DOES THE BOOK-TAX DIFFERENCE MATTER? AN ANALYSIS OF THE RELATIONSHIP WITH EARNINGS PERSISTENCE

O BOOK-TAX DIFFERENCE IMPORTA? UMA ANÁLISE DA RELAÇÃO COM A PERSISTÊNCIA DOS RESULTADOS

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ABSTRACT

In Brazil, with the accounting convergence process, the accounting standards issued by the IASB began to lead corporate accounting. However, together with the adoption of international standards, it remains in force, largely because of the Brazilian code law regime and tax rules that influence accounting procedures. The main problem is that accounting standards and tax rules have different objectives, and from this misalignment, the figure of the book-tax difference (BTD) emerges. BTD ends up influencing the results presented in the accounting reports, considering that its registration arises from conceptual differences between accounting standards and tax rules, generating temporary or permanent differences. In this scenario, it is important to know the effects of this misalignment (BTD) on the quality of earnings, especially in the attribute of earnings persistence. Therefore, this study aimed to identify the effects of BTD on the persistence of earnings or cash flows, based on the econometric model proposed by Dechow and Schrand (2004). For this purpose, a sample of 335 companies with observations from 2000 to 2019 was used. Among the main results, it was found that, in fact, BTD negatively influences earnings persistence; that is, the higher the BTD, the lower the persistence of earnings tends to be. Additionally, it was found that the BTD does not significantly influence the persistence of cash flows. Finally, it was identified that, in the period observed, cash flows were more persistent than accounting earnings, in contrast to what was observed by Dechow (1994).

Keywords: Earnings persistence. Earnings quality. Book-tax difference; BTD.

RESUMO

No Brasil, com o processo de convergência contábil, os padrões contábeis emitidos pelo IASB passaram a reger a contabilidade societária brasileira. Porém, aliado à adoção dos padrões internacionais, mantêm-se vigente, muito por conta do regime de code law brasileiro, normas de cunho tributário que exercem influência sobre os procedimentos contábeis. Ocorre que as normas contábeis e as normas tributárias têm objetivos diferentes e, desse desalinhamento, surge a figura do book-tax difference (BTD). O BTD acaba influenciando os resultados apresentados nos relatórios contábeis, tendo em vista que o seu registro decorre de diferenças conceituais entre os padrões contábeis e as normas fiscais, gerando as diferenças temporárias ou permanentes. Nesse cenário, importa conhecer os efeitos desse desalinhamento (BTD) na qualidade dos lucros, sobretudo no atributo da persistência dos lucros. Portanto, o objetivo desse estudo foi avaliar quais os efeitos do BTD na persistência dos lucros ou fluxos de caixa, com base no modelo econométrico proposto por Dechow e Schrand (2004). Para tanto, utilizou-se uma amostra de 335 empresas com observações de 2000 a 2019. Dentre os principais resultados, verificou-se que, de fato, o BTD influencia negativamente a persistência dos lucros, isto é, quanto maior o BTD, menor tende a ser a persistência dos lucros. Adicionalmente, verificou-se que o BTD não exerce influência significativa sobre a persistência dos fluxos de caixa. Por fim, identificou-se que, no período observado, os fluxos de caixa se mostraram mais persistentes que os lucros contábeis, em contraponto ao que fora observado por Dechow (1994).

Palavras-chave: *Persistência dos lucros. Qualidade dos lucros. Book-tax difference; BTD.*

1 INTRODUÇÃO

The convergence to international accounting standards, with the introduction of Law 11.638/2007, had as its main objective to adapt the Brazilian accounting standards to the standards issued by the IASB (International Accounting Standard Board) (SHIMAMOTO; REIS, 2010). This movement was intended to provide greater comparability between the companies accounting information, as well as to improve the companies' transparency and to raise the quality of the accounting information for its users.

This law modified the Brazilian Corporation Law (Law 6.404/1976) by using the fundamental principles of accounting with less influence from tax effects (MARTINEZ; PASSAMANI, 2014). However, with Law 11.941/2009, the Transition Tax Regime was instituted to preserve the principle of fiscal neutrality of changes inserted in the Brazilian accounting standards with Law 11.638/2007.

Tax legislation is one of the factors that affect bookkeeping, as it has different purposes from corporate accounting, after all, accounting regulation establishes rules and procedures to be adopted for the preparation of financial information, while tax legislation indicates rules for calculating profit taxable. The disagreement in objectives between them results in differences in the calculation of accounting and tax results, and this difference is called the literature of book-tax difference (BTD) (FORMIGONI; ANTUNES; PAULO, 2009).

