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Tax Behavior and Financing Behavior of Corporate Managers: Case of Banks and Decentralized Financial Systems (DFSs) in Benin

Stanislas T. Médard D. C. Agossadou
Laboratory for Research on Performance and Development of Organizations (LARPEDO)
Faculty of Economics and Management (FASEG)
University of Abomey-Calavi (UAC) – Cotonou – Republic of Benin

Abstract: This paper aims to analyzing the influence of tax behavior on financing (financial leverage) behavior of corporate managers. The paper applies the generalized method of moments (GMM) to dynamic panel data. The sample used covers 21 firms, i.e. 11 banks for the period from 2011 to 2020 and 10 DFSs for the period from 2016 to 2021. It turns out that financial leverage behavior is influenced more positively by corporate income tax (CIT), then by dividends (DIVIDEND); and negatively by interest on debt (INTEREST), by cash flow (CASH_FLOW) and by past financial leverage (LEVERAGE(-1)). This paper is one of the first to extend the literature by identifying the main determinants of financing behavior, notably the positive effect of corporate income tax (CIT).

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

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1. Introduction

The influence of corporate managers' tax behavior on their financing behavior remains a major concern insofar as financing decisions are taken for tax purposes rather than on basis of management objectives. The financing behavior of all economic agents is very important for the economy as a whole, as it is one of the driving forces behind economic growth in the medium and long term. "Aiming at maximizing firm value, financial managers both of small and medium enterprises as of multinational enterprises try to optimize their company's tax liabilities. Tax considerations regarding location, organizational form, type and timing of transactions enhance the risk that financial decisions are guided by tax purposes rather than management objectives. This is especially true for multinational companies. Although value maximization is the leading principle of financial management, the use of tax planning strategies has a distorting impact on a company's financing and investment decisions" (Princen, 2012: p. 162).

This is why Du *et al.* (2023) have taken the liberty of asking this question: "How do tax incentives affect a firm's financing structure?". This problem may be best addressed within the field of corporate finance. According to the canonical theorem of Modigliani & Miller (1958), in a perfect case with no tax or information asymmetry, an enterprise's value is irrelevant to its capital structure. However, this hypothesis is difficult to apply in the real world, according to some authors who have lifted a few restrictions from the said hypothesis, such as taking corporate income tax (CIT) into account. In fact, according to Devereux et al. (2018), corporation taxes typically permit a deduction for interest payments but not the opportunity cost of equity finance. They therefore create an incentive to use debt rather than equity finance. For Halíček and Karfíková (2022), "historically, the cost of financing business through debt has reduced income tax paid. Financing via new equity has not. This asymmetry has not been without consequences. The high indebtedness and relative undercapitalization of corporates creates a risk of reduced resilience to economic shocks. Some countries have introduced tax incentivization of equity, reduced tax incentivization of debt, or both. In June 2022, the European Commission proposed a harmonized solution: Debt Equity Bias Reduction Allowance (DEBRA). All EU Member States, including the Czech Republic, should provide corporate income tax deduction for equity, whilst further limiting interest deduction, starting 2024".

However, it must be recognized that debt financing offers a firm an interest tax shield, whereas equity financing transfers to a firm a tax rise equal to the value of interest tax shield (Agossadou, 2023). This in-depth analysis of debt interest tax shield was lacking in Modigliani and Miller (1963)'s argument that firm value increases with higher leverage due to the corporate tax shield. The reason is that interest on debt capital is tax deductible, and thereby decreases the net tax payment. This might result in an added benefit of using debt capital by lowering overall cost of capital (Hossain 2021). Basically, the public authorities, in their policy of attracting foreign investors to the country and preventing local investors from fleeing the country, offer favorable tax incentives for investment, financing and earnings, contained in the General Tax Code. As a result, corporate managers take advantage of these favorable tax incentives to make high corporate profits and pay low corporate income tax (CIT). CIT is part of the State's tax revenue. The low tax revenue from CIT highlights, on the one hand, their behavior to minimize CIT and, on the other, their behavior to maximize the firm's return on investment.

