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TAX BEHAVIOR AND EARNINGS BEHAVIOR OF CORPORATE MANAGERS: CASE OF BANKS AND DECENTRALIZED FINANCIAL SYSTEMS IN BENIN

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ABSTRACT

This research looks at the influence of tax behavior on the earnings behavior of corporate managers in Republic of Benin, a West African country. The author uses the generalized method of moments (GMM) on dynamic panel data. The sample consists of 21 firms, i.e. 11 banks for the period 2011 to 2020 and 10 DFSs for the period 2016 to 2021. It turns out that earnings behavior is influenced more positively by corporate income tax (CIT), then by tax savings due to debt interest deduction (EIDID); and negatively by interest on debt (INTEREST), by dividends (DIVIDEND) and by past earnings before interest and tax (EBIT(-1)). This paper is one of the first to extend the literature by identifying the main determinants of earnings behavior, notably the positive effect of corporate income tax (CIT).

Keywords: Corporate income tax savings; corporate income tax behavior; earnings behavior; financial objectives, tax objectives.

INTRODUCTION

The influence of corporate tax behavior on managers' earnings behavior remains a major concern in corporate finance, since financial decisions are taken for tax purposes rather than on the basis of management objectives. The corporate manager's tax behavior, i.e. his attitude to choosing taxes to be paid as a minimum in accordance with the tax code in force, affects his financial behavior. Corporate tax behavior depends on the financial decision-making habits of corporate managers (Dayı et al., 2019), directly affects profitability and the value of equity capital (Landry et al., 2013) and constitutes an

appropriation of corporate earnings (Desai et al., 2007). This leakage of corporate earnings encourages corporate managers to resort to tax optimization strategies (Landry et al., 2013) and to make financial decisions for tax purposes rather than on the basis of management objectives, which distorts the rules for financial decisions (Princen, 2012). Admittedly, in pure and perfect competition, it is easier for corporate managers to make tax savings on financial transactions than financial savings. Tax savings do not negatively affect corporate transactions, are more attractive to corporate managers than financial savings which can negatively affect materials, inputs, product quality and brand reputation (Koester et al., 2017). The consequence is that corporate managers will be encouraged to align their financial behavior with their tax behavior. However, it should be pointed out that corporate income tax incentives give rise to the risk that corporate managers will be encouraged to resort to tax behavior constituting tax fraud, abuse of rights and/or an abnormal management act.

In this context, several theories have focused on the tax and earnings behavior of corporate managers, which enables them to create more value, i.e. more income for the firm. In the absence of corporate tax, the theory of irrelevance states that the issue of dividends does not increase a corporation's potential profitability or its share price (Miller & Modigliani, 1961; Modigliani & Miller, 1958). However, the behavior of debt interest tax shield increases the firm's income (Modigliani & Miller, 1963). As a result, these authors encourage corporate managers to take on as much debt as possible, in order to make the most of the savings resulting from the tax deduction for debt interest and maximize the value of the firm. Trade-off theory (TOT) goes in the same direction as Modigliani and Miller's theory (1963), but asks corporate managers for the present value of the bankruptcy costs associated with high indebtedness. Agency theory also goes in the same direction, but adds the value of agency costs to the present value of bankruptcy costs. As for the pecking order theory (POT), corporate managers should prefer self-financing behavior to debt-financing behavior, and then debt-financing behavior to equity-financing behavior (Myers & Majluf, 1984). Earnings signal theory explains how firms or individuals can use their earnings to signal their financial health, performance or potential to investors, stakeholders or competitors (Leland & Pyle, 1977). For instance, if a firm regularly reports strong earnings, this may indicate to investors that it is financially stable, well managed and has good growth potential (Ross, 1977). On the other hand, if a firm's earnings suddenly fall, this could be a sign of financial difficulties or poor performance (Ross, 1977).

The tax structure for Benin-based firms is as follows (the list is not exhaustive): Business Profits Tax, Corporate Income Tax (CIT), Synthetic Professional Tax, Withholding Tax, Employer's Payment on Salaries, Motor Vehicle Tax, Tax on Goods and Services, Registration Duty, Stamp Duty, Land Registry Duty and Mortgage Duty, Local Taxes. Of these various corporate taxes, which have more or less an impact on the financial behavior of corporate managers in Benin, only CIT will be the subject of this research. Indeed, the objective of maximizing the wealth of corporate owners depends more on CIT than on other corporate taxes, since most corporate income tax systems allow CIT to be optimized. Overall, the aim of this research is to determine the influence of tax behavior on earnings behavior of corporate managers in Benin. To achieve this, given that in computing CIT, interest is a tax-deductible expense and dividend is a taxable expense, the following research questions are examined:

QR1: What influence does CIT have on earnings behavior of corporate managers in Benin?

QR2: What influence do tax savings have on earnings behavior of corporate managers in Benin?

QR3: What influence does interest (tax-deductible expense) have on earnings behavior of corporate managers in Benin?

QR4: What influence does dividend (taxable expense) have on earnings behavior of corporate managers in Benin?

QR5: What influence do past earnings have on current earnings behavior of corporate managers in Benin?

Answering these questions will help us to achieve the objective of this research. The rest of this paper presents the literature review, sets out the methodology, develops the results and concludes.

LITERATURE REVIEW

Corporate earnings behavior consists of creating value (wealth) and distributing this value (wealth) to those entitled to it. Earnings behavior is simply the application of earnings policy by the corporate managers. It would be unfair to talk about earnings policy in general, or dividend policy in particular, without referring to Modigliani and Miller. Under the conditions of pure and perfect markets, the creation of value within a firm involves the generation of earnings. Earnings are generated by investment, which is made possible by the allocation of financing to that investment. From this point of view, can it be said that, in the absence or presence of corporate income tax (CIT), ceteris paribus, is corporate financing the source of earnings or value creation within the firm? This question remains controversial and continues to divide a number of authors and theories in corporate finance.

According to the Net Profit Theory, which advocates the relevance of the capital structure in the absence of tax, financial leverage increases the value of the firm and reduces the weighted average cost of capital (Durand, 1952). On the other hand, under the assumptions of no tax and efficient markets, the value of the firm and the weighted average cost of capital remain constant for any financial decision (Miller & Modigliani, 1961; Modigliani & Miller, 1958). This irrelevance theory has been supported by other authors (Black & Scholes, 1974; Brennan, 1971; Hakansson, 1982; Shah & Noreen, 2016). However, the irrelevance theory attracted sharp criticism in the related literature (Ahmeti & Prenaj, 2015; Alifani & Nugroho, 2013; Glickman, 1996), so that they had to incorporate the behavior of corporate income tax into their analysis (Modigliani & Miller, 1963). The consequence is that earnings policy in general, or dividend policy in particular in the presence of tax, starts to become relevant for the firm. A number of theories have been examined for this purpose.