According to Drake (2012), the accounting research literature has sought to find an association between book-tax difference and the persistence of accounting results, as large BTDs have been associated with less persistence in accounting results. It should be noted that the Book-tax difference influences the corporate accounting results, given that the accounting for these differences will be recorded in the balance sheet, in tax asset or tax liability accounts, and not in income statement accounts. Given this, the question that guides this paper is: what is the association between book-tax differences and earnings persistence?

For Arruda et al. (2015), persistence is a desirable quality for predicting corporate earnings; therefore, the evaluation of how BTD can influence results is useful, considering that accounting earnings are an important tool for obtaining resources and financial analysis of a company's performance. Given the above, the interference of tax legislation in accounting standards confirms the importance of research that shows its influence on the accounting results of companies. At another point, it is important to remember that persistence is a proxy of the quality of earnings that has been little explored in the literature, unlike other determinants such as earnings management and value relevance.

Therefore, this research aims to analyze the effects that the differences between the accounting results and the fiscal results (BTD) generate in the persistence of earnings or operational cash flows, as well as to verify the relationship between the persistence and the other variables studied, checking if they have explanatory power over the next results. In addition, this work hopes to contribute to future research on the relationship between book-tax difference and the quality of earnings.

This paper is structured as follows. This section presents the introduction to the theme, problems, and objective of the study. The next section contains a review of the literature on the determinants of the quality of accounting information and the Book-tax difference. The third section presents the adopted procedures used in the research. In the fourth, the results are presented and analyzed. Finally, in the last section, final considerations are made about the study.

2 LITERATURE REVIEW

2.1 Earnings quality

There is still no consolidated metric to measure the quality of accounting information (ALMEIDA, 2010). For Lee (2007), one of the accounting problems is that there are no precise definitions for the concept of quality, considering that the role of assigning quality to financial statements is generally consolidated in the figure of the auditor. Given this scenario, several researchers have dedicated their investigations to this topic, such as Almeida (2010), Arruda et al. (2015), Bruzoni Júnior et al. (2017), Dechow (1994), Dechow and Schrand (2004) Dechow, Ge and Schrand (2010), Herculano and Moura (2015), Martinez, Souza and Monte-Mor (2016), Cavalcante and Melo (2012), Rodrigues (2012) and Santiago, Cavalcante e Paulo (2015).

Therefore, in October 2005, the Accounting Pronouncements Committee (CPC) was created through a resolution of the Federal Accounting Council (Resolution 1.055/2005). The creation of the CPC occurred for several reasons, such as promoting the international convergence of Brazilian accounting standards and centralizing the issuance of accounting standards, aiming at improving information for users (NIYAMA; SILVA, 2013).

To promote this purpose, the CPC issued the basic conceptual framework, in which the qualitative characteristics of accounting information were exposed. These characteristics were segregated into fundamental and enhancing characteristics. The fundamental characteristics were divided into relevance and faithful representation. Information is relevant if it can make a difference in the decisions made by users. To be represented faithfully, it must be complete, neutral, and free from error (CPC, 2019).

Also according to CPC 00 (R2), the enhancing characteristics are divided into comparability, verifiability, timeliness, and understandability. Comparability is linked to the possibility for users to compare information over time and between different companies. The verifiability indicates that the information, even if analyzed by different users, must reach the same result. Timeliness concerns the need for information to be available in time to be able to influence decision-making. On the other hand, understandability states that the information must be clear and concise so that even those who are not experts in accounting matters understand it.

On the other hand, despite an attempt to conceptualize quality on the part of standard-setting institutions, the accounting literature has used other attributes to measure quality. The literature calls earnings quality the area of research that aims to analyze the quality of accounting information using accounting earnings as a proxy (ALMEIDA, 2010).

In that regard, for Colauto et al. (2010), the quality of the accounting results means the quality of the information on the accounting reports, and this quality will be greater if the manipulation of the results is less, that is, the quality grows as the information contains more transparency and less asymmetry. Antunes and Mendonça (2008) state that the quality of accounting information is the degree of functionality of accounting as a governance mechanism.

According to Dechow, Ge, and Schrand (2010), the quality of earnings can be considered as a set of several dimensions, such as persistence of earnings, prudence, earnings management, quality in the measurement of accruals, transparency, level of disclosure, and relationship of accounting numbers to the performance of the firm's stock price or market value. In this paper, a greater focus will be given to the theoretical framework about the persistence of accounting results, considering that the objective of the research is to evaluate the relationship between book-tax difference and the persistence of earnings.

Still, according to what was explained by Dechow, Ge, and Schrand (2010), it is emphasized that the quality of accounting information follows the course of persistence of results, further explaining that the management or manipulation of information interferes with persistence, and this has an influence on the capital market valuation. The authors state that studies on the persistence of results indicate that the greater the persistence, the better they will be as proxies for the quality of the results when compared to lower persistence. In this sense, the authors state that persistence is used as a benchmark for asset valuation.