In other words, deducting debt interest and taxing equity dividends in computing CIT is referred to in related literature as the "*debt bias*". According to Aujean *et al.* (2014: p. 50), "the bias thus created can lead to two kinds of economic distortions. On the one hand, this difference in treatment leads companies to seek leverage, and therefore an excessive debt/equity ratio, which ultimately increases the systemic risk for financial markets. Secondly, the favorable treatment of borrowings encourages multinational companies to use interest deductibility or hybrid instruments to transfer profits to lower-tax locations. In this way, the debt of subsidiaries is located in countries where corporation tax is high, while the interest is paid to the group's lending companies, which are located in low-tax countries, resulting in lower total taxation at group level". According to Dallari *et al.* (2018: p. 4), "Tax bias towards debt finance is pervasive and affects leverage decisions. In most countries, the corporate income tax allows deduction of the interest paid on debt. Distribution of dividends, by contrast, is rarely deductible. The interest deduction is usually justified by a reference to the contractual obligation involved in a debt contract. Payments to equity holders do not involve such a contractual obligation and are hence considered optional. The deduction implies that debt financing is artificially cheaper than equity finance, distorting incentives and violating the principle of neutrality of the source of finance (e.g., Sorensen, 2014, and

Weichenrieder and Klautke, 2008). A profit-maximizing firm will thus take on more debt than it would in absence of this incentive. This effect is labeled debt bias".

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 objective of this research is to address the problem of analyzing the influence of tax behavior on financing behavior of corporate managers in Benin. Accordingly, this research will examine the following research questions:

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

QR2: What influence do equity dividends have on financial leverage behavior of corporate managers in Benin?

QR3: What influence does debt interest have on financial leverage behavior of corporate managers in Benin?

QR4: What influence do cash flows have on financial leverage behavior of corporate managers in Benin?

QR5: What influence does past financial leverage have on current financial leverage behavior of corporate managers in Benin?

This paper aims to analyze the influence of tax behavior on financing behavior of corporate managers in Benin, by answering these research questions. We develop rest of the paper in following phases: Section 2 provides a relevant literature review for hypotheses development. Section 3 describes test methods, data and sample. Section 4 presents test results & analysis with implications. Lastly, conclusion is given in the final section of the manuscript.

2. Literature Review & Hypotheses

In Benin, as in most countries in the rest of the world, be they emerging market economies, low-income countries or advanced economies, the system of corporate taxation on profits includes incentives that are more or less favorable, which are sources of bias that influence firm financing and, by ricochet, have been at the root of many perennial controversies on the theory of capital structure of the firm for more than six (6) decades[1]. According to Spengel *et al.* (2016: p. 9), the current debt bias found in most tax systems in the EU28 Member States could be addressed in different ways. Interest deduction limitation rules might be useful to prevent an excessive use of debt financing. "The tax deductibility of interest payments under most corporate income tax systems while with no such measure is foreseen for equity financing can create a distortion in the financing decision of companies. This tax-induced bias in favor of debt-financing instead of equity-financing (retained earnings or new equity) has led to a policy recommendation for fixing it in the context of the European Semester (European Commission, 2012). The bias results in at least two types of economic distortions. First, the deductibility of interest expenses exacerbates opportunities to shift and decrease reported profit via debt-shifting or the use of hybrid

[1] Modigliani and Miller (1958; 1963) were the precursors of these controversies on the theory of capital structure.

instruments. Second, it may lead to too-high leverage in companies, increasing systemic risk" (Fatica *et al.*, 2013: p. 5).

"Another distortion of corporate financing and investment decisions is related to the different taxation of debt and equity, impacting the capital structure of companies. Most national tax systems favor the use of debt over equity, attributing a different tax treatment to the cost related to each of those financing modes. On the one hand, interest paid, i.e. the return to creditors, is a tax-deductible expense, lowering the taxable base of the company. On the other hand, retained earnings or dividends paid, i.e. the return to shareholders, are not tax deductible. As a result, companies could trade-off between sources of financing, based on their tax differential" (Princen, 2012: p. 164). The financing behavior of corporate managers consists of seeking and raising funds or sources of finance that will be allocated to corporate investments with a view to creating value. The various sources of long-term funds, such as shares, preference shares, debentures, bank loans, bonds, etc., can be grouped into two overall sources of financing: debt financing and equity financing. Capital structure is the proportion of all types of capital, i.e. equity, debt, preferences, etc. It is also used as financial leverage or financing mix. When it comes to corporate financing, most capital structure theories have encouraged corporate managers to use debt financing more than equity financing because of interest tax shield due to debt financing interest being deducted in computing CIT.