Theories

These theories are: Modigliani and Miller (1963), Trade-Off theory (TOT), pecking order theory (POT), agency theory and signal theory.

Modigliani-Miller Theory (1963)

In the presence of CIT, the deduction of debt interest offers CIT savings to the indebted firm. Supporters of the relevance theory have dwelt on this added value of CIT. Thus, the creation of value or earnings from the tax deductibility of interest encourages corporate managers to take on as much debt as possible in order to maximize corporate value and shareholder wealth (Modigliani & Miller, 1963). Empirical evidence has shown that firms subject to CIT, took on more debt than partnerships and made huge CIT savings from debt (Scholes et al., 1992). But excessive debt financing can be very costly to the firm (Solomon, 1963), especially for firms becoming tax-exhausted at high levels of financial leverage

(Watson & Head, 2007). This is why some authors encourage the firm to adopt an optimal combination of debt and equity (Bradley et al., 1984; B. T. T. Dao & Ta, 2020; T. T. B. Dao & Le, 2023; de Wet, 2006; DeAngelo & Masulis, 1980; Hart, 1996; Kontuš et al., 2023; Kumar & Yerramilli, 2018; Machado & Pereira, 2023; Mbulawa et al., 2020; van Binsbergen et al., 2011). For example, in the United States during the period 1963 to 1970, non-financial firms were financed by only one-third of debt (E. H. Kim, 1978).

Certainly, in a pure and perfect market, interest tax shield creates earnings for the firm eligible for this tax incentive. In short, Modigliani and Miller's theory (1963) encourages corporate managers to maximize their debt-financing behavior in order to generate more earnings for the firm. However, these authors lacked an in-depth analysis of the real origin of these earnings and the risks associated with debt financing.

Trade-Off Theory (TOT)

The relevance theory of debt financing in the presence of CIT (Modigliani & Miller, 1963) is at the origin of the trade-off theory (TOT) (Popescu & Visinescu, 2009). TOT accepts the relevance theory of debt financing, but includes the value of bankruptcy costs in the value of the firm. According to the advocates of TOT theory, in the presence of CIT, debt, through the tax deduction of its interest, creates not only a capital gain on CIT, but also a capital loss on the cost of bankruptcy, linked to indebtedness (Baxter, 1967; Greenwald et al., 1984; Horne, 1974; Kraus & Litzenberger, 1973; J. Stiglitz, 1969; J. E. Stiglitz, 1973; Warner, 1977). For this reason, corporate managers will have to make a trade-off between CIT's capital gain on financial costs and the capital loss on bankruptcy costs (Albouy, 1997; Chakraborty, 2010; Kraus & Litzenberger, 1973; Myers, 1977, 2001). In short, under TOT, CIT positively affects earnings to the point where tax savings due to interest tax deduction on debt equals bankruptcy costs.

Pecking Order Theory (POT)

The pecking order theory (POT) is only an extensive version of the trade-off theory (TOT) since TOT is found in the second order of financing recommended by POT. In fact, POT suggests three levels of corporate financing, with increasing costs in the presence of tax: the first is financing through retained earnings, the second is debt financing and the third is equity financing (Myers & Majluf, 1984). In other words, a firm with a high cash position and a need for investment prefers to invest from its cash reserves, whereas a firm with a low cash position and a need for investment prefers to use debt financing. However, the tax deduction for debt interest may alter this order of financing in such a way that corporate managers will prefer debt financing to financing through retained earnings because of the interest tax shield, which protects the earnings generated by corporate investment. Some empirical evidence has confirmed the existence of the POT theory (Bessler et al., 2011; Flannery & Rangan, 2006; Leary & Roberts, 2010; Rajan & Zingales, 1995; Seifert & Gonenc, 2010; Shyam-Sunder & Myers, 1999); but other evidence has contrasted the POT (Frank & Goyal, 2003; Helwege & Liang, 1996).

Agency Cost Theory

Agency theory is an extension of TOT theory in the sense that agency theory requires corporate managers to make a trade-off between not only the debt interest tax shield and the cost of bankruptcy linked to indebtedness, but also agency costs. Agency costs are of two kinds: on the one hand, the

agency costs of equity capital, increasing debt and resolving conflicts between shareholders and managers, and, on the other, the agency costs of debt capital, reducing debt and resolving conflicts between shareholders and bondholders (Croquet et al., 2013; Grossman & Hart, 1986; Hirigoyen & Jobard, 1997; Jensen & Meckling, 1976). Empirical tests have demonstrated the relationship between agency costs and financial leverage (Berger & Bonaccorsi di Patti, 2006; Harvey et al., 2004; W. S. Kim & Sorensen, 1986; Vilasuso & Minkler, 2001). Conversely, some authors have shown that agency costs have no effect on capital structure (Brounen et al., 2006; Pinegar & Wilbricht, 1989). In short, under Agency theory, CIT positively affects earnings to the point where tax savings due to interest tax deduction on debt equals bankruptcy and agency costs.

Signaling Theory

Signaling theory postulates that debt capital financing is a sign of a firm's profitability, value creation and solvency. If a firm does not make a profit, it will not be able to service its debt and may go bankrupt or even file for bankruptcy. The tax savings resulting from debt interest deduction can reinforce the signaling effect insofar as firms with high credit quality are able to take advantage of the debt interest tax shield. Corporate managers, who are generally risk averse, can give both good and bad signals in order to establish the capital structure (Leland & Pyle, 1977; Ross, 1977). It has been shown that, due to informational asymmetry, a rise in the share price encourages corporate managers to issue shares, while a fall in the share price encourages them to issue bonds (Myers & Majluf, 1984). Empirical observations have confirmed that share issues have caused share prices to fall sharply (Asquith & Mullins, 1983; Masulis & Korwar, 1986; Mikkelson & Partch, 1986). Conversely, some European corporate managers do not disclose their private information in order to influence the capital structure (Brounen et al., 2006). Overall, most of theories reviewed indicate in one way or another how corporate income tax behavior affects earnings behavior. The influence of tax behavior on earnings behavior is presented through variables such as CIT, savings due to the tax deduction of interest, dividend, interest and past earnings. In short, according to the signaling theory, CIT can affect earnings either positively or negatively, depending on information held by corporate managers.

Developing research hypotheses

Earnings generated by a corporate investment, regardless of how it is financed, are called Earnings Before Interest and Tax (EBIT). Corporate managers pay more attention to this profit, given that it represents the gross return on the investment, intended to cover all the financing costs, in particular interest charges on debt financing, CIT charges and equity dividend charges. In their earnings behavior, corporate managers are obliged to develop a debt interest policy, a CIT policy and a dividend policy favorable to the economic profitability of corporate investment. However, if the CIT rate is high, corporate managers prefer to resort to a debt policy to the detriment of a policy of issuing new shares, in order to benefit from the advantages linked to the deductibility of interest charges on debt capital. The relationships between corporate income tax (CIT) behavior through fiscal or financial variables and earnings behavior are elucidated.