In this context, the seminal study by Dechow (1994) identified that the persistence of the accounting results is greater than the persistence of the cash flows. Thus, it is understood that the persistence of results has greater predictability and informative power when compared to the persistence of cash flows.

In the accounting literature, persistence is constantly used to describe the predictive capacity of variables (TAKAMATSU, 2011). The persistence of accounting results is a desirable attribute for companies, but this attribute will only be relevant if the result really reflects the performance of the period and if that performance remains constant in the next years. However, persistence is not, in isolation, an indicator of quality, as it will only have value if it faithfully represents the intrinsic value of the company (DECHOW; SCHRAND, 2004)

The great interest in the persistence of accounting results is due to this being an important tool for the predictability of the next results, and consequently, of the valuation of assets (PAULO; CAVALCANTE; MELO, 2012). These authors developed research to investigate whether the quality of accounting information is affected by the public offering of shares and debentures. The authors found that there is greater persistence of earnings in the years before the public offering of shares, while, for the debentures, the least persistence occurs in the year prior to its public issue.

Rodrigues (2012) analyzed the process of convergence to international accounting standards under the attributes of persistence, conservatism, earnings management, and value relevance. Regarding persistence, the author found that the variable representing convergence was not significant.

Arruda et al. (2015) analyzed the level of conservatism and persistence presented by open and closed financial institutions. Contrary to what was expected, the results indicated that closed financial institutions have greater persistence in their accounting results than open institutions, resulting in greater predictability of future earnings. Regarding conservatism, the hypothesis that the accounting figures reported by open institutions are more conservative than those reported by closed institutions was rejected.

Herculano and Moura (2015) analyzed the influence of the level of capital concentration on the quality of accounting information, considering the persistence of results and cash flow and the opportunity of accounting information as a proxy for quality analysis. The results showed that companies with a higher concentration of capital have greater persistence in accounting results, in addition to having greater opportunities for accounting information.

As in the study made by Rodrigues (2012), under a scenario of evaluation of the implications of accounting convergence, the article by Santiago, Cavalcante, and Paulo (2015) assessed whether there were changes in the quality of accounting information of companies in the construction sector in Brazil. Specifically, the authors found that earnings persistence decreased after the adoption of CPC 17.

The investigation by Bruzoni Júnior et al. (2017) sought to analyze whether IFRS adoption affects the persistence and value relevance of the accounting results of companies in Argentina, Brazil, Chile, Colombia, Mexico, and Peru. The authors found that IFRS adoption alone was not fully beneficial to quality improvement, as persistence was not greater for all cases.

2.2 Book-tax difference

In code law countries, such as Brazil, legal rules overlap with other sources of law, so, when it comes to accounting, the tax system can influence financial accounting, which, therefore, affects the quality of accounting information. Where there is strong proximity between financial accounting and tax accounting, earnings tend not to represent the economic reality of the business, implying that accounting standards closely linked to tax legislation tend to be of low quality (BRAGA, 2011).

Lopes and Martins (2006) describe that the tax impact on accounting can be less in countries with a common law model, as in the United Kingdom, after all, in these countries, accounting is outside the government's sphere of influence.

Thus, in Brazil, the financial accounting system is interrelated with the tax accounting system and serves as a basis for calculating taxable profit, given that it would be very costly for the government to establish an independent system. However, even using the same system for calculating earnings, there are often differences between accounting and tax rules (PIQUERAS, 2010).

Therefore, according to Martinez and Passamani (2014), the book-tax difference represents these differences that may arise between accounting earnings, prepared in accordance with corporate law, and taxable earnings, which are calculated in accordance with tax legislation.

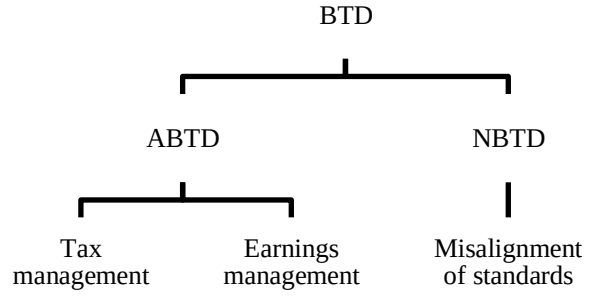
According to Ferreira et al. (2012), the book-tax difference arises from the fact that accounting earning is calculated based on generally accepted accounting principles, to provide information that may influence the decision-making of users of accounting information, while taxable earning follows the precepts of tax legislation and aims to meet the interests demanded by the government.

