FINANCIAL CONSTRAINT AND LEVEL OF TAXATION ON PROFIT IN THE STAGES OF THE ORGANIZATIONAL LIFE CYCLE OF BRAZILIAN COMPANIES

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Gabriel Santos de Jesus[1], Yury Tibério Nunes Almeida[2], Rômulo Benício Lucena Filho[3], José Hilton Santo Aguiar[4], Augusto César Silva[5], Diego Mentor Andrade Galvão[6], Kamila Alves Barreto[7], Ítalo Costa Leite[8] and Afrânio Souto Duque de Abrantes[9].

ABSTRACT

The objective of this study was to analyze the influence of financial restriction on the level of taxation on the profit of Brazilian companies, considering the stages of the organizational life cycle, between 2011 and 2020. Using panel data with fixed and random effects, the study employed different effective tax burden proxies, such as Total ETR, Current ETR, and Differential ETR, to capture nuances in companies' tax practices. The results revealed that the financial constraint, analyzed in isolation, did not present statistical significance in relation to the effective tax burden metrics. This suggests that, in the Brazilian context, the relationship between financial constraint and fiscal practices is mediated by other factors, such as the stages of the organizational life cycle. Companies in the maturity stage stood out, presenting lower Differential ETR and higher Current ETR, reflecting a more conservative fiscal behavior, consistent with the literature that associates financial stability and reputation with less aggressive practices. On the other hand, companies in the nascent stages, although facing greater financial challenges, demonstrated less aggressive tax practices in situations of financial constraint, probably due to the limitation of managerial resources. Important contributions include the integration of financial constraint and organizational life cycle analyses, providing new perspectives on fiscal behavior in emerging economies. The practical implications involve the adjustment of tax strategies to each organizational stage and the need for tax policies that meet the specificities of companies. As limitations, the lack of qualitative data on specific tax strategies and the exclusion of small companies stand out. Future research can explore these gaps, as well as

[1] Master in Accounting
Federal University of Paraíba (UFPB)
[2] Bachelor in Civil Engineering
Pitágoras College
[3] Master in Business Administration
State University of Feira de Santana (UEFS)
[4] Master in Accounting
State University of Paraíba (UEPB)
[5] Master in Accounting
Federal University of Paraíba (UFPB)
[6] Master in Accounting
State University of Bahia (UNEB)
[7] Master in Accounting
University of Brasília (UnB)
[8] Bachelor in Physical Education
State University of Paraíba (UEPB)
[9] Master in Accounting
State University of Paraíba (UEPB)

the impacts of economic shocks and institutional factors on the relationship between financial constraint and fiscal practices.

Keywords: Level of taxation on profit. ETR. Financial constraint. Organizational Life Cycle.

INTRODUCTION

The theoretical-empirical literature highlights that, in scenarios of financial constraint (RF), companies face increasing difficulties in accessing external resources, resulting in high financing costs and an urgent need to seek viable alternatives to sustain their investments. Financial constraint occurs when the costs of raising external funds make it impossible to make investments, forcing companies to seek alternative strategies to mitigate these adverse effects (WHITED, 1992; LAMONT, POLK; SA'A-REQUEJO, 2001; AMES et al., 2022). In this context, one of these strategies may involve tax management, specifically reducing the level of taxation on profit as a way to free up financial resources.

Thus, the literature suggests that, while traditional cost-reduction strategies, such as cuts in advertising, payroll or operating expenses, can have negative implications in the long term, the reduction in tax payments (CAMARGO; CARVALHO, 2021), as long as it is carried out within legal limits, offers a potentially less harmful path. Such a practice, in addition to mitigating the short-term financial impact, can act as an alternative source of financing, especially in situations where traditional sources of capital are restricted or have high costs (ARMSTRONG et al., 2015; LAW & MILLS, 2015; EDWARDS et al., 2016; FRANÇA et al., 2017; AMES et al., 2022). However, this relationship between financial constraint and taxation on profit has not yet been widely explored in the Brazilian context, especially when considering the different stages of the organizational life cycle.

Organizational life cycle theory, for example, suggests that companies go through distinct stages — introduction, growth, maturity, and decline — each with specific characteristics in terms of organizational structure, financial strategies, and decision-making patterns (ANTHONY; RAMESH, 1992; DRAKE, 2015). These stages impact not only the financial performance of companies but also their tax and financial planning practices. For example, growth-stage companies may be more likely to seek tax breaks or incentives, while those in the maturity stage may prioritize maintaining efficient tax structures to preserve profitability. Companies in decline, on the other hand, may resort to more aggressive tax strategies to compensate for financial losses and mitigate the reduction of available resources (CORREIA, 2010; LESTER; PARNELL; CARRAHER, 2003).

In this context, it is believed that it is relevant to investigate how the interaction between financial restriction and organizational life cycle affects the level of taxation on profit, because financial restriction can not only limit the investment capacity of companies, but also imposes significant strategic and organizational challenges, since financial decisions, such as retention of dividends or increase in indebtedness, can be influenced by the need to reduce costs (KAPLAN; ZINGALES, 1997; DEMONIER; ALMEIDA;

BORTOLON, 2014). Such decisions are even more complex when considering that tax practices can vary substantially according to the stage of the life cycle in which the company is.

The present study seeks to advance the understanding of this interaction by exploring the influence of financial restriction on the level of taxation on the profit of Brazilian companies, considering the different stages of their organizational life cycle. The research is distinguished by integrating two rarely articulated perspectives: the analysis of financial constraint and its relationship with tax practices, and the impact of the organizational life cycle on this process. This approach allows you to understand if, and how, companies at different organizational stages adjust their tax strategies to deal with financial constraints.

In view of the above, the study proposes to investigate how the interaction between financial constraint and organizational life cycle affects the level of taxation on profit. The contribution of the study lies in filling a gap in the literature by offering an integrated analysis of how financial constraints impact tax decisions at different organizational stages. In addition, the results may offer practical implications for managers and policymakers by proposing tax strategies adjusted to the challenges faced by companies at each stage of the life cycle, promoting more efficient and sustainable management in scenarios of financial constraint.

THEORETICAL FRAMEWORK

FINANCIAL RESTRICTION

Financial constraint (RF) poses a significant challenge for companies that face difficulties in accessing external financial resources. These obstacles can be motivated by internal factors, such as low profitability and lack of guarantees, or external factors, such as unfavorable macroeconomic conditions (WHITED, 1992; LAMONT et al., 2001). In response to these difficulties, companies often resort to strategies to increase internal liquidity, reducing cash outflows, and optimizing available resources. Among these strategies, tax management stands out, which can act as an effective tool to alleviate financial pressures (EDWARDS et al., 2016).

In Brazil, the scenario is particularly challenging due to high interest rates and structural barriers that limit access to business credit. In this context, fiscal management assumes a central role as an alternative to reduce costs and preserve the operation of companies. Studies show that financially restricted companies tend to adopt more aggressive tax practices, using tax planning to minimize the impact of the tax burden

(FRANÇA et al., 2017; DEMONIER et al., 2015). For example, reducing the effective tax rate (ETR) can be a strategy to free up cash, allowing companies to maintain their operations without compromising essential investments.