Relationship between CIT and earnings

Corporate earnings are generally subject to corporate tax (Mulyadi & Anwar, 2015) because of the advantages that corporations get from government activities (Naitram & Weinzierl, 2021). In most tax codes, CIT remains a tax based on corporate earnings. Under these conditions, we can therefore

envisage a positive relationship between CIT and corporate earnings. This relationship is confirmed by the relevance theory, according to which an increase in the CIT rate encourages corporate managers to go further into debt in order to optimize the tax shield of debt interest and create more value or more income for the corporation (Modigliani & Miller, 1963). However, for some authors, a high corporate income tax rate (CITR) has a negative impact on corporate managers' earnings behavior (Desai et al., 2007; Guenther, 1994; Maydew, 1997; Poterba et al., 2007; Scholes et al., 1992).

In Benin, the standard corporate income tax rate is 30%, but companies in the industrial sector are taxed at 25%. Companies engaged in oil exploration may face varying rates between 35%-45%. Most notably, some companies may be exempt from certain taxes based on specific conditions, such as the tenure of interest income arising from debts. In Benin, in the microfinance sector for example, certain companies are exempt from corporate income tax (CIT). These are Decentralized Financial Systems (DFSs) that have taken the legal form of a Mutual Savings and Credit Institution (IMEC), a Cooperative Savings and Credit Institution (ICEC), an association, a project or a Non-Governmental Organization (NGO). Thus, in the light of this review of related literature, the first hypothesis is formulated as follows:

H1: *CIT affects positively earnings behavior of corporate managers in Benin.*

Relationship between tax savings and earnings

Corporate earnings are often burdened by interest on corporate debt. Tax deductibility of interest eliminates this effect by reducing the tax burden on corporate earnings, which is a very attractive tax saving for corporate managers. A positive relationship between this tax saving and corporate earnings is therefore possible. It is for this reason that advocates of the capital structure relevance theory recommend that corporate managers make greater use of debt in order to increase earnings or corporate value (Modigliani & Miller, 1963). However, some authors oppose this classic recommendation (Berens & Cuny, 1995; Schnabel, 1984). Other authors believe that this tax saving is not a foregone conclusion, since debt financing may entail bankruptcy costs (Baxter, 1967; Greenwald et al., 1984; Horne, 1974; Kraus & Litzenberger, 1973; J. Stiglitz, 1969; Warner, 1977) or agency costs (Berle & Means, 1933; Grossman & Hart, 1986; Jensen, 1986; Jensen & Meckling, 1976), requiring a trade-off between the said tax savings and these different costs.

But this research at firm level is in line with dividend irrelevance theory (Miller & Modigliani, 1961). It is important to note, however, that the debt interest tax shield is merely a diversion of earnings from the firm with zero financial leverage to the firm with non-zero financial leverage; the two firms being identical and in the same industrial and commercial risk class (Agossadou, 2023). Thus, in the light of this review of related literature, the second hypothesis is formulated as follows:

H2: *Tax savings affects positively earnings behavior of corporate managers in Benin.*

Relationship between interest expense and earnings

Interest on corporate debt is a financial expense that reduces corporate earnings. We might therefore expect a negative relationship between interest and corporate earnings. However, from the point of view of corporate earnings taxation, interest is treated as a tax-deductible expense and therefore offers a tax saving that is an attractive benefit for corporate managers (Modigliani & Miller, 1963). Under these conditions, the results of empirical tests are mixed. Thus, the relationship between interest and corporate

earnings can be either negative (Frank & Goyal, 2009), positive (Geraldina & Jasmine, 2019), or negative and positive (Poretti et al., 2020).

Given that debt interest is an expense for the corporation, there can only be a negative relationship between debt financing interest and earnings generated by corporate investment, even if this interest is an expense deducted in computing corporate income tax (CIT). It follows that interest therefore has a negative effect on earnings. In Benin, debt interest is deductible only to the extent that it is calculated at the key rate of the Central Bank of West African States (BCEAO) plus three (3) percentage points (see article 25 of Benin's General Tax Code). Thus, in the light of this review of related literature, the third hypothesis is formulated as follows:

H3: *Interest (a tax-deductible expense) affects negatively earnings behavior of corporate managers in Benin.*

Relationship between dividend expense and earnings

A dividend on a corporate shareholder's equity is a financial expense and therefore reduces the corporate earnings or value. However, dividend policy has divided a number of authors: on the one hand, those who argue that the policy is irrelevant (Miller & Modigliani, 1961; Modigliani & Miller, 1958) and, on the other, those who argue that the policy is relevant. The latter have therefore developed either the "*bird in the hand theory*", according to which the dividend negatively affects the return on corporate investment (Boyle & Eckhold, 1997; Gordon, 1963; Lintner, 1962), or the "*client effect theory*", which takes into account the preference for cash dividends or capital gains of shareholders (Amihud & Mendelson, 1986; Pettit, 1977; Righi et al., 2024; Shah & Noreen, 2016), or the "*catering theory*" which stipulates that the firm must pay dividends to shareholders who want them (Baker & Wurgler, 2003). But dividends can only be paid if the firm creates value, i.e. makes a profit. Given that the dividend is an expense that the corporate earnings must cover, its relationship with earnings can only be negative. However, empirical results from signaling theory have shown a positive relationship between dividends and corporate earnings (Bhattacharya, 1979; Grullon et al., 2002; John & Williams, 1985). Thus, in the light of this review of related literature, the fourth hypothesis is formulated as follows:

H4. *Dividend (a taxable expense) affects negatively earnings behavior of corporate managers in Benin.*

Relationship between past earnings and current earnings

The distribution of the firm's current earnings generally takes account of the retained earnings, which are part of the firm's past earnings. A positive or negative relationship can therefore be expected between current earnings and past earnings. The taxation of corporate income forces managers to maximize earnings and minimize corporate tax (Eichfelder et al., 2020; Ghosh & Moon, 2010; Guenther, 1994; Leuz et al., 2003; Maydew, 1997; J. Wang et al., 2024). In these circumstances, how can corporate managers predict earnings behavior as a function of time? Existing researches have not really addressed this question. There is an apparent relationship between current and future corporate earnings (Shabani et al., 2014). The effect of past earnings on current earnings may depend on the life cycle of the firm. If the firm is in a period of economic growth, we can expect past earnings to have a positive impact on current earnings. But if the firm is in a period of economic stagnation, past earnings will have no effect on current earnings. If the firm is in a period of economic recession, past earnings can be expected to

have a negative impact on current earnings. Thus, in the light of this review of related literature, the fifth hypothesis is formulated as follows:

H5. *Past earnings affects current earnings behavior of corporate managers in Benin.*

METHODOLOGY AND DATA ANALYSIS

Research is valid and relevant through its epistemological posture (Thietart, 2014). The present research adopts an ontological objectivist and positivist epistemological posture, reflected by a predominant quantitative analysis approach with a hypothetico-deductive reasoning logic. This section includes the research concept, data and modelling.