The adoption of divergent rules of financial accounting and tax accounting results in two sources of differences between accounting and taxable earnings: (i) permanent differences and (ii) temporary differences. Permanent differences occur when an operation generates an accounting entry, but has no tax effect. Temporary differences, on the other hand, occur when the accounts recognize the transaction but differ as to the moment of recognition (FORMIGONI; ANTUNES; PAULO, 2009).

According to CPC 32 (CPC, 2009), a temporary difference is the difference between the book value and the tax basis (the amount attributed to that asset or liability for tax purposes) of an asset or liability on the balance sheet. Some temporary differences arise when the income or expense is recognized in the calculation of accounting profit in one period but will be included in the calculation of taxable profit in a different period. The CPC explains that these differences can be taxable or deductible. Taxable temporary differences generally require the recognition of deferred tax liability. However, deductible temporary differences require the recognition, as a rule, of a deferred tax asset.

Also, according to Formigoni, Antunes, and Paulo (2009), the BTD arising from this misalignment between accounting and tax rules is considered a normal BTD (NBTD). On the other hand, managers have incentives to act opportunistically about accounting numbers and taxable income, resulting, therefore, in abnormal BTD (ABTD). Figure one shows, in summary, the division exposed in the research carried out by the authors.

Figure 1 – BTD division



Reference: Formigoni, Antunes and Paulo (2009).

In his research, Hanlon (2005) investigated how the book-tax difference is relevant to the persistence of accounting results, in addition to seeking to know if BTD is a material factor for the decision-making of investors about future results. It was concluded that companies with large BTDs have earnings with less persistence than companies with small BTDs. On the second point of the research, it was concluded that investors are afraid when the accounting profit is greater than the taxable profit, but this is not the case otherwise.

In the research by Fomigoni, Antunes, and Paulo (2009) an investigation was carried out with the general objective of knowing the composition of the difference between the accounting result and taxable result (BTD) in Brazilian public companies, to identify the explanation for this difference, whether through earnings management, tax management or none of them. The authors concluded that the cause of the emergence of the book-tax difference cannot be attributed to any of the forms of management considered by hypotheses previously. As a result, it was not possible to relate such practices to BTD.

Atwood, Drake e Myers (2010) contribute to the debate on eliminating the differences between accounting earnings and taxable earnings. The authors argue, based on an empirical investigation, that when the level of book-tax conformity is high, then the persistence of the results decreases. With this, they conclude that increasing book-tax conformity can reduce the quality of earnings.

Piqueras (2010) investigated whether the existing differences between accounting profit and taxable profit (BTD) can capture the opportunism on the part of managers in Brazilian publicly traded companies. The results verified that the management carried out in the investigated period is not related to the behaviors determined by the BTD models.

Blaylock, Shevlin, and Wilson (2012) investigated why BTD serves as an important tool for earnings persistence. The authors found that companies with higher and positive BTDs, when originating from earnings management (tax avoidance) maintain lower (greater) earnings persistence.

Machado and Nakao (2012) analyzed if, during the years 1994 to 2007, accounting standards met the interests of investors and the interest of tax authorities, as there was no neutrality. To this end, the study sought to verify whether the taxable profit reported by the companies was greater than the profit before income tax (EBIT). It was found that the average taxable profit was significantly higher than the average of the EBIT, concluding that the accounting rules for investors and the tax authorities have served their respective economic interests, despite the possibility of an opportunistic attitude of managers.

Tang and Firth (2012) investigated the relationship between the BTD and the persistence of results. The authors separated BTD into normal BTD (NBTD) and abnormal BTD (ABTD). In the results, they found that NBTDs are driven by regulatory differences between accounting and tax standards, while tax and earnings management drives ABTDs. Thus, they found that companies with large ABTDs exhibit less persistence of results. They conclude that the different components of BTDs have different implications for earnings quality.

Martinez and Passamani (2014) investigated to assess whether there is a relationship between book-tax difference and future results of companies, testing whether BTD contributes to the predictability of results and return on shares. It was found that with a sample of 130 companies in the period from 2004 to 2009, there is statistical significance, indicating that BTD influences the estimate of earnings and the return on shares of Brazilian public companies. The reduced sample period ended up limiting this research, considering that the behavior of BTD in the period after Law 11.941/2009 cannot be properly observed.

The investigation by Furtado, Souza, and Neto (2016) aimed to analyze the influence of tax practices as incentives for the management of accounting results, considering the adoption of IFRS in this process. The sample was divided into pre-IFRS and post-IFRS adoption. The results indicated that tax practices, in general, influence the discretion of managers about accounting numbers. Finally, it was found that BTD is not significant for the post-adoption period of IFRS, evidencing the separation between financial accounting and tax accounting.