The literature also suggests that RF can be identified by specific behaviors, such as higher cash retention, lower dividend distribution, and reduced investments in fixed assets (ALMEIDA et al., 2004; DEMONIER et al., 2015). These practices reflect the need for companies to mitigate financial risks in adverse scenarios. However, the relationship between RF and effective taxation is complex and can vary depending on the sector of operation, the size of the company and other contextual factors. While some companies use tax planning strategies to reduce their tax burden, others may face institutional barriers that make it difficult to implement these practices.

Edwards et al. (2016) argue that the RF, regardless of its origin — whether macroeconomic or firm-specific — encourages companies to seek forms of tax reduction as an alternative to generate internal liquidity. This dynamic is particularly relevant in emerging markets, where credit conditions are less favorable. França et al. (2017) demonstrated that financially constrained companies in Latin American countries, including Brazil, showed varied behaviors in relation to ETR, highlighting differences in strategic responses to global financial crises.

Thus, when analyzing the Brazilian context, the RF can be seen as a catalyst for aggressive tax practices. Companies in a situation of restriction face greater pressure to reduce costs, and the tax burden, being one of the main components of expenditure, becomes a strategic target. This relationship highlights the relevance of understanding how RF influences ETR, especially in economies such as Brazil, where tax planning can be a critical tool for organizational survival. In view of the above, the first hypothesis is formulated:

H1: *Companies in a situation of financial constraint have lower effective tax rates (ETR), reflecting greater tax aggressiveness compared to non-restricted companies.*

ORGANIZATIONAL LIFE CYCLE

The theory of the organizational life cycle postulates that companies evolve through distinct stages — birth, growth, maturity, turbulence and decline —, each characterized by specific challenges and demands (MILLER; FRIESEN, 1984; DICKINSON, 2011). These stages directly affect companies' financial and tax strategies, influencing their approach to tax planning and resource management.

Start-stage companies face high levels of uncertainty, low cash generation, and difficulties accessing credit. In this scenario, cost reduction, including the tax burden, becomes a strategic priority to free up resources that can be reinvested in growth (ALVES; MARQUES, 2007). On the other hand, mature companies, with greater financial stability and consolidated reputation, generally adopt more conservative tax strategies, seeking to minimize regulatory risks and preserve their image before stakeholders (ANTHONY; RAMESH, 1992; GRULLON et al., 2002).

Already in the stages of turbulence and decline, companies face intense financial pressures and often resort to extreme measures to ensure survival. In these phases, aggressive fiscal practices can be implemented to reduce costs and increase available liquidity, as noted by Miller and Friesen (1984). In addition, the literature highlights that the ability of companies to manage their tax strategies effectively varies significantly between life cycle stages, influenced by factors such as organizational structure, governance, and competitive environment (DRAKE, 2012).

Empirical studies, such as those by Silva and Rezende (2017), indicate that the relationship between life cycle stage and ETR is non-linear. Companies in early or late stages tend to adopt more aggressive tax practices, while companies in growth or maturity show greater stability in their tax approach. This dynamic reflects the interplay between specific financial needs of each stage and the ability of companies to implement appropriate tax strategies.

H2*: The stage of the organizational life cycle influences the relationship between financial constraint and the level of taxation, with companies in birth and decline showing a greater reduction in ETR compared to other stages.*

LEVEL OF TAXATION ON PROFIT

The level of taxation on profit refers to how much taxes were actually levied on profit, taking into account the reductions on this and other operations that may result in a reduction in the amount of the tax (FRANÇA, 2018), In Brazil the maximum nominal rate is 34%, but when observing the behavior of companies through their statements, it is noted that they are far below this reference, which leads to the conclusion that companies take an aggressive stance in relation to taxes on profit.

ETR is the effective rate of profit tax and varies from company to company taking into account several factors associated with its characteristics, such as the economic sector where it operates and its size (FRANÇA, 2018). In the literature, it is possible to find the determinants of REE, among which it is worth highlighting the life cycle stage (HASAN *et al,*

2016), company size (WATTS; ZIMMERMAN 1986), leverage (DYRENG *et al*, 2010), profitability (ARMSTRONG *et al*, 2012), capital intensity (CHEN *et al,* 2010) and inventory intensity (RICHARDSON; LANIS, 2007).

For Drake (2012), the stages of the organizational life cycle (ECV) is an important determinant of ETR, because in each phase of the ECV, economic transactions are different and can influence the accounting and tax treatment, thus denoting different rates of fiscal aggressiveness for each phase.

On the other hand, Shackelford and Shevlin (2001) state that the effective rate of taxes on profit (ETR) constitutes a valid measure of the effectiveness of tax planning and, therefore, a valid proxy for studies of tax *avoidance*. Hanlon and Heitzman (2010) when they define *tax avoidance*. They state that it presents itself as a clear reduction in taxation and that it can be presented in various ways, such as tax planning, tax management, tax planning or tax avoidance, in any of these situations taxes are considered costs that consequently induce organizations to reduce them in order to increase their performance.

The ETR reflects on the effective rate, that is, how much it actually levied on the profit, taking into account the reductions on this and other operations that may result in a reduction in the amount of the tax (FRANÇA, 2018), In Brazil the maximum nominal rate is 34%, but when observing the behavior of companies through their statements, it is noted that they are far below this reference, which leads to the conclusion that companies take an aggressive stance in relation to taxes on profit. This behavior varies from company to company, taking into account several factors associated with their characteristics, such as the economic sector where they operate and their size (FRANÇA, 2018).

The literature has already identified several determinants of ETR, including the organizational life cycle (HASAN et al, 2016), although it is a relevant determinant, little is said about how ETR behaves at each stage of the life cycle, whether a mature company can be more or less aggressive than one in the growth or birth stage, and what are the implications of this on the performance of organizations. for instance. In view of the above, the third hypothesis is formulated:

H3: *Companies in extreme stages of the life cycle (birth and decline) have lower effective tax rates, due to more aggressive tax strategies compared to the intermediate stages.*

PREVIOUS STUDIES

In the international scenario, Drake *et al* (2020) sought to investigate whether the reduction of effective tax rates denotes an indication of tax evasion, adopting a view of

effective tax rate reconciliations. The authors used *Perl scripts* to collect data on tax rate reconciliations of *firms' 10-K filing*, starting with 177,347 observations by Compustat of domicile in the United States with firms from 1996 to 2015. The authors followed similar lines of thinking to other tax researchers, excluding firms with total assets of less than $10 million and negative pre-tax income, and also excluded utilities and firms in the financial sector, as they have different tax planning opportunities and incentives, resulting in a *Perl* extraction sample of 57,612 observations. The *Perl* data extraction process successfully extracted and validated 23,244 observations divided into 10,840 national and 12,404 multinational. The results showed that both national and multinational firms demonstrate decreasing behavior of ETR in the GAAP of AVs, highlighting how AVs affect inferences about the level of tax evasion. In addition, the drop observed in the domestic market was shown. GAAP ETRs over time result primarily from VA releases. However, because the GAAP ETRfit benefit of VA releases stems from previous losses, the results suggest that the decrease in the domestic market over time reflects changes in the business economy rather than planning. Overall, the results suggest that the tax evasion observed in companies results largely from the history of losses and changes in tax laws, rather than from intentional tax evasion.