2.1. Capital structure theories

According to Korzh (2015: p. 184), capital structure is the correlation between different funding sources of an enterprise activity. Theories of capital structure are based on different approaches that characterize the possibility of optimization of the capital structure of enterprises and determine the priority factors that predetermine the mechanism of its optimization. The main characteristics of capital structure theories described in the scientific literature are: trade-off theories, traditional capital structure theories; theories of indifference and conflicting views of capital structure formation. The developers of trade-off theory were: M. Miller, H. DeAngelo, R. Masiulis, D. Corner (Kraus and Litzenberger, 1976). According to the following theory optimal capital structure may be determined via the trade-off between maximum possible taxes economy (Tax Shield), conditioned by debt-financing and expenses, connected with possible bankruptcy, which becomes more possible, when a share debt-financing increases. For company value maximization debt-financing share must be so, that marginal costs of an additional unit of loan capital are equal to marginal benefits from using it.

Trade-off capital theory does not take into account transaction costs, which follow the process of recapitalization. It considers capital structure of the enterprises, which have assets of the same type, similar commercial risks, income level and terms of taxation. According to such conditions this theory doesn't offer a precise calculation scheme for the most effective combination of owned and borrowed capitals. The theory may help make general recommendations about taking decisions concerning capital. According to Taha and Sanusi (2014: p. 109), there is also ample empirical evidence on the way financial managers conduct the capital structure decision (see e.g. Aggarwal, 1994; Naidu, 1986; Rajan and Zingales, 1995; Bevan and Danbolt, 2000; Ghosh *et al.*, 2000; Booth *et al.*, 2001 and Yang *et al.*, 2001). The results of these studies show that there are a lot of factors that significantly determine the firm capital structure (e.g.: size of the firm, country and industry). Realizing the importance of tax in determining the capital structure, the tax deductions also received much attention from researchers. Most of the empirical literatures (among others are Elton and Gruber, 1970; Mackie- Mason, 1990; Graham, 1999 and Booth *et al.*, 2001) focus on the benefits of tax. Although payment of tax is a common practice for many firms, the tax puzzle remains a controversial issue in the corporate finance literature. This is mentioned by Titman and Wessels (1988), Fisher *et al.* (1989), Shyam-Sunder and Myers (1999), Anderson and Makhija (1999), Yang *et al.* (2001) and Booth *et al.* (2001) as: "tax deduction encourages firm to utilize debt, and hence encourage bankruptcy". In addition, the tax deductions are expected to influence the capital structure decisions.

For Korzh (2015: p. 184), traditional capital structure theory is based on the statement about the possibility of capital structure optimization by means of considering different values of its separate components. Gordon (1959) concluded that capital value is the function of its structure, therefore optimal capital structure exists. At the same time, optimality criterion appears with the help of providing the minimal capital value without decreasing company value. In this case sales proceeds do not decline, market segment does not narrow, business standing does not get worth, rating among other commodity producers do not fall. The theory is based on the statement that capital structure is optimal, an enterprise may increase its own value, using leverage rationally. The point of optimal capital structure corresponds to the state, when weighted capital value is minimal and aggregate company value is maximal (Horne and Wachowicz, 2004). To increase its value, an enterprise needs decrease its long-term investments and increase borrowed funds (Horne and Wachowicz, 2004). This theory does not take into consideration influences during capital structure formation.