Martinez and Bassetti (2016) investigated whether the life cycle of companies explains the relationship between book-tax differences and the persistence of earnings. The results indicated the existence of a relationship between the control of persistence in earnings and the stages of the life cycle, documenting, therefore, that there is informational relevance of the life cycle in the relationship between BTD and persistence in earnings.

Braga (2017) investigated the association between the adoption of International accounting standards and the level of tax avoidance. The author found that IFRS adoption is associated with an increase in the level of tax avoidance. It is noteworthy that the tax avoidance metrics considered tax planning practices, whether these are legal, questionable, or even illegal.

3 METHODOLOGY

3.1 Data and sample

The objective of this paper is to identify the relationship between BTD and the persistence of earnings or the persistence of cash flows. To achieve the objective proposed in this article, quantitative research was carried out. The sample selected for this study includes publicly traded companies listed on the B3, excluding financial institutions, because they have independent legislation and are less comparable to other companies.

The information was taken from the Economatica® database and, based on the exclusion of the companies mentioned above, a total of 335 companies were selected, with the data collected corresponding to the period from 2000 to 2019.

It is expected that, with the option to collect data in this time interval, it is possible to identify potential changes in the accounting results and the BTDs of the companies surveyed concerning the likely influence that the adoption of international accounting standards has brought on accounting measurement, as well as in the papers of Braga (2017), Furtado, Souza, and Neto (2016) and Rodrigues (2012).

3.2 Statistical model

The statistical tool used was multiple linear regression, which aims to explain a dependent variable from the presentation of independent variables. To measure the persistence of earnings, the model proposed by Dechow and Schrand (2004) was used, according to the equation:

$$X_{t+1} = \propto_1 + \propto_2 X_t + \varepsilon_t \quad (1)$$

With the following terms:

X_{t+1} = Future net profit or loss, for persistence of results, or operational cash flow, for persistence of cash flows.

X_t = Net profit or loss, or operational cash flow, current.

$\propto_i$ = Are the parameters.

ε_t = It is the model error.

Dechow, Ge, and Schrand (2010) explain that the logic behind this model is in the analysis of $\propto_2$, so that the larger the parameter, the greater the persistence of the results. Thus, in a perpetual scenario, the current result of a company with greater persistence is more useful to predict future results. However, to capture the effect of the BTD on the next results, the independent variable of interest of this research was included, that is, a variable that captures the effect of the misalignment of accounting and tax rules on the persistence of earnings.

To reduce possible limitations of the explanatory variables, some control variables were included. In this sense, based on the studies of Dechow and Schrand (2004), Dechow, Ge, and Schrand (2010), Paulo,

Cavalcante, and Melo (2012), Arruda et al. (2015), Santiago, Cavalcante, and Paulo (2015) and Braga (2017), the added variables formed the following model.

$$X_{i,t+1} = \propto_0 + \propto_1 X_{i,t} + \propto_2 BTD_{i,t} + \propto_3 G_{i,t} + \propto_4 IFRS_{i,t} + \propto_5 T_{i,t} + \propto_6 Div_{i,t} + \propto_7 FCO_{i,t} + \varepsilon_t \quad (2)$$

With the following terms:

$X_{i,t+1}$ = Net profit or loss (or operational cash flow) of company *i* at period *t+1*, divided by the company's total assets in period *t+1*.

$X_{i,t}$ = Net profit or loss (or operational cash flow) of company *i* at period *t*, divided by the company's total assets in period *t*.

$BTD_{i,t}$ = Book tax difference of company *i* at period *t*, divided by the company's total assets in period *t*.

$G_{i,t}$ = Assets turnover of company *i* at period *t*.

$IFRS_{i,t}$ =Dummy variable that takes a value of 1 for the post-convergence period and 0 for before the convergence.

$T_{i,t}$ = Indicates the size of the company, given by the natural logarithm of company's total assets.

$Div_{i,t}$ = Indebtedness of company *i* in period *t*, given by the ratio between total liabilities and total assets.

$FCO_{i,t}$ = Operational cash flow of company *i* in period *t*, divided by the company's total assets.

$\propto_i$ = Are the parameters.

$\varepsilon_{i,t}$ = It is the regression error.

It is considered that the sample with the highest estimated coefficient of $\propto_1$ is the one with the highest level of persistence in accounting results and, consequently, has the highest quality of earnings. Regarding the BTD, this is expected to be negative and significant, indicating an indirect relationship between the BTD and earnings persistence, as verified in the studies by Atwood, Drake, and Myers (2010), Blaylock, Shevlin, and Wilson (2012), Hanlon (2005) and Tang and Firth (2012).