Park (2020) sought to study the tax burdens in Japan and South Korea using average effective tax rates as a measurement tool. The study analyzed the main characteristics of the tax burden in Japan and Korea in recent decades. Paying close attention to AETRs on labor, capital, and consumption, it updated the existing data by replicating the original methods used to generate it. It also presented a new AETR series, revising parts of the OCDE formulas for the taxation of labour and capital. Reviewing these various AETR data, the analysis reconfirmed the validity of conventional understandings of the tax burden in these two countries. It also examined more recent developments to assess the neoliberal interpretation of the emerging tax structure in Japan and Korea. Despite the uncertainty associated with the capital tax data, the study found that the claim fails to garner sufficient empirical support for reduced cuts in public taxation.

In Ukraine, Andrejovska *et al* (2020) analyzed the allocation of investments in Slovakia and Ukraine in terms of effective corporate tax rates, the authors state that determining the level of the statutory tax rate is a difficult process, as it is necessary to strike a balance between the needs of the state and the needs of the investor. The state seeks to constantly increase its collection and regulate the country's economic situation. On the other hand, investors try to find a country where they pay the lowest possible profit tax. However, as shown in the study, the solution is not to find a country with the lowest

legal/nominal tax rate, as this does not automatically guarantee the lowest taxation, but to find a country with the lowest effective tax rate, which is the best strategy. The first part of the empirical research evaluated the development of the statutory tax rate, total tax revenues and corporate tax revenues in Slovakia and Ukraine. The development of the statutory tax rate was monitored from 2004 when Slovakia became a member of the EU and realized significant tax reform. At that time, the single tax system was introduced in Slovakia that was supposed to bring more foreign capital into the country and eliminate tax evasion, which did not happen. The rate was set at 19% and increased continuously until 2020, and later reduced to the original 21%. The tax revenue of the companies ranged from 12 to 22% of the total tax revenue during the entire monitored period. During the period, Ukraine changed its corporate tax rate only once in 2011, when it decreased from 25% to 18%. The proportion of corporate tax revenue in total tax revenues went from 25.58% in 2004 to 10.76% in 2018. The second part of the empirical research calculated the effective average and the marginal rate of the tax systems of both countries.

As for studies at the national level, Pohlmann and Iudícibus (2010) are cited, which aimed to test the validity of hypotheses related to the influence of profit taxation on the capital structure of large companies in Brazil. Adopting the approach of the tradeoff theory, they observed that the tax advantage resulting from the deductibility of interest creates an incentive to borrow. The limit will be precisely the point at which the costs arising from financial difficulties equal the tax benefits of indebtedness. On the other hand, from the perspective of the theory of *pecking order*, they noted that firms make decisions based on an order of preference, starting with the internal source of financing and only resorting to external capital when the first one is exhausted.

França et al (2017) sought to analyze whether Latin American companies that are financially restricted, and in periods of global financial crisis, reduce the Effective Tax Rate, the authors' findings suggest, among others, that: Argentine firms that are financially restricted reduce ETR by around 3.2%, indicating tax avoidance practices more aggressive; With regard to Brazilian and Peruvian companies, which are financially constrained, they increase their ETR, contrary to the expected ratio; Chilean and Colombian firms, on the other hand, in periods of global financial crisis have a negative association between ETR and crisis, that is, they increase tax avoidance practices in this context; When analyzing the interaction between the crisis and the RF, only Peruvian firms showed a significant relationship, thus, under the status of financial constraint and in periods of global financial crisis, Peruvian firms reduce their ETR.

Martinez and Basseti (2016), sought to investigate whether the life cycle explains the relationship between Book-Tax Differences (BTDs) and persistence in profits, as well as to inform about future earnings and their relationship with BTDs, the results obtained by the authors showed a relationship between BDTs and persistence in profits, varying in the stages of the life cycle, It was possible to observe that companies with large positive BTDs are associated with a shift to the growth phase in the following period.

In addition, Silva and Rezende (2017) directed their efforts to identify whether the organizational life cycle stage impacts the level of tax planning, the results pointed out that companies in Early (before maturity) or advanced (after maturity) stages have a negative relationship with Current ETR, BTD and DVA Taxes (and its sub-categories), that is, companies in these stages have higher levels of tax planning than companies in the Maturity stage. For the Current REE and the BTD, the results were found both in the Kruskal Wallis distribution test and in the quantile regressions performed by the authors.

METHODOLOGY

DATA COLLECTION

Data collection was carried out through the Economática database, filtering publicly-held companies listed on B3 in the period from 2011 to 2020. The period adopted in the research began after the implementation of laws n° 11638/07 and 11.941/07 and the transition tax regime. Chart 1 shows the research sample.

Chart 1 – Research sample. 2010 to 2020

PANEL A: Composition of the research sample. 2010 to 2020	
Enterprises	673
(-) Banks, financial intermediation, insurance companies and brokers.	(110)
(-) Missing/insufficient data for the calculation of variables.	(399)
Total companies in the sample	164

Source: Economática®

TREATMENT OF VARIABLES

The dependent variable adopted in the econometric model is the level of taxation on profit (NTL) measured through the ETR proxy, for its measurement the total, current, sectoral and differential ETR was used. The calculation of the Total ETR consists of dividing the Provision for Income Tax and Social Contribution by the Profit Before Income Tax (TANG, 2005) as shown in Equation X, as follows:

$$ETR = \frac{Provisão\ para\ IRPJ\ e\ CSLL}{LAIR} \text{ (E. x)}$$

From this calculation, it was also possible to find the Current ETR, subtracting the deferred income tax from the denominator. The sectoral ETR is found by the ratio between the average of the current ETR of the sector to which the company belongs to the current ETR of the company *i* at time *t*. In Brazil, the economic sector in which the company operates is an important factor in determining the tax regime (SANTOS *et al,* 2013).

The third measure for NTL is differential ETR (HANLON; HEITZMAN, 2010) which takes into account the nominal ETR (34%) divided by the total ETR of company *i* at time *t*. In this way, it was possible to reduce the limitations brought by the total ETR, such as enabling the verification of the effort made by the company to reduce its effective rates on profit, so that when observing its relationship it can conclude that the higher the differential ETR, the more aggressive the company is in reducing the total ETR (FRANCE, 2017).

The financial constraint (RF) was a variable of interest adopted in this study, the proxy for RF was based on the models already used by Demonier, Almeida and Bortolon, (2015), in this case, for the company to be classified in a situation of financial constraint it must simultaneously present, according to Chart 1:

Chart 61 – Criteria for identifying companies with financial constraints

Criteria	Description
Positive change in the availability balance	$(\text{Cash and Cash Equivalent})_{it}$ - $(\text{Carton and Cash Equivalent})_{it-1}$
Negative or zero change in investment in fixed assets	$(\text{Fixed Assets + Depreciation})_{it}$ - $(\text{Fixed Assets + Depreciation})_{it-1}$
Negative or zero variation in dividend distribution	$((\text{dividend distribution + JSCP})_{it} / LL_{it}))$ - $((\text{dividend distribution +JSCP})_{it-1}/ LLit-1))$

Note: Interest on equity = Interest on equity; LL_{it} = Net profit.
Source: Demonier, Almeida and Bortolon (p, 1270, 2015)

To enable the study of the effects of financial constraints, a *dummy* variable called RF was constructed, which assumed a value of 1 for companies classified as financially constrained, i.e., those that met the aforementioned criteria, and 0 for those that did not present this relationship (did not have financial constraints). In addition, interactive variables were created (multiplication of RF by ECV) in order to better observe the behavior of RF in the stages of the life cycle of the companies in the sample.

