan/Hansen) as reported; OLS R² as table. TaxLit, NM, IGNM, IGC, ITAG, and controls as Section 3. Source: Prepared by the authors.

H1 – Novo Mercado (NM) and TaxLi

The association is negative and statistically significant in OLS ($-0.159, p < 0.01$) and at the upper quan-

tile ($\tau = 0.75: -0.040, p < 0.01$). This pattern supports a monitoring channel in which stricter governance standards are linked to fewer tax disputes, especially among

firms in the upper tail of the litigation distribution. Non-significance in GMM is consistent with tighter dynamic controls rather than a sign reversal.

H2 — Corporate Governance

Index (IGC) and TaxLit

Results are consistently negative: OLS (-0.206 , $p < 0.01$), RE (-0.034 , $p < 0.10$), GMM SYS (-0.059 , $p < 0.10$), median quantile ($\tau = 0.50$: -0.023 , $p < 0.01$), and upper quantile ($\tau = 0.75$: -0.115 , $p < 0.01$). These findings indicate that governance commitment firms exhibit lower litigation, aligning with improved compliance and disclosure.

RQ1 — Novo Mercado Index (IGNM) and TaxLit

We observe positive associations in OLS (0.198 , $p < 0.01$) and at $\tau = 0.75$ (0.043 , $p < 0.10$), while dynamic estimates are mostly insignificant. This pattern is consistent with a visibility channel: higher public and regulatory scrutiny of prominent NM constituents can raise the incidence (or detection) of disputes.

RQ2 — Tag Along Index (ITAG) and TaxLit

ITAG loads positively at $\tau = 0.50$ (0.014 , $p < 0.10$) and $\tau = 0.75$ (0.072 , $p < 0.01$), with OLS/RE/GMM largely insignificant. The concentration of effects at higher quantiles suggests that rights/visibility features are associated with more observed disputes, primarily in higher exposure contexts.

Controls and diagnostics

Liquidity (CLiq) is consistently negative; firms with stronger short-term liquidity tend to litigate less. Size is generally negative (OLS; $\tau = 0.75$) but can be weakly positive at lower quantiles, consistent with scale/visibility differences across the distribution. Age (LAge) tilts positive in some specifications; profitability (Prof) is negative in OLS and at $\tau = 0.75$; asset structure (Ast) is positive in OLS and at $\tau = 0.75$. The HighRisk sector dummy is uniformly positive and significant, confirming substantial sectoral heterogeneity in litigation. The OLS R^2 (~ 0.10) is modest, as expected for idiosyncratic legal outcomes; Hausman favors RE; Breusch–Pagan indicates heteroskedasticity (handled by clustered SEs); and GMM diagnostics (AR(1) present, AR(2) absent; Sargan/Hansen acceptable) support instrument validity. Quantile regressions reveal heterogeneous effects that are strongest at the upper tail.

Contribution obtained from the results

This study significantly advances understanding of corporate governance's impact on tax litigation in Brazilian companies. The findings clearly highlight the

complex role governance mechanisms play in managing tax risks. Specifically, participation in governance frameworks such as the Novo Mercado (NM) and the Corporate Governance Index (IGC) tends to reduce tax litigation, although this effect varies across quantiles and econometric methods. This nuanced relationship underscores that robust governance alone is insufficient and must be complemented by proactive tax management practices.

Additionally, the study identifies a paradox in governance transparency: companies included in highly visible indices such as the Novo Mercado Index (IGNM) and the Tag Along Index (ITAG) tend to face greater tax litigation exposure. This suggests that enhanced disclosure requirements and increased stakeholder engagement might inadvertently heighten scrutiny by regulatory authorities, necessitating careful management of transparency and compliance.

From a methodological perspective, adopting quantile regressions provided a richer analysis by uncovering differential impacts of governance across varying levels of litigation. This approach enabled a deeper understanding and offered targeted insights, particularly relevant for companies facing diverse levels of tax risk.