3.3 Data analysis

To expose the disposition of the studied variables, the analysis of the descriptive statistics of the data was carried out, using measures of central tendency and position measures. In this way, mean, median, standard deviation, minimum and maximum values were calculated.

The most common estimation method in econometrics was used: the method of ordinary least squares (OLS). This method tries to minimize the sum of quadratic differences between the estimated value and the observed data (residuals) (GUJARATI, 2006).

In this research, the panel data model was used, because, unlike the time series and cross-section, the panels present a combination of a cross-section unit and the monitoring over time, that is, the panel data has a special and temporal dimension. One of the main advantages of using this data model is that it provides more informative data, more variability, degrees of freedom, efficiency, and less collinearity between variables (GUJARATI, 2006).

The coefficient of determination (R^2) was calculated among all variables in the model. According to Gujarati (2006), this coefficient is a summary measure that says how much the sample regression line fits the data. The objective is to measure the proportion of the total variation of the dependent variable explained by the regression model. The R^2 varies from zero to one, inferring that when the coefficient is close to zero, the relation between the dependent and independent variables decreases. When the coefficient approaches one, the proposed regression model explains a large part of the variation of the dependent variable.

Multicollinearity happens when the independent variables have perfect or almost perfect relationships in a regression model. According to Gujarati (2006), the best way to detect multicollinearity is when a very high R^2 is perceived, but none of the regression coefficients is significant according to the T-Test. Another way proposed by the author, and which was also used in this work, concerns the realization

of the VIF Test (Variance inflation factor). This test is an indicator of multicollinearity, because the higher the VIF value, the more collinear the variable will be. As a rule, if a variable's VIF is greater than 10, that variable is said to be highly collinear.

Regarding care with heteroscedasticity, all variables used in the model were scaled by the total assets of a company *i* in period *t*. In addition, the unit root test was also performed, to identify possible problems of non-stationarity of the series.

4 ANALYSIS OF RESULTS

4.1 Descriptive statistics

As proposed in the methodology, descriptive statistics of the analyzed data were performed, to obtain the values that indicate the dispersion and trend of the data. After excluding observations that exceeded the standard deviation of the original sample by three times, there are no outliers or other problems in the data used.

The following table shows that the measures of central tendency are within the expected results, that is, there is no outlier, as well as the standard deviation, which is a measure of data dispersion.

Table 1 – Descriptive Statistics

	$LL_{i,t+1}$	$LL_{i,t}$	$FCO_{i,t+1}$	$FCO_{i,t}$	$BTD_{i,t}$	$IFRS_{i,t}$	$Tam_{i,t}$	$Giro_{i,t}$	$Div_{i,t}$
Mean	0.005692	0.014250	-0.018222	-0.022942	-0.024770	0.726943	14.45693	0.646599	3.052644
Median	0.032691	0.033921	0.059739	0.060733	-0.018571	1.000000	14.61586	0.578413	2.896884
Maximum	4.073080	4.073080	12.52664	12.52664	0.358142	1.000000	20.64640	2.340337	3.242889
Minimum	-9.781141	-4.838939	-15.00725	-16.00000	-0.385118	0.000000	5.185227	-0.283192	0.000000
Std. Dev.	11.0769	14.48675	5.818499	6.107386	0.137478	0.497531	2.869816	0.554563	176.0659
N	3036	3036	3187	3187	3036	3036	3036	3036	3036

Source: prepared by the authors, (2021).

4.2 Multicollinearity

To find out if there are variables that have exact or approximately exact linear relationships, that is, that the model has multicollinearity, the VIF test (variance inflation factor) was performed. The VIF is calculated using auxiliary regressions, involving the independent variables. One of these variables is isolated as dependent and the others remain independent. That done, the R^2 obtained in each of the auxiliary regressions is used in the equation $VIF = 1 / (1-R^2)$. Results between 0-10 indicate acceptable collinearity and results greater than 10 show multicollinearity.

Table 2 – Multicollinearity test (VIF)

Variable LL	FIV	Variable FCO	FIV
$LL_{i,t}$	1,367368035	$FCO_{i,t}$	1,274142
$BTD_{i,t}$	1,112625518	$BTD_{i,t}$	1,104104
$IFRS_{i,t}$	1,029135865	$IFRS_{i,t}$	1,021874
$Tam_{i,t}$	1,072107828	$Tam_{i,t}$	1,074394
$Giro_{i,t}$	1,052085602	$Giro_{i,t}$	1,064068
$Div_{i,t}$	1,096177519	$Div_{i,t}$	1,039609
$FCO_{i,t}$	1,237766228		

Source: prepared by the authors, (2021).