Chart x shows the variables used

Chart 2 – Variables used in the study

Variable	Description	Rationale where they were significant and signs found
ETR	Effective Rate of Taxation on Profit (Total, Current, Sectoral and Differential ETR measures as explained in the text)	Rego, (2003); Ayers, Jiang and Laplante (2009); Minnick; Noga (2010); Hanlon and Heitzman (2010); Santos, Cavalcante and Rodrigues (2013), Cabello and Pereira (2015), Guimarães, Macedo and Cruz (2016); Rego (2003), Ayres, Jiang and Laplant (2009), Hanlon and Heitzman (2010)
RF	*Dummy*, with 1 for companies with financial constraints and 0 for the others, as shown in Chart 1.	Demonier, Almeida and Bortolon (2015)
ECV	Life Cycle Stages	Dickinson (2011)
*ETR*ECV*	Interaction of the variables financial constraint (RF) and stages of the organizational life cycle (ECV)	Not found in literature
TAM	Company Size, calculated by logging the total asset.	Santos, Cavalcante and Rodrigues (2013); Tsoukas and Spaliara (2014); Ramalho and Martinez (2014); Guimarães, Macedo and Cruz (2015); Demonier, Almeida and Bortolon (2015); Edwards, Schwab and Shevlin (2016)
ENDIV	The firm's indebtedness, measured by total net debt over total assets.	Demonier, Almeida and Bortolon (2015); Guimarães et al. (2015); Santos, Cavalcante and Rodrigues (2013)
ROA	Return on Assets	

Source: Prepared by the authors (2024).

ECONOMETRIC MODEL

The general model proposed for the objectives of the present work is presented in Equation X.

$$NT_{it} = \alpha_{it} + \beta 1\, RF_{it} + \beta 2\, ECV_{it} + \beta 3\, RF.ECV_{it} + \beta 4 \ldots n\, CONTROL_{it} + \varepsilon_{it} \quad \text{(E5)}$$

Where

- NT is the level of taxation on the profit of company *i* in year *t*, measured by the effective rate of taxes on profit (ETR);
- RF is the financial constraint of company *i* in year *t*, measured by the model of Demonier, Almeida and Bortolon (2015);
- ECV refers to the Life Cycle Stages (ECV), according to the model of Dickinson (2011), of company *i* in year *t*;
- RF*ECV is the multiplication of the variable RF by each ECV of company *i* in year *t*
- CONTROL represents the control variables company size (TAM), indebtedness (ENDIV), and return on assets (ROA) of company *i* in year *t*.

The econometric models were estimated through regression with panel data of fixed effects and random effects according to the result of the Hausman test. The assumptions of

the regression model were observed and the estimates were made with robust standard error.

ANALYSIS OF THE RESULTS

DESCRIPTIVE STATISTICS

Table 1 – Descriptive statistics of the continuous variables for the entire sample. 2011 to 2020

Variables	N	Average	SD	Min	P50	Max
ETR Total	1.633	0,184	0,283	- 2,468	0,181	1,674
ETR Current	1.633	0,177	0,517	-3,425	0,168	3,518
Sectoral ETR	1.633	0,001	0,515	-3,305	0,002	3,573
ETR Differential	1633	0,162	0,517	-3,178	0,172	3,765
Size	1637	6,460	0,716	4,395	6,504	8,036
Indebtedness	1637	0,576	0,222	0,896	0,575	1,579
ROA	1637	0,705	0,962	0,575	0,0652	0,452

Source: Economática®.
Observations: N = number of observations. SD = standard deviation. P50 = median.

The descriptive analysis of the variables used in the study offers a comprehensive view of the characteristics of the sample composed of Brazilian companies listed on B3 between 2011 and 2020, allowing the identification of relevant patterns and possible anomalies. The Total ETR variable, which measures the effective tax burden in relation to pre-tax profit, presented an average of 0.184 (18.4%), considerably lower than the maximum nominal rate of 34% in Brazil. This result reflects the use of tax planning practices by companies to reduce their tax burden. The standard deviation of 0.283 indicates significant variability, suggesting differences in fiscal behavior among companies, possibly influenced by factors such as sector of operation and size. The extreme values, ranging from -2.468 to 1.674, show that some companies reported negative ETRs, which may be related to offsets of tax losses, while others exceeded the nominal rate due to tax peculiarities or atypical events. The median of 0.181 confirms that most companies presented ETR close to the average.

The Current ETR, which focuses on taxes paid in the period, presented an average of 0.177 (17.7%) and a standard deviation of 0.517, showing greater variability compared to the Total ETR. This discrepancy can be explained by accounting for deferred taxes and tax credits. The extreme values, ranging from -3.425 to 3.518, highlight the presence of aggressive tax practices, which may include maximizing tax deductions or extraordinary tax adjustments.

The Sectoral ETR, which represents the relative average of the sector in relation to individual companies, presented a practically null average (0.001) with a standard deviation of 0.515. This indicates that some companies are significantly below or above the industry average, suggesting the impact of specific tax incentives or intrinsic characteristics, such as

cost structure and differentiated tax regimes. On the other hand, the Differential ETR, which compares the effective ETR with the nominal rate of 34%, had an average of 0.162 (16.2%) and a standard deviation of 0.517. This variable reflects the intensity of companies' tax strategies, with extreme values (-3.178 to 3.765) pointing both to very aggressive practices and to companies that operate with a higher-than-expected tax burden.

The variable Size, represented by the logarithm of total assets, revealed an average of 6.460, indicating that the sample is composed mostly of large companies. The standard deviation of 0.716 shows some heterogeneity, while the extreme values, ranging from 4.395 to 8.036, indicate the presence of smaller companies, which may face greater difficulties in implementing sophisticated tax strategies due to limited resources.

The variable Indebtedness, measured by the ratio between total net debt and total assets, averaged 0.576 (57.6%), which suggests that the companies in the sample have a moderately leveraged capital structure. The standard deviation of 0.222 points to substantial differences between companies, with extreme values ranging from 0.896 to 1.579. Companies with high levels of debt may be more likely to adopt aggressive tax strategies to mitigate financial costs.

Finally, the ROA variable, which measures return on assets, presented an average of 0.705 (70.5%) with a standard deviation of 0.962, indicating high variability in the financial performance of companies. The median of 0.0652 and the maximum value of 0.452 show that most companies had modest returns, while some showed exceptional profits. Negative values or values close to zero suggest the presence of companies in financial difficulties, which can influence their tax decisions and the relationship with financial constraint.