Implications of the results

The findings have several key implications for corporate governance, policymaking, business management, and investment strategies. Companies should tailor their governance frameworks to integrate effective tax compliance strategies to mitigate potential litigation risks associated with greater transparency. Policymakers can use these insights to enhance governance incentives and simplify regulatory frameworks to minimize tax disputes.

For corporate managers, the results stress the importance of balancing transparency with proactive risk management to avoid unintended litigation arising from increased scrutiny. Investors must consider governance indicators not only as markers of institutional robustness but also as nuanced signals of potential litigation exposure, particularly in sectors with inherently higher regulatory risks. Ultimately, these implications highlight that effective governance, combined with strategic tax risk management, is crucial for navigating Brazil's complex regulatory environment.

CONCLUSIONS

This paper advances the debate on how governance architectures are associated with tax litigation (TaxLit) in an emerging market setting. Leveraging 3,290 firm-year observations (2009–2023) and an econometric toolbox that combines pooled OLS, random effects (RE),

difference and system GMM, and distribution-sensitive quantile regressions, we deliver three overarching insights. (TaxLit is constructed from recognized tax provisions plus non-provisioned tax contingent liabilities disclosed in notes under CPC 25/IAS 37, scaled by total assets.)

First, governance commitment markers (NM and IGC) are consistently linked to lower TaxLit, especially in the upper tail of the distribution, consistent with a monitoring/compliance channel. Firms in NM or included in IGC exhibit fewer observed disputes, suggesting that stronger oversight, one share one vote rules, and enhanced disclosure are associated with fewer aggressive positions that later become contested.

Second, we document a visibility paradox. Inclusion in IGNM and ITAG correlates with higher observed TaxLit – particularly among the most litigious firms – consistent with heightened scrutiny and organizational complexity rather than necessarily more aggressive behavior. Quantile results show these positive associations intensify at $\tau = 0.75$, indicating that visibility/rights features matter most where exposure is already elevated.

Third, effect heterogeneity justifies dynamic and distributional estimators. Mean based models would obscure asymmetric patterns along the litigation distribution; GMM estimates are more conservative due to persistence and endogeneity controls, reinforcing our associational (not causal) interpretation.

From a practical standpoint, governance labels are not self-executing. Transparency should be paired with tax risk governance (controls over tax positions, dispute-prevention protocols, and early-settlement pathways) to capture the benefits of monitoring without unduly amplifying visibility-related costs. Investors should read governance signals multidimensionally – NM/IGC as monitoring proxies and IGNM/ITAG as visibility/rights proxies that may coincide with higher detected disputes. Policymakers considering stricter governance tiers might couple them with streamlined dispute-resolution mechanisms or safe-harbor rules, preserving the informational value of transparency while reducing compliance and litigation costs.

Table 9 summarizes each governance mechanism's association, the key insight, and why it matters for theory and practice.

Table 9. Governance mechanisms, key insights, and practical implications.

Governance mechanism	Synthesized effect and key insight	Implications for theory and practice
Novo Mercado (NM)	Rigorous oversight/discipline is associated with lower TaxLit (monitoring).	Extend NM-style standards or promote uptake where tax disputes persist.
Corporate Governance Index (IGC)	Voluntary governance commitment aligns with lower TaxLit.	Use voluntary codes as complements to formal enforcement.
Novo Mercado Index (IGNM)	High visibility coincides with higher detected disputes (visibility).	Pair transparency with proactive tax-risk monitoring and early resolution.
Tag-Along Index (ITAG)	Rights/visibility correlate with higher disputes at the upper tail.	Weigh hidden compliance/litigation costs when designing protections.

Note. Prepared by the authors.

Limitations include TaxLit's note-based nature and dependence on the quality of disclosures, the exclusion of financial data, and the correlational nature of the analysis. Future research should replicate these findings across different markets, explore board-level attributes and internal tax controls, and leverage quasi-experimental shocks, such as index rebalancing and regulatory reforms, such as real-time digital reporting, to deepen understanding of how private oversight influences public enforcement.

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