The table shows that there is no multicollinearity between the variables used in the model, as it is observed that the VIF test was below 10, indicating acceptable collinearity.

4.3 Unit Root Test

The Unit Root Test was performed, using the IPS (Individual Root – Im, Pesaran, Shin) approach in the Eviews 12® software, to detect possible non-stationarity problems in the series, as shown in the table below.

Table 3 – Unit Root Test

Variable	IPS	P-value
$LL_{i,t+1}$	-15.5960	0.0000
$LL_{i,t}$	-21.9351	0.0000
$FCO_{i,t+1}$	-31.8362	0.0000
$FCO_{i,t}$	-24.7865	0.0000
$BTD_{i,t}$	-47.3716	0.0000
$G_{i,t}$	-24.5409	0.0000
$IFRS_{i,t}$	13.2679	1.0000
$Tam_{i,t}$	-14.3541	0.0000
$Div_{i,t}$	-25.5766	0.0000

Source: prepared by the authors, (2021).

It is concluded, from the results presented in the table, that there are no problems of non-stationarity of the series. The conclusion was given by the p-value of the variables, which were less than 0.10 in all variables of the model, excluding the IFRS variable because it is a dummy variable and does not present itself in the same way as the others.

4.4 Analysis of the persistence of earnings

Fixed and random effects adjusted the model, and the Hausman test was performed to obtain a basis for rejecting or not the second adjustment. As previously stated, the analyzed data had no problems with multicollinearity and non-stationarity, which allows for greater reliability when conducting the empirical tests.

Regarding the Hausman Test, the hypothesis of using adjustment by random effects was rejected, using then the adjustment by fixed effects, based on the indication of p-value less than 0.10 for random effects.

The results obtained by the multiple linear regression proposed in the methodology are presented below. The BTD variable is expected to be significant for the results obtained, in other words, that it contains a p-value below 0.05 of significance. The explanatory power of the model is presented as a function of R^2, so the greater this result, the greater the explained power of the model about the persistence of earnings. Table 4 shows the results obtained for the persistence of accounting results when the variable of interest is net profit (or loss).

Given the results, it is important to highlight the influence that BTD, the variable of interest in the research, has on the model. This conclusion is based on the BTD significance in the model, expressed by the p-value, which was 0.0062, which means that this variable is significant even at a 1% level of significance. Therefore, the hypothesis that the parameter of the BTD variable is equal to zero can be rejected, that is it can be concluded that there is an influence of the BTD on the persistence of the results.

Table 4 – Persistence of accounting results

Variable	Coef.	Std. Error	T-Statistic	P-value
C	-0.806614	0.228778	-3.525.746	0.0004
$LL_{i,t}$	0.052905	0.159344	0.332020	0.7399
$BTD_{i,t}$	-0.369280	0.134763	-2.740.216	0.0062
$IFRS_{i,t}$	-0.079356	0.019416	-4.087.081	0.0000
$Tam_{i,t}$	0.052151	0.015945	3.270.626	0.0011
$Giro_{i,t}$	0.142704	0.036783	3.879.567	0.0001
$Div_{i,t}$	0.000914	0.000666	1.371.899	0.1702
$FCO_{i,t}$	-0.231215	0.156025	-1.481.909	0.1385
R-squared	0.461164	Prob.	0.000000	
Adjusted R-squared	0.397877	DW	1.051312	
N	3036			

Source: prepared by the authors, (2021).

In addition, the negative coefficient, which was -0.36928, indicates an indirect relationship between the two variables of interest in this study (future earnings and BTD), that is, the BTD negatively influences future earnings. These results are consistent with studies by Atwood, Drake, and Myers (2010), Blaylock, Shevlin, and Wilson (2012), Hanlon (2005), and Tang and Firth (2012) in which it was found that the higher the BTD, the lower the quality of earnings.

The explanatory power of R^2 in the model used was 0.461164, which means that the model explains 46.1164% of the variance of the dependent variable. It is important to highlight that some independent variables did not represent a significant influence in explaining the persistence of earnings, such as current earnings, indebtedness, and operational cash flows.

However, the variables IFRS, company size, and assets turnover proved to be significant to explain future results. Regarding the IFRS dummy variable, the results contrast with the findings of Rodrigues (2012), who did not identify a significant influence of the IFRS variable in his sample. The negative coefficient (-0.079356) allows the results to converge with the findings of Damascena, Duarte, and Paulo (2017), who also did not find an increase in the quality of earnings due to the convergence to international standards.