In general, the descriptive analysis reveals a heterogeneous sample in terms of size, capital structure and financial performance, which contributes to the understanding of the variability of tax practices. The disparity in ETRs reinforces the importance of exploring how contextual factors, such as financial constraint and organizational life cycle stage, influence tax strategies. These results highlight the need to consider interactions between variables to adequately capture the determinants of the effective tax burden in Brazilian companies.

REGRESSION ANALYSIS

The regression models estimated by fixed and random effects panels are presented below. Each model (1, 2, 3, 4 and 5) was estimated with a specific ECV, with model 1 with ECV Birth, model 2 with ECV Growth, and so on. In addition, the explanatory variable RF (Financial Constraint) was multiplied by each ECV, to test the influence of financial constraint on each organizational life cycle. This procedure was repeated in all the

estimates of the study in this section (topic 4.2). It is noteworthy that economic sector variables were included in the random-effects models, while sector variables were not included in the fixed-effects models because they presented multicholinearity problems.

The results reported in Table 1 show that birth ECV was the only significant phase of organizational life cycles that presented a negative relationship, i.e., companies in the birth stage reduce ETR more than companies in the other stages, so this may indicate that companies in birth adopt more tax-aggressive practices. When related to financial restriction, this relationship was shown to be inverse.

The size variable as well as the ROA variable demonstrate a significant and positive relationship in all stages of the life cycle of the companies included in the sample, that is, companies with higher return on assets have a higher ETR.

Table 2 - Results of regressions with panel data, with fixed effect, for the dependent variable: Total ETR. 2011 to 2020

Variables	Model A1	Model A2	Model A3	Model A4	Model A5
Financial Restriction (RF)	-0,009	- 0,003	0,023	0,112	0,003
ECV Nascimento	-0,132**				
ECV Growth		0,006			
ECV Maturity			0,025		
ECV Turbulence				0,001	
RF x ECV Nascimento	0,186*				
RF vs ECV Growth		0,034			
RF x ECV Maturidade			0,038		
RF vs ECV Turbulence				-0,068	
Size	0,100**	0,962**	0,942**	0,967**	0,952**
Indebtedness	-0,067	- 0,844	0,074	- 0,083	-0,083
ROA	0,435***	0,454***	0,441***	0,457***	0,457***
Constant	-0,452	-0,423	-0,428	-0,427	-0,417
R2	0,031	0,019	0,021	0,019	0,019
Observations	1612	1612	1612	1612	1612

Source: Survey data (2024)

Observations: * p < 0.10; ** p < 0.05; p < 0.01. ECV = Life Cycle Stages according to Dickinson's (2011) model. ECV decline was omitted to avoid collinearity problems. All models were estimated with robust standard errors for heteroscedasticity.

According to Table 2, the results of this study provide a detailed analysis of the relationships between financial constraint, organizational life cycle stages (ECV) and the effective tax rate (Total ETR) of Brazilian companies in the period from 2011 to 2020. The analysis of the variables shows that, in isolation, the Financial Restriction (RF) did not present statistical significance in any of the models tested, suggesting that, in general, the RF, by itself, does not have a direct and consistent impact on the effective tax burden. This finding contrasts with previous studies, such as those by Edwards et al. (2016) and França et al. (2017), which point to a negative relationship between RF and ETR, in which companies in a situation of financial constraint would tend to adopt more aggressive tax practices to reduce tax costs and preserve liquidity. However, the lack of significance can

be explained by the fact that the relationship between RF and ETR is mediated by other factors, such as organizational stages, as evidenced by the results of the interactions.

Regarding the stages of the organizational life cycle, the ECV Nascimento presented a negative and statistically significant coefficient (-0.132; $p < 0.05$), indicating that companies in this stage have a lower Total ETR compared to companies in other stages. This result is in line with the theory of Anthony and Ramesh (1992) and other studies that indicate that companies in the birth stage face greater financial difficulties and, therefore, are more likely to adopt aggressive tax practices as a way to preserve financial resources to sustain operations and initial investments. On the other hand, the stages of Growth, Maturity and Turbulence did not show statistical significance in their isolated coefficients, suggesting that companies in these stages have greater financial and organizational stability, which results in less aggressive or more homogeneous tax practices.

The interactions between RF and ECV offer additional insights. The RF x ECV Nascimento interaction showed a positive and significant coefficient (0.186; $p < 0.10$), suggesting that, for companies in the birth stage, financial constraint reduces the intensity of aggressive tax practices, resulting in a higher Total ETR compared to non-restricted companies in the same stage. This finding can be explained by the fact that companies in their infancy and with financial constraints face not only financial but also managerial limitations, which make it difficult to implement complex and aggressive tax strategies.

On the other hand, the interactions between RF and the stages of Growth, Maturity and Turbulence did not present statistical significance. This suggests that financial constraint does not exert a significant additional impact on ETR at these stages, possibly due to the greater tax planning capacity and lower financial vulnerability of these firms.

The results of the control variables corroborate the existing literature. The variable Size, representing the logarithm of total assets, showed positive and significant coefficients in all models (approximately 0.10; $p < 0.05$), indicating that larger companies tend to have higher REEs. This finding is in line with the political cost theory of Watts and Zimmerman (1986), which suggests that larger firms face greater regulatory scrutiny and, therefore, adopt more conservative tax practices.

Similarly, the ROA, which measures the profitability of companies, showed positive and significant coefficients in all models (between 0.435 and 0.457; $p < 0.01$), reinforcing that more profitable companies have less incentive to adopt aggressive tax practices, since they have a greater capacity to pay taxes without compromising their operation. On the other hand, the variable Indebtedness, although not statistically significant, presented

negative coefficients, indicating a tendency for more leveraged companies to seek to reduce their tax burden as a way to alleviate the financial costs associated with debt.

Thus, these results corroborate the organizational life cycle theory, which postulates that the challenges faced by companies vary significantly according to their stage of development. Birth-stage companies face greater financial constraints and are more likely to adopt aggressive tax practices, although the presence of financial constraint limits their ability to implement such strategies effectively. In the intermediate stages, such as growth and maturity, the absence of significance in the coefficients suggests greater stability in fiscal practices, while the interactions highlight that the ability to deal with financial constraints depends on the organizational stage.

The findings of this study also reinforce the importance of considering the stages of the life cycle as moderators in the relationship between financial constraint and taxation, contributing to the advancement of the literature by demonstrating that this relationship is more complex than previously suggested. Finally, the results offer practical implications for managers and policymakers, by highlighting the need to adapt fiscal and financial strategies to the specificities of each organizational stage, with special attention to the conditions of financial constraint.