The theory of indifference is based on the idea that optimization of the capital structure is impossible using both the criterion of minimizing the weighted average cost of capital and the criterion of maximizing the market value of an enterprise, but is possible when the criterion of future profits is applied. Thus, the authors of the theory (Hamada, 1969; Miller and Modigliani, 1961) conclude that optimizing the capital structure does not influence these characteristics. To prove their hypothesis, the authors used a number of limitations, some of which ignored the conditions of the financial markets and therefore were alleviated later. In their further research on irrelevance theory, the authors of this theory (Modigliani and Miller, 1963), after removing a number of limitations, took into account the effect of corporate taxation and recognized that the mechanism for the formation of the market and firm value is connected to the structure of the firm's capital. The interest of the modified irrelevance theory is that the value of a corporate that uses debt financing is higher than the value of a corporate that uses its equity financing through the value of the tax shield.

But it is a pure fiscal illusion for Modigliani and Miller (1963) to reach such a conclusion. In fact, any tax shield due to tax incentives on corporate financing at the level of a firm eligible for tax incentives actually generates after arbitrage, an equivalent tax rise due to tax incentives on corporate financing at the level of another identical firm not eligible for tax incentives; the two firms belong to the same class of financing risk. Nonetheless, the existing corporate finance literature hardly provides global empirical evidence on the impact of financial leverage on firm value (Hossain 2021). Solomon (1963: p. 276) argues that, in an extreme leverage position, the cost of capital must rise. This is because excessive levels of debt will induce markets to react by demanding higher rates of return. Therefore, to minimize the weighted average cost of capital, firms will avoid a pure debt position and seek an optimal mix of debt and equity. Moreover, Kim (1978: p. 45) observes that during the period between 1963 and 1970, non-financial firms in the United States were financed by only one-third of debt. This finding provides circumstantial evidence that, in the presence of taxes, firms will avoid a pure debt position.

The basis of the theory of conflicting points of view is formed by the idea of the different interests and levels of information awareness of shareholders (owners), bondholders (creditors), corporate managers and even the "*taxholder*" (the state) in the capital management process, the adjustment of which leads to an increase in its individual components. The authors of the theory have considerably extended its use, without changing the very essence of the theory of trade-offs. The concept of conflicting opinions is based on the following theories: - the theory of information asymmetry (HAIDARA, 2023; El Hourani, 2022, Moussavou, 2017; Ngongang, 2015); - Signaling theory (Ross, 1977; Myers and Majluf, 1984; Hussain *et al.*, 2024); - cost monitoring theory (Mendoza *et al.*, 2021; Jensen, 1986), etc. Pecking order theory is based on the effect of information asymmetry. According to this theory (Myers, 1993; Donaldson, 1962) enterprises apply a particular procedure of the choice of sources of finance, if it is necessary to attract additional capital. In this case, preference is given to inner sources of finance, i.e. accumulated profit and the sum of accumulated amortization, and only then to external sources, i.e. bank loans, debt capital issue, equity issue. Thus, the sequence of the choice of sources of finance is made out according to the criterion of risk minimization. The reason of such sequence of the choice of sources of finance, defined by pecking order theory, is information asymmetry and the effects of negative selection, which exist between managers and potential investors concerning unreasonably high yield rate.

Empirical evidence supports both the pecking order and the trade-off theory. Empirical tests to see whether the pecking order or the trade-off theory is a better predictor of observed capital structures find support for both theories of capital structure (Shyam-Sunder and Myers, 1999; Fama and French, 2000). On the basis of review determinants pecking-order theory are Liquidity and Firm size having, and Profitability and Asset tangibility having positive effect on the debt-to-capital ratio.

2.2. Developing research hypotheses

Corporate financing includes both internal and external financing. Internal financing includes internal equity, i.e. reserves, retained earnings, net profit for the year, investment grants and regulated provisions and similar funds. External financing includes external equity, financial debt and leasing. Most studies of corporate financing behavior have focused more on debt than on other sources of financing (shares, retained earnings, investment grants, leasing); the latter have not been the subject of previous studies to the same extent. Financing behavior or financing choices made by corporate managers will have an impact on the corporate financial structure and on the level of financial risk. The observation is that the larger the firm, the more diversified its financing choices. The different overall sources of corporate finance are equity and debt. The financing of a corporate investment is generally provided by a combination of its own resources, mainly self-financing and contributions from its partners, and borrowing resources when the former are insufficient to cover the entire investment cost (Bertrandon and Collette, 1989 cited in Mfopain, 2007: p. 157). The empirical approach involves estimating a financial leverage model while including tax and non-tax variables to assess the relative importance of tax factors. The relationships between corporate income tax (CIT) behavior through fiscal or financial variables and financial leverage behavior are elucidated.