Finally, it is noteworthy that the earnings verified in the period studied cannot be considered persistent, since for Dechow and Schrand (2004) and Dechow, Ge, and Schrand (2010), the higher the parameter referring to current earnings, the higher the persistence of future results. What was found in this work was that, in addition to being insignificant, current earnings have a very low coefficient (0.052905).

Table 5 – Persistence of cash flows

Variável	Coef.	Std. Error	T-Statistic	P-value
C	-0.355237	0.156636	-2.267.918	0.0234
$FCO_{i,t}$	0.263632	0.158587	1.662.375	0.0966
$BTD_{i,t}$	-0.029681	0.054421	-0.545393	0.5855
$IFRS_{i,t}$	-0.023089	0.012130	-1.903.553	0.0571
$Tam_{i,t}$	0.025104	0.011012	2.279.722	0.0227
$Giro_{i,t}$	0.051938	0.016813	3.089.051	0.0020
$Div_{i,t}$	0.000533	0.000193	2.766.515	0.0057
R-squared	0.441529	Prob.	0.000000	
Adjusted R-squared	0.375997	DW	0.920325	
N	3029			

Source: prepared by the authors, (2021).

Regarding the analysis of the persistence of operational cash flows and the BTD, different results can be seen compared to the first regression. The variable of interest in this work (BTD) was not significant to explain the persistence of cash flows, as its p-value was quite high (0.5855). Thus, it is not possible to reject the null hypothesis.

However, the persistence of cash flows proved to be high, since the p-value of current cash flows is significant at a 10% level of significance and has a positive coefficient (0.263632). That said, it can be concluded that the results found are contrary to the study by Dechow (1994), in which it was stated that earnings would be more persistent than cash flows.

Regarding the influence of the other variables on the persistence of cash flows, there was significance at a level of 10% for all independent and control variables, except for the variable referring to the BTD. Therefore, it is concluded that current cash flows, adoption of international accounting standards, company size, assets turnover, and indebtedness level are significant to explain the persistence of operational cash flows. This influence is represented by the R^2 of the model, which explains about 44.1529% of the variations in the dependent variable.

It is also observed that the result of the Durbin-Watson statistic, which is used to verify the presence of autocorrelation between the independent variables, was close to 1 in the two regressions made (earnings or cash flow as a dependent variable). However, to improve the parameter estimates and, consequently, extract more adequate results to the proposed model, the SUR (seemingly unrelated regression) estimator, also known as the Zellner method, was used, in which the parameters remain robust even in the presence of autocorrelation (ZELLNER; HUANG, 1962).

5 CONSIDERAÇÕES FINAIS

Analyzing the quality of accounting information is the objective of several researchers. As previously discussed, and explained by Dechow and Schrand (2004) and Rodrigues (2012), persistence is a proxy for the quality of companies' earnings, as well as the persistence of cash flows.

This paper aimed to analyze the influence of the book-tax difference on the persistence of earnings and the persistence of cash flows. Such an objective was given to measure how the tax legislation ends up influencing corporate accounting. For this, an econometric model with panel data was used, in addition to the use of some control variables, such as assets turnover, indebtedness level, size of the company, and the dummy variable IFRS.

The results obtained suggested the rejection of the null hypothesis regarding the influence of BTD on the persistence of earnings, after all, from the interpretation of its p-value in the proposed model, it was found that there is statistical significance and, therefore, BTD influences the persistence of earnings. Moreover, it was found that the variations of the independent variables of the model explain 46.1164% of the variation of the dependent variable, which is future earnings.

This fact corroborates the initial view of the study and follows up on previous research, such as that of Atwood, Drake, and Myers (2010), Blaylock, Shevlin, and Wilson (2012), Hanlon (2005) and Tang and Firth (2012) in which it was found that the higher the BTD, the lower the quality of earnings. In this sense, it is recalled that the coefficient of the BTD variable was negative, which indicates an indirect relationship with the persistence of earnings.

When BTD was used in the model that had cash flow as a dependent variable, the results did not allow rejecting the null hypothesis, considering that the p-value did not demonstrate significance for the persistence of cash flows. However, the R^2 of the proposed model reached 44.1529%, and it can be concluded that a part of the variations in operational cash flows is explained by the independent and control variables listed in the model.

When analyzing the persistence of earnings and operational cash flows, it was found that, given the model used, the cash flows are more persistent than earnings, which contradicts the conclusions obtained in

the research of Dechow (1994), in which the author verified greater persistence of earnings about cash flows in the long term.

Thus, this research encourages debate regarding the impact of the influence of tax legislation on corporate accounting, in addition to associating this fact with a proxy that is not much explored in accounting literature, which is persistence. It is hoped, therefore, that this paper will assist in future papers related to the quality of accounting information and that it can contribute to the development of this line of research.

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