Research concept

The main objective of this research was to analyze the influence of tax behavior on earnings behavior of corporate managers in Benin. Tax behavior has sociological, psychological and economic aspects (Al-Ttaffi et al., 2020; Sritharan et al., 2023; Ya'u et al., 2019). We chose the economic aspect. Thus, from an economic point of view, tax behavior is the attitude of making the most of the advantages contained in the tax code in order to achieve one of the following results:

- Overpaying tax: this is very rare because most corporate managers are averse to paying tax and look for loopholes in the tax system to optimize tax.
- Paying the right amount of tax: this case is somewhat rare because of the complexities involved in determining the right amount of tax to pay, given the wide range of tax advantages available, which must be exploited to the full.
- Underpaying tax: this is a regular occurrence because of the principle of the least-taxed route, established by Beninese law, under which firms can legally opt for the rules that will enable them to pay the least tax, and because corporate managers prefer tax savings to reduce tax-related costs.
- Not paying tax: this is a regular occurrence because firms tend to declare zero profit in order not to pay tax or to pay the minimum flat-rate tax provided for by tax law.
- Obtaining a tax credit: given that the tax code contains provisions relating to obtaining a tax credit, for example the tax deficit regime, some managers declare an accounting loss or deficit in order to benefit from the tax credit.

Benin's General Tax Code, like the tax codes of most countries around the world, contains provisions that encourage financial transactions to a greater or lesser extent, enabling corporate managers to meet their financial and tax obligations. This research is therefore more concerned with the economic effect of CIT behavior on earnings behavior of corporate managers in Benin.

Sampling and data

The target population is made up of large firms in the banking and micro-finance sector in Benin. Benin's banking system comprises a BCEAO National Agency, a National Credit Council, banks, financial institutions and a Professional Association of Banks and Financial Institutions (APBEF). There are a total of 14 banks and financial institutions licensed in Benin as of December 31, 2020. Microfinance activities involve facilitating access to local microcredit for poor and low-income people who are mostly excluded from the conventional financial sector (Dannon et al., 2019). From the point

of view of Azokli and Adjibi (2007), the microfinance sector in Benin is driven by various actors, the main ones being: savings and/or credit mutuals and cooperatives, direct credit institutions, microfinance projects and non-governmental organizations (NGOs). They all operate within a well-defined legal framework. The microfinance sector in Benin is made up of institutions known as Decentralized Financial Systems (DFSs). DFSs fall into three (03) legal categories: mutuals or cooperatives, associations/NGOs and companies (joint-stock companies, limited liability companies). There are 12 DFSs approved in Benin as of December 31, 2021, in accordance with article 44[1] of the law regulating DFSs in the West African Monetary Union (WAMU). The sample covered banks and DFSs. The banks are subject to CIT and certain DFSs are exempt from CIT. Online at BCEAO, 11 out of 14 banks and 10 out of 12 DFSs regularly provide balance sheets and income statements for the respective periods 2011 to 2020 and 2016 to 2021. Thus, the sample selected is a cylindrical panel made up of twenty-one (21) firms, i.e. 11 banks over the period from 2011 to 2020 or 110 bank-year observations and 10 DFSs over the period from 2016 to 2021 or 60 DFS-year observations. This makes a total of 170 (110 for the banks and 60 for the DFSs) firm-year observations for computer processing of the data. However, computer processing of the data results in the loss of one year in first differences and two years in double differences, which adjusts the firm-year observations to 149 (99=110 - 11 for banks and 50=60 - 10 for DFSs) for the first difference and 128 (88=110 - 22 for banks and 40=60 - 20 for DFSs) for the double difference.

The law requires banks and DFSs referred to in article 44 of the law regulating WAMU's DFSs to publish their financial statements in a legal journal or a national daily newspaper providing general information that meets the conditions set out in the OHADA[2] Uniform Act on Commercial Companies and Economic Interest Groups. We have collected financial statements that belong to or correspond only to the last twelve consecutive years (from 2010 to 2021). In addition to this, the data collected is reliable in that it is collected from the website https://www.bceao.int/ of the Central Bank of West African States (BCEAO). The data used was obtained mainly by downloading several files in PDF format. We imported the data from the downloaded PDF documents into the Excel 2021 spreadsheet, enabling us to extract the relevant information for our research from the secondary data sources. The data in Excel format was used to create a dynamic data panel that could be used with EViews 13 software.

Modelling

The dependent variable or variable to be explained is earnings behavior referred to as Earnings Before Interest and Taxes (EBIT). We have chosen EBIT because it is the earnings intended to cover not only the financing costs of interest and dividends, but also the cost of corporate tax. To explain EBIT, four tax and non-tax explanatory variables from the theoretical and empirical literature are used; the non-tax variables included in the estimated model are adjusted for tax in order to highlight the impact of the latter. The explanatory variables are corporate income tax, denoted by CIT, tax savings due to debt interest deduction, denoted by EIDID, debt interest, denoted by INTEREST, and equity dividends, denoted by DIVIDEND. In addition to these explanatory variables, the lagged endogenous variable or past earnings, designated EBIT(-1), is introduced into the model in order to take account of the cumulative effect of earnings decision and to express a dynamic model. For convenience, the variables selected are subdivided by the same variable, in order to harmonize the values. Table 1 presents the

[1] See Act 2012-14 of March 21, 2012 on regulation of SFDs in Benin.

[2] OHADA is the acronym for the French "*Organisation pour l'harmonisation en Afrique du droit des affaires*", which translates into English as "Organization for the Harmonization of Corporate Law in Africa".

variables relating to the earnings model, giving the definition of each one, the expected sign and the theories or authors who have used them in their models.

Table 1

Variables in the Model Testing CIT Effect Behavior on Earnings Behavior

***Variable to be explained:* EBIT= EBIT-to-Economic Asset Ratio**			
Explanatory variable	***Definition***	***Expected sign***	***Theory/Author***
CIT	$\frac{Legal\ tax\ rate \times Taxable\ Earnings}{Economic\ Asset}$	Positive	Modigliani and Miller (1963)
EIDID	$\frac{Interest \times Legal\ Tax\ Rate}{Economic\ Asset}$	Positive	TOT, POT, Ross (1977).
INTEREST	$\frac{Interest}{Economic\ Asset}$	Negative	
DIVIDEND	$\frac{Dividend}{Economic\ Asset}$	Negative	TOT, POT
EBIT(-1)	*Past EBIT*	+/-	

Source: Personal computing 2024.