Table 3. Results of the regressions with panel data, random effect (RE) for the dependent variable: Current ETR. 2011 to 2020

Variables	Model B1	Model B2	Model B3	Model B4	Model B5
Financial Restriction (RF)	-0,036	-0,052	0,005	-0,038	-0,032
ECV Nascimento	-0,078				
ECV Growth		-0,028			
ECV Maturity			0,050*		
ECV Turbulence				0,006	
ECV Decline					-0,088
RF x ECV Nascimento	0,024				
RF vs ECV Growth		0,082			
RF x ECV Maturidade			-0,073		
RF vs ECV Turbulence				0,042	
RF x ECV Declínio					0,026
Size	0,006	0,007	0,005	0,006	0,003
Indebtedness	-0,048	-0,050	-0,049	-0,055	-0,054
ROA	0,544***	0,561***	0,525***	0,568***	0,553***
Sector 1	-0,006	-0,008	-0,008	-0,005	-0,006
Sector 2	-0,045	-0,051	- 0,049	- 0,050	- 0,050
Sector 3	-0,054	-0,063	- 0,050	- 0,060	-0,049
Sector 4	-0,049	-0,050	-0,050	- 0,053	-0,053
Sector 5	0,117*	0,115*	0,113	0,118*	0,116*
Constant	0,113	0,109	0,087	0,110	0,131
R2 *within*	0,008	0,008	0,009	0,007	0,007
R2 *between*	0,127	0,123	0,126	0,123	0,128

R3 *overall*	0,027	0,026	0,028	0,026	0,027
Observations	1612	1612	1612	1612	1612

Source: Economática®.

Observations: * p < 0.10; ** p < 0.05; p < 0.01. ECV = Life Cycle Stages according to Dickinson's (2011) model. ECV decline was omitted to avoid collinearity problems. The economic sectors were classified from 1 to 6, including, respectively, the industrial sector (1), commerce (2), civil construction (3), communication, water and energy (4), transportation and related services (5) and other sectors (6). To avoid collinearity problems, sector 6 was omitted. All models were estimated with robust standard errors for heteroscedasticity.

Table 3 presents the results of the regressions with panel data, using random effects (RE), to analyze the determinants of the Current ETR of Brazilian companies in the period from 2011 to 2020. The Current ETR represents the tax burden effectively paid by companies in the period, being an important metric to evaluate tax practices in the short term. The results provide insights into how Financial Constraint (FI), Organizational Life Cycle Stages (ECV), and other explanatory variables impact the level of effective taxation.

Financial Restriction (RF) presented negative coefficients in all models, but without statistical significance. This result indicates that, in isolation, the RF does not directly affect the current ETR of the companies. The absence of statistical significance for RF contrasts with studies such as those by Edwards et al. (2016) and França et al. (2017), which suggest that financially constrained companies can adopt more aggressive tax practices to reduce costs and preserve cash. However, the Brazilian context, characterized by a complex tax system and a rigorous regulatory environment, may limit the ability of financially constrained companies to implement aggressive tax strategies. In addition, the RF can act indirectly, influencing the tax burden when combined with other factors, such as the stages of the organizational life cycle, which justifies the analysis of the interactions present in the table.

Among the stages of the organizational life cycle, the results reveal that the ECV Maturity presented a positive and statistically significant coefficient in one of the models (0.050; p < 0.10). This finding reinforces the theory that mature companies tend to have higher Current ETRs, since they have greater financial stability, greater profitability and fewer incentives to adopt aggressive tax practices. Studies such as those by Grullon et al. (2002) and Hasan et al. (2016) highlight that mature companies prioritize conservative tax practices due to concerns about their reputation and the increased regulatory scrutiny they face. Thus, these results corroborate the literature by indicating that the maturity stage is associated with a less aggressive fiscal behavior.

The stages of Birth, Growth, Turbulence and Decline did not show statistical significance in their isolated coefficients. For ECV Nascimento, the absence of significance contrasts with the expectation that early-stage companies will adopt aggressive tax practices to preserve cash and finance operations, as suggested by Anthony and Ramesh (1992). A possible explanation for this result is that early-stage companies have limited

resources and less managerial capacity to explore complex tax strategies. For the Growth, Turbulence and Decline stages, the absence of significance suggests that other factors, such as the sector of activity or the institutional environment, may play a more relevant role in determining Current ETR in these stages.

The interactions between RF and the life cycle stages also did not show statistical significance in any of the models. This result implies that the RF does not substantially modify the tax behavior of companies at different organizational stages. The lack of significance in the interactions contrasts with the theory of Miller and Friesen (1984), which argues that young or declining firms are more likely to adopt aggressive tax practices in situations of financial constraint. However, this discrepancy can be explained by the heterogeneity in tax practices among the companies in the sample and by the particularities of the Brazilian tax environment, which may limit the flexibility of companies to implement tax strategies in periods of financial constraint.

The control variables presented results consistent with the literature. The ROA variable, which measures the operating profitability of companies, showed positive and significant coefficients in all models (between 0.525 and 0.544; $p < 0.01$), indicating that more profitable companies pay proportionally more current taxes. This result is in line with studies such as that of Hanlon and Heitzman (2010), which point out that profitable companies have less incentive to adopt aggressive tax practices, as they have a greater capacity to comply with their tax obligations without compromising their operation.

The variable Indebtedness presented negative coefficients, although without statistical significance, suggesting a tendency for more indebted companies to seek to reduce their Current ETR, which is in line with the literature on tax benefits associated with interest payments (Frank and Goyal, 2009). Finally, Size was not statistically significant in either model, which contrasts with Watts and Zimmerman's (1986) theory of political costs, which suggests that larger firms face greater regulatory scrutiny and therefore adopt more conservative tax practices. However, the absence of significance may indicate a greater heterogeneity in the tax behavior of large companies in the Brazilian context.

In summary, the results in Table 3 reveal that the RF, in isolation, does not directly affect the Current ETR, while the maturity stage stands out as a factor that positively influences the current tax burden. These findings partially corroborate the literature, while highlighting the importance of the institutional context and the specific characteristics of the Brazilian tax system in determining tax practices. In addition, the results suggest that the interaction between RF and ECV is more complex than suggested by previous theories,

indicating the need for more detailed analyses to capture the dynamics underlying these relationships.

Table 3. Results of the regressions with panel data, random effect (RE) for the dependent variable: Sectoral ETR. 2011 to 2020

Variables	Model C1	Model C2	Model C3	Model C4	Model C5
Financial Restriction (RF)	0,036	0,052	0,005	0,038	0,032
ECV Nascimento	0,078				
ECV Growth		0,028			
ECV Maturity			- 0,050*		
ECV Turbulence				0,005	
ECV Decline					0,087
RF x ECV Nascimento	0,025				
RF vs ECV Growth		-0,082			
RF x ECV Maturidade			0,073		
RF vs ECV Turbulence				-0,044	
RF x ECV Declínio					-0,025
Size	-0,006	0,007	0,005	0,006	0,003
Indebtedness	0,049	0,052	0,051	0,056	0,055
ROA	-0,539***	-0,556***	- 0,520***	- 0,563***	-0,548***
Sector 1	0,002	0,003	0,004	0,000	0,001
Sector 2	-0,015	-0,009	- 0,011	- 0,010	-0,009
Sector 3	0,041	-0,031	- 0,044	- 0,035	-0,046
Sector 4	0,009	0,008	0,008	0,005	0,005
Sector 5	0,043	0,046	0,048	0,042	0,044
Constant	0,037	0,041	0,063	0,039	0,019
R2 *within*	0,008	0,008	0,009	0,007	0,007
R2 *between*	0,047	0,042	0,047	0,043	0,048
R3 *overall*	0,014	0,013	0,015	0,013	0,013
Observations	1612	1612	1612	1612	1612

Source: Economática®.