The general form of earnings behavior model is as follows:

$$\text{EBIT} = \text{f(CIT, Tax shield, Interest, Dividend, Past EBIT)} \quad (1)$$

However, the specific form of earnings behavior model is expressed as follows:

$$(\text{EBIT})_{i,t} = \gamma_0 + \gamma_1(\text{CIT})_{i,t-1} + \gamma_2\text{EIDID}_{i,t} + \gamma_3\text{INTEREST}_{i,t} + \gamma_4\text{DIVIDEND}_{i,t} + \gamma_5\text{EBIT}_{i,t\text{-}1} + \varepsilon_{it} \quad (2)$$

Where:

STANDARD COEFFICIENTS, INDICES AND ERROR TERM

γ_0 = Origin coefficient.

γ_1 = CIT coefficient.

γ_2 = Tax shield coefficient.

γ_3 = Interest coefficient.

γ_4 = Dividend coefficient.

γ_5 = Past EBIT coefficient.

i = Index for firm i, with **i ∈ [1; 21]**

t = Index of time t, with **t ∈ [2011; 2021]**

ε = Error term.

DEPENDENT VARIABLE

$(\mathbf{EBIT})_{\mathbf{i,t}}$ Represents EBIT-to-Economic Asset ratio of firm i in year t.

INDEPENDENT VARIABLES

$\mathbf{CIT}_{\mathbf{i,\,t}}$ Denotes the ratio of CIT to economic asset of firm i in year t.

$EIDID_{i,t}$	Denotes the ratio of interest tax shield to economic asset of firm i in year t.
$INTEREST_{i,t}$	Denotes the ratio of interest to financial debt of firm i in year t.
$DIVIDEND_{i,t}$	Denotes the ratio of dividends to economic asset of firm i in year t.
$EBIT_{i,t-1}$	Denotes EBIT ratio of firm i in year t-1.

With this in mind, the Generalized Method of Moments in Difference (GMMD) estimator was used to estimate this behavioral model of earnings by corporate managers in Benin.

RESULTS AND FINDINGS

The presentation of results and findings of earnings model is divided into two sections. Section 1 presents the results of the statistical tests and analyses of earnings model. Section 2 shows the estimation results of earnings model and the interpretations.

Test results and statistical analysis of earnings model
Tests and statistical analyses of earnings model are developed.

Results of statistical tests of earnings model
Statistical tests include stationarity, Sargan-Hansen, Arellano-Bond and Wald tests.

Results of stationarity tests for variables in earnings model
The aim of this section is to test the panel stationarity of the explained and explanatory variables of earnings model. If the variables are stationary, we can be sure of the reliability of the regression results. The hypotheses of the tests are:

H0: Presence of unit root/non-stationary series (Prob > 5%)

H1: Absence of unit root/Series stationary (Prob < 5%).

Table 2 summarizes the results of the stationarity tests for the variables used in earnings model.

Table 2

Summary of Stationarity Tests for Earnings Model Variables

Synthesis of stationarity or unit root tests of earnings model variables
(Levin-Lin-Chu, Breitung, Im-Pesaran-Shin, ADF, PP, Hadri tests)

Variables	Levin Lin Chu	Breitung			Im Pesaran Shin		ADF		PP		Hadri	Results
	Level	*Level*	*First*	*Second*	*Level*	*First*	*Level*	*First*	*Level*	*First*	*Level*	
CIT	(0.0000)***	(0.0983)*			(0.2590)	(0.0063)***	(0.1090)	(0.0000)***	(0.0002)***		(0.0000)***	Stationary
EIDID	(0.0000)***	(0.6794)	(0.3087)	(0.0000)***	(0.5027)	(0.0000)***	(0.3233)	(0.0001)***	(0.0886)*		(0.0000)***	

INTEREST	(0.0000)***	(0.5007)	(0.2756)	(0.0000)***	(0.5293)	(0.0203)**	(0.3869)	(0.0012)***	(0.1022)	(0.0000)***	(0.0000)***
DIVIDEND	(0.0000)***	(1.0000)	(0.0714)*		(0.7618)	(0.0000)***	(0.4541)	(0.0000)***	(0.0238)**		(0.0000)***
EBIT	(0.0000)***	(0.9824)	(0.0001)***		(0.3757)	(0.0147)**	(0.1145)	(0.0000)***	(0.0000)***		(0.0000)***

Source: Stationarity tests *EViews* 13

Note: ***, ** and * indicate that significant at 1, 5 and 10 per cent. A variable is stationary only when at least four out of the six tests indicate that the variable does not have a unit root.

According to Table 2, all these tests reveal that the five variables CIT, EIDID, INTEREST, DIVIDEND and EBIT are stationary at level at the 1% threshold for Levin-Lin-Chu and Hadri; four variables out of five, CIT, EIDID, DIVIDEND and EBIT, are stationary at level for PP, and the other, INTEREST, is stationary in first difference for PP ; for ADF and for Im-Pesaran-Shin, the five variables CIT, EIDID, INTEREST, DIVIDEND and EBIT are stationary in first difference; for Breitung, the variable CIT is stationary at level, the variables DIVIDEND and EBIT are stationary in first difference and the two other variables EIDID and INTEREST are stationary in second difference.

Results of Sargan-Hansen test of earnings model
The results of Sargan's post estimation test are summarized in Table 3 from Appendices.

Table 3

Summary of Results of the Sargan-Hansen Test of Earnings Model

Earnings equation - EBIT		
	J-statistic	Prob
Sargan test	17.67814	0.343078

Source: Sargan-Hansen test Eviews 13

For the endogenous variable EBIT, the p-value of the Sargan test for the validity of the instruments is greater than 5%. Hypothesis *H0* is therefore accepted: the instruments are valid and exogenously linked to the error term; they therefore satisfy the orthogonality conditions.

Arellano-Bond earnings model test results
The results of the post-estimation Arellano-Bond test are summarized in Table 4 from appendices.

Table 4

Summary of Results of Arellano-Bond Test of Earnings Model

Earnings model - EBIT		
Test order	m-Statistic	Prob.
AR(1)	-3.774933	0.0002

Source: Arellano-Bond test Eviews 13

For the earnings model, the p-value of Arellano-Bond's serial correlation test is less than 5%. Consequently, the hypothesis of no autocorrelation in the residuals cannot be rejected.

Wald test results for earnings model
The results of the post estimation Wald test are summarized in table 5 in appendices.

Table 5

Summary of the Wald Test Results for Earnings Model

Earnings model - EBIT		
	Value	Prob.
t-statistic	-86.87222	0.0000
F-statistic	7546.782	0.0000

Source: Wald test Eviews 13

For the earnings model, the p-value of Wald's test of overall significance is less than 5%. Consequently, the estimated earnings model is globally significant at the 1% threshold.

Results of descriptive analysis of earnings model variables

This analysis focused on descriptive statistics, graphs of variables and regression residuals, correlations and the normality of errors (Jarque-Bera test).

Descriptive statistics for earnings model variables

Table 6 summarizes the descriptive statistics for the variables in earnings model, showing the mean, maximum, minimum and standard deviation.

Table 6

Descriptive Statistics for Earnings Model Variables

	EBIT	EBIT(-1)	INTEREST	CIT	DIVIDEND	EIDID
Mean	0.031383	0.035136	-0.000969	-0.000586	-0.057543	-0.002678
Maximum	0.869856	0.869856	0.283093	0.001739	0.546923	0.040027
Minimum	-0.641688	-0.641688	-0.069039	-0.005143	-1.620783	-0.020480
Std. Dev.	0.138081	0.141374	0.057595	0.000945	0.327344	0.011026
Obs.	149	149	149	149	149	149

Source: EViews 13 descriptive statistics report.

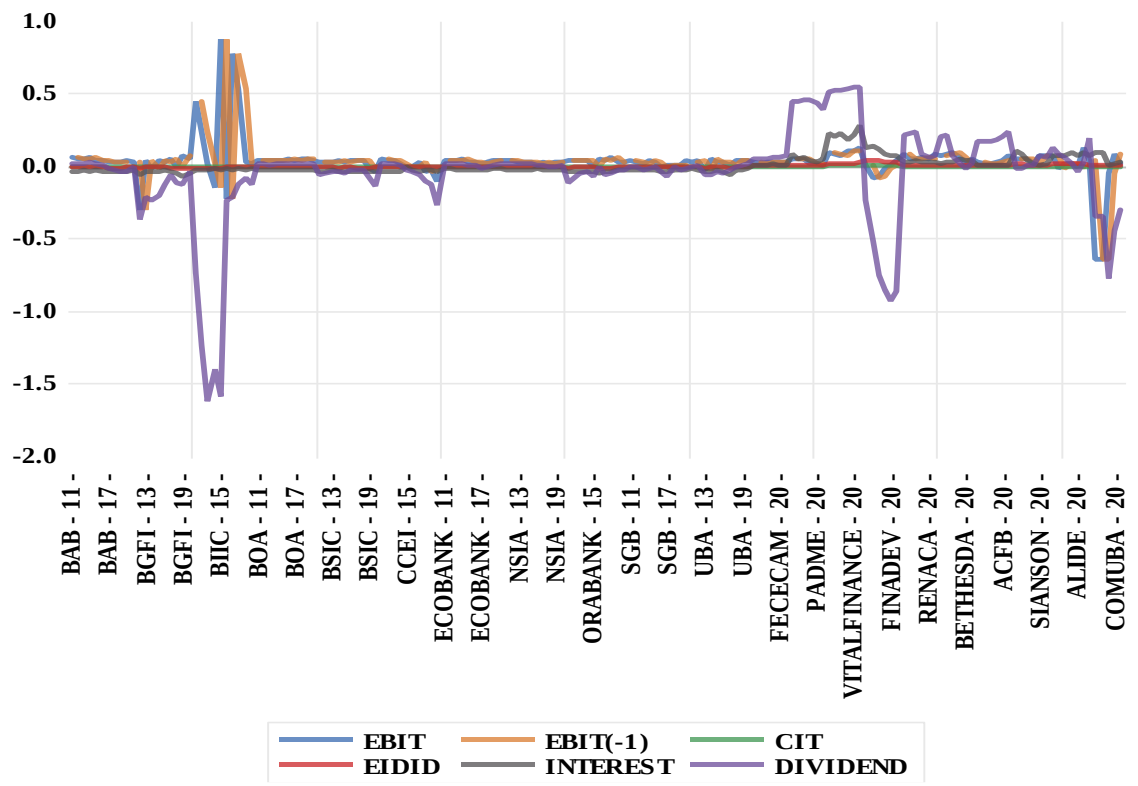
According to this table, the average EBIT is 3.14% for current EBIT compared to 3.51% for past EBIT; which reflects a reduction in earnings behavior.

Graphical analysis of variables and residuals from earnings model regression

Figure 1 shows the curves for earnings model variables and Figure 2 shows the curves for endogenous variable and residuals for earnings model.