Observations: * p < 0.10; ** p < 0.05; p < 0.01. ECV = Life Cycle Stages according to Dickinson's (2011) model. ECV decline was omitted to avoid collinearity problems. The economic sectors were classified from 1 to 6, including, respectively, the industrial sector (1), commerce (2), civil construction (3), communication, water and energy (4), transportation and related services (5) and other sectors (6). To avoid collinearity problems, sector 6 was omitted. All models were estimated with robust standard errors for heteroscedasticity.

Table 3 presents the results of the regressions with panel data, using random effects (RE), to analyze the determinants of the Current ETR of Brazilian companies in the period from 2011 to 2020. The Current ETR represents the tax burden effectively paid by companies in the period, being an important metric to evaluate tax practices in the short term. The results provide insights into how Financial Constraint (FI), Organizational Life Cycle Stages (ECV), and other explanatory variables impact the level of effective taxation.

Financial Restriction (RF) presented negative coefficients in all models, but without statistical significance. This result indicates that, in isolation, the RF does not directly affect the current ETR of the companies. The absence of statistical significance for RF contrasts with studies such as those by Edwards et al. (2016) and França et al. (2017), which suggest that financially constrained companies can adopt more aggressive tax practices to reduce costs and preserve cash. However, the Brazilian context, characterized by a complex tax

system and a rigorous regulatory environment, may limit the ability of financially constrained companies to implement aggressive tax strategies. In addition, the RF can act indirectly, influencing the tax burden when combined with other factors, such as the stages of the organizational life cycle, which justifies the analysis of the interactions present in the table.

Among the stages of the organizational life cycle, the results reveal that the ECV Maturity presented a positive and statistically significant coefficient in one of the models (0.050; $p < 0.10$). This finding reinforces the theory that mature companies tend to have higher Current ETRs, since they have greater financial stability, greater profitability and fewer incentives to adopt aggressive tax practices. Studies such as those by Grullon et al. (2002) and Hasan et al. (2016) highlight that mature companies prioritize conservative tax practices due to concerns about their reputation and the increased regulatory scrutiny they face. Thus, these results corroborate the literature by indicating that the maturity stage is associated with a less aggressive fiscal behavior.

The stages of Birth, Growth, Turbulence and Decline did not show statistical significance in their isolated coefficients. For ECV Nascimento, the absence of significance contrasts with the expectation that early-stage companies will adopt aggressive tax practices to preserve cash and finance operations, as suggested by Anthony and Ramesh (1992). A possible explanation for this result is that early-stage companies have limited resources and less managerial capacity to explore complex tax strategies. For the Growth, Turbulence and Decline stages, the absence of significance suggests that other factors, such as the sector of activity or the institutional environment, may play a more relevant role in determining Current ETR in these stages.

The interactions between RF and the life cycle stages also did not show statistical significance in any of the models. This result implies that the RF does not substantially modify the tax behavior of companies at different organizational stages. The lack of significance in the interactions contrasts with the theory of Miller and Friesen (1984), which argues that young or declining firms are more likely to adopt aggressive tax practices in situations of financial constraint. However, this discrepancy can be explained by the heterogeneity in tax practices among the companies in the sample and by the particularities of the Brazilian tax environment, which may limit the flexibility of companies to implement tax strategies in periods of financial constraint.

The control variables presented results consistent with the literature. The ROA variable, which measures the operating profitability of companies, showed positive and significant coefficients in all models (between 0.525 and 0.544; $p < 0.01$), indicating that more profitable companies pay proportionally more current taxes. This result is in line with

studies such as that of Hanlon and Heitzman (2010), which point out that profitable companies have less incentive to adopt aggressive tax practices, as they have a greater capacity to comply with their tax obligations without compromising their operation.

The variable Indebtedness presented negative coefficients, although without statistical significance, suggesting a tendency for more indebted companies to seek to reduce their Current ETR, which is in line with the literature on tax benefits associated with interest payments (Frank and Goyal, 2009). Finally, Size was not statistically significant in either model, which contrasts with Watts and Zimmerman's (1986) theory of political costs, which suggests that larger firms face greater regulatory scrutiny and therefore adopt more conservative tax practices. However, the absence of significance may indicate a greater heterogeneity in the tax behavior of large companies in the Brazilian context.

In summary, the results in Table 3 reveal that the RF, in isolation, does not directly affect the Current ETR, while the maturity stage stands out as a factor that positively influences the current tax burden. These findings partially corroborate the literature, while highlighting the importance of the institutional context and the specific characteristics of the Brazilian tax system in determining tax practices. In addition, the results suggest that the interaction between RF and ECV is more complex than suggested by previous theories, indicating the need for more detailed analyses to capture the dynamics underlying these relationships.

Table 4 Results of the regressions with panel data, random effect (RE) for the dependent variable: Differential ETR. 2011 to 2020

Variables	Model D1	Model D2	Model D3	Model D4	Model D5
Financial Restriction (RF)	0,036	0,052	0,052	0,038	0,032
ECV Nascimento	0,078				
ECV Growth		0,028			
ECV Maturity			-0,050*		
ECV Turbulence				0,006	
ECV Decline					0,088
RF x ECV Nascimento	-0,024				
RF vs ECV Growth		-0,082			
RF x ECV Maturidade			0,073		
RF vs ECV Turbulence				0,042	
RF x ECV Declínio					-0,026
Size	-0,006	-0,007	-0,005	-0,006	-0,003
Indebtedness	0,048	0,050	0,049	0,055	0,054
ROA	-0,544***	-0,561***	- 0,525***	- 0,568***	-0,553***
Sector 1	0,006	0,008	0,008	0,005	0,006
Sector 2	0,045	0,051	0,049	0,050	0,050
Sector 3	0,054	0,063	0,050	0,060	0,049
Sector 4	-0,049	-0,050	-0,050	- 0,053	-0,053
Sector 5	-0,117*	-0,115*	-0,113*	- 0,118*	-0,116*
Constant	Results 0.226*	0,230*	0,252*	0,229*	0,208*
R2 *within*	0,027	0,026	0,028	0,026	0,027
R2 *between*	0,127	0,123	0,126	0,123	0,128

R3 *overall*	0,157	0,195	0,195	0,196	
Observations	1612	1612	1612	1612	

Source: Economática®.

Observations: * p < 0.10; ** p < 0.05; p < 0.01. ECV = Life Cycle Stages according to Dickinson's (2011) model. ECV decline was omitted to avoid collinearity problems. The economic sectors were classified from 1 to 6, including, respectively, the industrial sector (1), commerce (2), civil construction (3), communication, water and energy (4), transportation and related services (5) and other sectors (6). To avoid collinearity problems, sector 6 was omitted. All models were estimated with robust standard errors for heteroscedasticity.

Table 4 presents the results of the regressions with panel data, using random effects (RE), to analyze the determinants of Differential ETR in Brazilian companies between 2011 and 2020. The Differential ETR reflects the deviation between the effective tax burden and the nominal tax rate, and is a relevant metric to identify more or less aggressive tax practices. The results provide important insights into the influence of Financial Restriction (RF), Organizational Life Cycle Stages (ECV) and control variables on the fiscal behavior of firms.