Figure 1

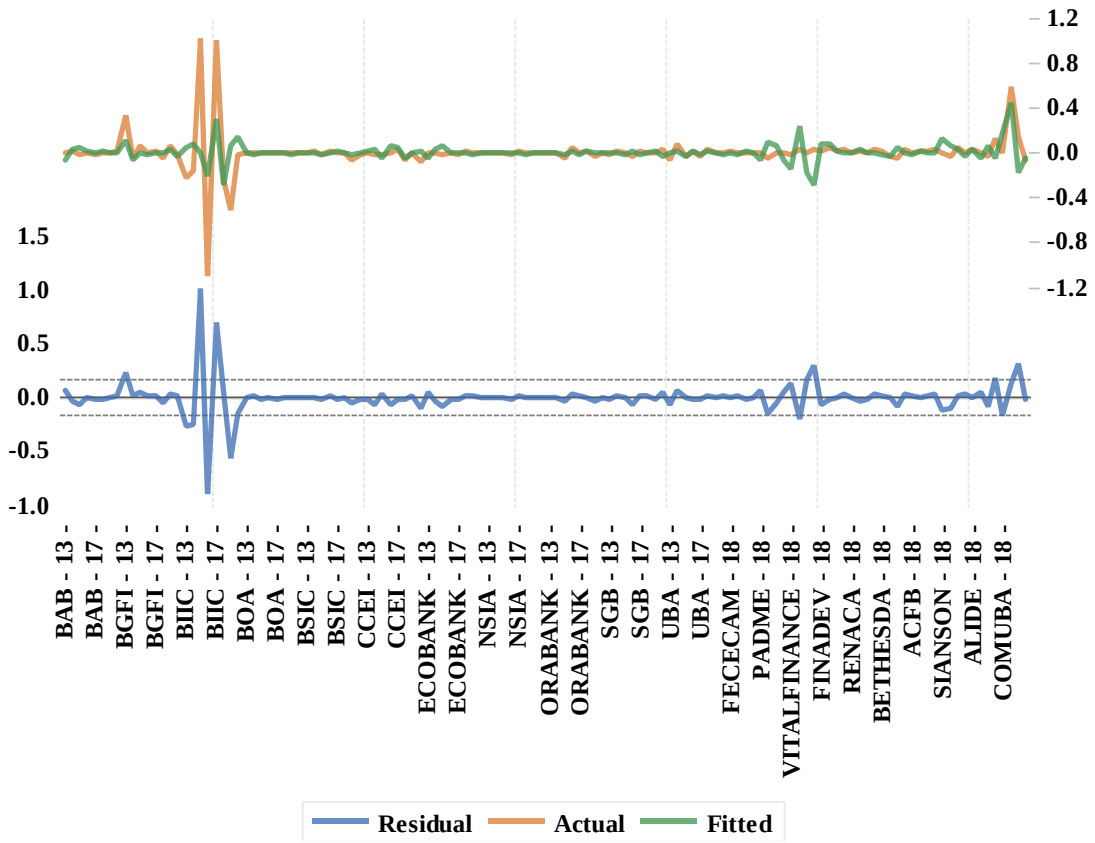
Graphs of Earnings Model Variables



Source: Personal computing 2024

Figure 2

Graphs of Endogenous Variable and Residuals from Earnings Model Regression



Source: Personal computing 2024

Residual*:** The plot of residuals from regression εi. ***Actual*:** The graph of observed endogenous variable (**Y**). ***Fitted: The graph of estimated endogenous variable (**Y**).

Analysis of correlations between variables in earnings model

Preliminary analysis of correlation matrices between variables used in earnings models, together with a Spearman rank order test, showed that some variables were more or less strongly correlated. The application of linear regressions on the variables used made it possible to limit the variables with a very high correlation between them by means of the multicollinearity detection statistic. Table 7 shows the Spearman rank order correlations between variables in an earnings model.

Table 7

Spearman Rank-order Correlations for Variables in Earnings Model

	EBIT	EBIT(-1)	INTEREST	CIT	DIVIDEND	EIDID
EBIT	1.000000					

EBIT(-1)	0.377995	1.000000				
INTEREST	0.047584	0.067160	1.000000			
CIT	-0.010731	0.000836	0.758856	1.000000		
DIVIDEND	0.405666	0.352204	0.412954	0.313721	1.000000	
EIDID	0.038877	0.040144	0.953550	0.774649	0.426435	1.000000

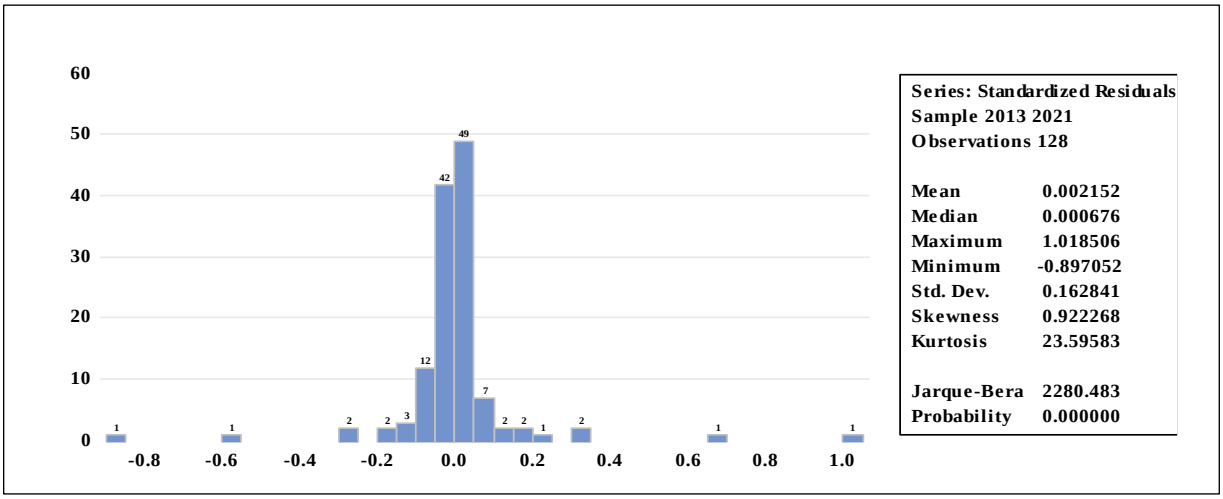
Source: Spearman rank-order correlations EViews 13.

According to Table 7, in earnings model, there is a strong correlation between INTEREST and CIT, then between INTEREST and EIDID and finally between CIT and EIDID; and a medium correlation between EBIT and DIVIDEND, between EBIT(-1) and EIDID, then between INTEREST and DIVIDEND, and lastly between DIVIDEND and EIDID.

Normality analysis of earnings model errors

Figure 3

Histogram and Normality Test for Errors in Earnings Model



Source: Personal computing 2024.

The probability associated with the Jarque-Bera statistic (0.00) is less than 0.05. The assumption of normality of the residuals is therefore not verified. We can therefore conclude that the residuals from the estimation of earnings model are not stationary. The normality of their distribution is invalidated.

Earnings model estimation results and interpretations

This section presents the results of estimating earnings model and econometric and economic interpretations of the Earnings Model. The detailed results of the EViews 13 regressions are presented in the appendices.

Earnings model estimation results

The factors entering into the explanation of corporate earnings (EBIT) in Benin are essentially internal to our model. The results of estimating the determinants of the endogenous variable EBIT are summarized in Table 8.

Table 8

Summary of EBIT Estimate

$\mathbf{EBIT = f(CIT, EIDID, INTEREST, DIVIDEND, EBIT(-1))}$		
Variable	Coefficient	Prob.
CIT	21.08783	0.0000***
EIDID	15.69253	0.0000***
INTEREST	-5.573929	0.0000***
DIVIDEND	-0.075147	0.0000***
EBIT(-1)	-0.246834	0.0000***

Source: Computed from Eviews 13 statistics.

Note: ***, ** and * indicate that significant at 1, 5 and 10 per cent.

The characteristic equation of endogenous variable EBIT estimated by the GMM method in difference is:

@DADJ(EBIT) = C(1)*@DADJ(EBIT(-1)) + C(2)*@DADJ(INTEREST) + C(3)*@DADJ(CIT) + C(4)*@DADJ(DIVIDEND) + C(5)*@DADJ(EIDID) (3)

By substituting the coefficients, this equation becomes:

@DADJ(EBIT) = -0.246834246272*@DADJ(EBIT(-1)) - 5.57392949812*@DADJ(INTEREST) + 21.0878325339*@DADJ(CIT) - 0.0751468167722*@DADJ(DIVIDEND) + 15.6925288845*@DADJ(EIDID) (4)

Interpreting earnings model

Earnings model can be interpreted from an econometric or economic point of view.

Econometric interpretations of earnings model

After having also carried out several tests to choose the instrumental variables to be used while respecting the Sargan test of instrumental validity, the model passes the Arellano-Bond tests and thus the validity of the null hypothesis of absence of autocorrelation of order 1. The model passes the Arellano-Bond tests and thus the validity of the null hypothesis of no first-order autocorrelation. Insofar as the number of these instrumental variables is the same as that of the exogenous variables, the model is well estimated. The results used are those of estimation with robust statistical tests. The Wald test of

overall significance was not rejected and the hypothesis of no auto-correlation between the residuals of order 1 was also verified. In other words, the variables selected really explain corporate earnings (EBIT) in Benin.

As for the individual significance of the parameters, the test is decided by comparing the p-value (Prob>z) with the various α thresholds (1%, 5% or 10%). If the p-value is below the test threshold, then we cannot reject the hypothesis that the coefficient under test is significantly different from zero. Table 8 shows that the five explanatory variables CIT, EIDID, INTEREST, DIVIDEND and EBIT(-1) are all significant at the 1% level.

Economic interpretations of earnings model

In the estimated earnings model, the explanatory variables are CIT, EIDID, INTEREST, DIVIDEND and EBIT(-1). The results of the estimations indicate that the most attractive factors in decreasing order of corporate earnings in Benin are corporation income tax (CIT) and tax savings due to debt interest deduction (EIDID).

The explanatory variable relating to corporate income tax (CIT) has a positive sign and is significant in the long term at the 1% threshold. The positive impact of CIT is more pronounced in the long term. A 1% increase in CIT, *ceteris paribus*, boosts EBIT by 21.08783% in the long term and vice-versa. This sign is in line with theories by (Modigliani & Miller, 1963), TOT, agency and signaling. This result is consistent with (Wali, 2021) who showed that CIT is an important incentive for earnings and with (H. Wang et al., 2019) who showed that earnings before tax are an important incentive for tax aggressiveness, and then with (Sundvik, 2016) who showed that reducing CIT rates leads to lower earnings. However, this result runs counter to (Desai et al., 2007; Guenther, 1994; Maydew, 1997; Poterba et al., 2007; Scholes et al., 1992) that CIT negatively affects earnings.

The explanatory variable concerning debt interest tax shield (EIDID) has an associated coefficient that displays a positive sign and is significant in the long term at the 1% threshold. This sign is consistent with the signal theory of Ross (1977). The results show that when EIDID variable increases by 1%, *ceteris paribus*, EBIT increases by 15.69253% and vice-versa. This sign is in line with theories by (Modigliani & Miller, 1963), TOT, agency and signaling. However, this finding is contrary to that of (Sabbar & Sabri, 2021), who suggest that leverage has a significant and negative effect on return on assets (ROA), and to that of (McCrea et al., 1990), who stipulate that there is a positive correlation between interest tax deduction and return on investment (ROI).

The INTEREST variable has a negative and significant effect on EBIT in the long term at the 1% threshold. This sign is not consistent with theory but can be explained. Indeed, as the corporate tax rate in Benin is relatively high, the interest rate tends to remain high, which makes financial debts more expensive than equity and, consequently, reduces EBIT. The results show that when INTEREST variable increases by 1%, *ceteris paribus*, EBIT decreases by 5.573929% and vice-versa. It should also be noted that the negative impact of interest on earnings is greater in the long term. This result disagrees with the theories of Modigliani and Miller (1963), TOT, agency and signaling, but reinforces POT theory. This result is confirmed by (Nissim & Penman, 2003), who found that stock market earnings are negatively related to changes in interest rates.

As for the explanatory variable DIVIDEND, the estimates show that it reduces EBIT, since the associated coefficient is negative and significant in the long term at the 1% level. This sign is consistent with the Pecking Order Theory (POT) of Myers (1977) and Myers & Majluf (1984) and with the theory of free cash flow (FCF). In fact, a 1% increase in DIVIDEND, *ceteris paribus*, leads to a 0.075147% reduction in EBIT over the long term and vice-versa. This result disagrees with the theories of Modigliani and Miller (1963), TOT, agency and signaling, but reinforces POT theory. This result is confirmed by (Hunjra et al., 2014) who found dividend return negatively related to earnings per share.

The lagged dependent variable or firms' past earnings (EBIT(-1)) has an associated coefficient that is negative and significant at the 1% level in the long term. In fact, when the past EBIT increases by 1%, *ceteris paribus*, the current EBIT decreases by 0.246834% and vice-versa. This result shows that firms' current EBIT is held back by their past EBIT, because of the tax burden, very high debt interest charges and the fact that certain tax benefits are not renewed from one year to the next, all of which affect firms in Benin.

In total, all the research hypotheses have been verified. The research on tax behavior and earnings behavior of corporate managers, has enabled us to achieve the research objective and to draw, *ceteris paribus*, a few political implications.

Policy implications of the findings

The tax policy suggestions arising from the results of CIT behavior on earnings behavior in Benin are as follows:

1) Break with all the provisions for optimizing corporation tax (CIT) in order to avoid a tax spiral.

2) Breaking with all interest and financial expense regimes, to ensure tax neutrality between equity and debt capital. In this way, corporate managers will no longer be tempted to engage in financial leverage in order to save tax.

3) Prioritize tax neutrality with regard to CIT in the ordinary tax system and in the basic preferential regimes and special regimes of the Investment Code.

4) Substitute the system of corporate capital taxation (CCT) for the system of corporate income taxation (CIT), in order to prevent CIT optimization, the consequences of which are tax corruption, tax evasion, tax avoidance, base erosion and profit shifting (BEPS), to name but five tax consequences.

CONCLUSION

The results identified the main determinants of earnings behavior, notably the positive effect of corporate income tax (CIT) and of tax savings due to debt interest deduction, followed by the negative effect of debt interest, dividends and past earnings before interest and tax (EBIT). It is obvious, therefore, that corporate managers have more incentive to make tax savings than financial savings; which automatically distorts the rules on corporate earnings (Hasseldine & Morris, 2013; Koester et al., 2017; Landry et al., 2013; Weisbach, 2001).

However, it should be noted that any savings from CIT, whatever their origin, are in reality nothing more than a diversion of dividends from the firm not eligible for the CIT saving to the firm eligible for

the CIT saving; the two firms being identical and belonging to the same class of financial and commercial risk. The effect of the CIT saving is finally cancelled out at the level of the Government or State which has legally granted the CIT saving; which leaves something to be desired and calls into question the Government or the State. It is up to the Government or the State to carry out a tax reform aimed at eliminating all CIT biases and ensuring the neutrality of CIT. While awaiting such a reform of tax justice, the question arises of how to solve the problems of biases in corporate income tax (CIT). The answer to this research question will be the subject of a forthcoming paper.

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