The Financial Restriction (RF) variable showed positive coefficients in all models, but without statistical significance. This result suggests that, in isolation, RF does not have a direct impact on Differential REE. This finding contrasts with studies such as those by França et al. (2017), who found a significant relationship between RF and greater fiscal aggressiveness in Latin American companies. A possible explanation for this discrepancy can be attributed to the Brazilian context, characterized by a complex tax system and a rigorous regulatory environment, which limits the ability of companies in financial constraint to implement sophisticated tax strategies. In addition, it is possible that the effects of RF on ETR are more evident in interactions with other variables, such as the stages of the organizational life cycle, which warrants a more in-depth analysis of these combinations.

Among the stages of the organizational life cycle, the ECV Maturity presented a negative and statistically significant coefficient (-0.050; p < 0.10), indicating that mature companies tend to have lower Differential ETR. This result is in line with the literature, such as the studies by Hasan et al. (2016) and Grullon et al. (2002), which highlight that mature companies have more stable financial structures and more conservative tax practices, reflecting less fiscal aggressiveness. Greater financial stability and less need to preserve cash in mature companies reduce incentives for riskier tax practices.

On the other hand, the stages of Birth, Growth, Turbulence and Decline did not present statistical significance, suggesting that the Differential ETR in these stages is not directly influenced by the characteristics associated with the life cycle. This finding may indicate that external factors, such as the sector of operation and regulation, play a more relevant role in the fiscal behavior of companies in these stages.

The interactions between RF and the different ECVs also did not show statistical significance in any of the models. This implies that the RF does not substantially modify the tax behavior of companies at different stages of the life cycle. This result contrasts with studies such as those by Miller and Friesen (1984), which argue that companies in birth or decline, under financial constraint, tend to adopt more aggressive tax practices. However, the lack of significance can be explained by the heterogeneity of Brazilian companies in terms of size, governance and tax planning capacity, in addition to the limitations imposed by the local tax system.

The control variables presented results consistent with the literature. The ROA variable, which measures operating profitability, presented negative and significant coefficients in all models ($p < 0.01$), indicating that more profitable companies tend to have lower ETR Differential, which reflects less fiscal aggressiveness. This finding is in line with the theory of Hanlon and Heitzman (2010), who argue that profitable companies have less incentive to adopt aggressive tax practices, as they are able to meet their tax obligations without compromising their financial performance.

The variable Indebtedness presented positive coefficients, although without statistical significance, suggesting a tendency for more indebted companies to seek to increase their Differential ETR, possibly using more aggressive tax strategies. The variable Size, represented by the logarithm of total assets, was also not statistically significant. This result contrasts with Watts and Zimmerman's (1986) theory of political costs, which suggests that larger firms tend to adopt more conservative tax practices due to greater regulatory scrutiny. However, the absence of significance may indicate greater heterogeneity in the fiscal behavior of large companies in Brazil.

Finally, the inclusion of dummy variables for economic sectors revealed statistical significance for some sectors. Sector 5 (Transportation and Related Services) presented negative and significant coefficients, indicating that companies in this sector have lower ETR Differential, which reflects less fiscal aggressiveness. This result may be related to the specific characteristics of the sector, such as greater regulation and the presence of specific tax incentives, which limit flexibility for more aggressive tax strategies.

In summary, the results in Table 4 highlight that, while the RF does not directly affect the Differential ETR, the maturity stage exerts a significant influence, reflecting greater fiscal conservatism in mature companies. In addition, the lack of significance in the interactions between RF and CVE suggests that the relationship between financial constraint, life cycle and taxation is more complex than imagined and may be mediated by other contextual and organizational factors. These findings reinforce the importance of

considering the organizational life cycle as a relevant analytical dimension, but also indicate that institutional and sectoral characteristics play a crucial role in determining tax practices.

FINAL CONSIDERATIONS

This study sought to investigate the relationship between financial constraint, stages of the organizational life cycle and tax practices of Brazilian companies, using different measures of effective tax burden (Total ETR, Current ETR and Differential ETR) for the period from 2011 to 2020. Through regressions with panel data, with fixed and random effects, the results reveal important insights into how these factors interact and influence the fiscal behavior of companies, with both theoretical and practical implications.

The main findings of the study indicate that the Financial Restriction (RF), when analyzed in isolation, did not present statistical significance in relation to the effective tax burden metrics. This result suggests that, although RF is often associated with the adoption of more aggressive tax practices in the literature, in the Brazilian context, this direct relationship is limited, possibly due to institutional barriers and the complexity of the tax system. However, the interactions between RF and the stages of the organizational life cycle have highlighted important nuances. For companies in the Birth stage, the RF seems to attenuate the fiscal aggressiveness, reflected in a higher ETR, which can be explained by the limitation of managerial and financial resources in young companies.

Among the Stages of the Organizational Life Cycle (ECV), the Maturity stage stood out as a significant factor in several models. Mature companies had lower Differential ETRs and higher Current ETRs, showing a more conservative fiscal behavior, in line with the literature that highlights financial stability and concern with reputation in these stages. On the other hand, the Growth, Turbulence, and Decline stages did not show significant impacts, reinforcing the idea that other factors, such as economic sector or specific governance characteristics, may be more determinant in these contexts.

The control variables also presented results consistent with the literature. Operating profitability (ROA) proved to be an important determinant, with more profitable companies presenting a higher effective tax burden, indicating less incentive for aggressive tax practices. On the other hand, indebtedness showed a tendency to be associated with greater fiscal aggressiveness, although without statistical significance in many models. The size of the firms was not statistically significant, contrasting with the theory of political costs, but suggesting greater heterogeneity in the tax practices of large firms in Brazil.

The contributions of this study are significant. Theoretically, it advances the understanding of how financial constraints and organizational stages interact to influence

fiscal practices, especially in the context of an emerging economy. By incorporating different measures of ETR and considering moderators such as life cycle stages, the research offers a more complex and contextualized view of fiscal behavior. In practice, the findings offer subsidies for managers to adjust their fiscal and financial strategies based on the stage of development of their organizations. For policymakers, the results underscore the importance of simplifying the tax system and considering incentives that meet the needs of companies at different organizational stages.

Despite the contributions, the study has some limitations. First, the absence of more detailed information on specific tax planning strategies limits the interpretation of the mechanisms underlying variations in ETR. In addition, the analysis focuses on listed companies, which may not be representative of small and medium-sized companies, where the effects of financial constraint and life cycle stages may be even more pronounced. Another limitation refers to the impossibility of fully capturing the effects of external shocks, such as economic crises, which can simultaneously influence financial constraint and fiscal practices.

For future research, it is suggested to expand the analysis to include smaller companies, in addition to investigating other mediators, such as corporate governance and sectoral competitive intensity. Including metrics related to economic shocks, such as periods of recession, can also offer additional insights into how businesses adjust their tax strategies in response to financial constraints. Finally, a qualitative analysis of the motivations behind tax choices at different stages of the life cycle could complement the quantitative findings, offering a richer and more detailed view of organizational dynamics. In conclusion, this study reinforces the relevance of understanding the interaction between financial constraint, organizational life cycle, and taxation, especially in emerging economies.

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