2.2.1. Relationship between CIT and financial leverage

According to Taha and Sanusi (2014: p. 110), the link between debt and tax was initiated by Miller (1977). He focused on the effects of corporate and personal taxes on leverage ratio. His research also attempted to prove the existence of tax benefit that causes the preference of firm towards debt financing. However, his finding showed that leverage is still irrelevant to the firm capital structure choices. Later, DeAngelo and Masulis (1980) proved that the relevancy of capital structure only exists in several situations. The uniqueness of optimum capital structure equilibrium can be reached in the presence of corporate and personal taxes. They explained that the increase of inflation decreases the real value of investment tax shield and immediately increases the proportion of debt. Therefore, by incorporating the tax element, tax deduction or tax benefit makes debt financing cheaper than equity financing. Thus, without the existence of personal tax, firm may use debt to reduce corporate tax liability. However, if the marginal tax value of debt financing equals to zero, the capital structure is considered irrelevant. The mixed results have motivated Mackie-Mason (1990) to adopt the incremental and probit model approach to examine the relationship between corporate tax and the incentive for firm to utilize debt. The findings reflect that the high tax shield increases the probability of tax deduction. Therefore, it reduces the expected marginal tax rate and hence, there is a less tendency to use debt financing.

In Benin, the financial expenses regime allows debt interest to be deducted in computing CIT but taxes equity dividends in the same CIT computation. This bias in favor of debt over equity raises the issue of corporate financing in Benin. In addition, the increase in CIT depends more on the corporate income tax rate (CITR) than on the CIT tax base, due to the phenomenon of "*Base Erosion and Profit Shifting*" (BEPS). It must be said that since 2012, under the impetus of G20 and OECD, the fight against BEPS has become a priority at global level. Developing countries, which are heavily dependent on CIT revenues, are particularly vulnerable to aggressive tax optimization techniques implemented by international companies to take advantage of international tax disparities (*Cf*. World Bank, 2018: p. 35). The Beninese government is aware of this and has taken measures to limit the total amount of deductible net interest payable annually on all debts contracted by a firm to 30% of EBITDA, which constitutes earnings before interest, tax, depreciation and amortization (see articles 25 and 61 of Benin's General Tax Code). Thus, in the light of this review of related literature, the first hypothesis is formulated as follows:

H1: "CIT affects positively financial leverage behavior of corporate managers in Benin".

2.2.2. Relationship between dividend and financial leverage

The influence of tax behavior through dividends on the financial leverage behavior of corporate managers is, in the related literature, more developed at the personal level than at the firm level. Since the emergence of the so-called irrelevance theorem by Miller and Modigliani (1961), many corporations are puzzled about why some firms pay dividends while others do not. They were the first to study the effect of dividend policy on the market value of firms by assuming that there are no market imperfections. Miller and Modigliani (1961) proposed that divided policy chosen by a firm has no significant relationship in as far as the market valuation of the firm is concerned. They went further to explain that; the shareholders wealth remains unchanged irrespective of how the firm distributes it income because the firms' value is rather determined by their investment policies and the earning power of its assets. They further stated that the opportunity to earn abnormal returns in the market does not exist, that is, owners are entitled to the normal market returns adjusted for risk. In short, Miller and Modigliani (1961: p. 411) have argued that dividend policy does not affect the value of the firm or the cost of equity. If this is true, then dividend policy is irrelevant. The Miller and Modigliani (1961) study was often used as a starting with Black and Scholes (1974); Miller and Rock (1985) and Bernstein (1996) who supported their findings. However, in later research, several studies disapproved of their findings (Lintner, 1962: p. 243; Gordon, 1963: p. 264; Walter, 1963; Litzenberger and Ramaswamy, 1982; Fama and French, 2002 and Kajola *et al.*, 2015).

According to Taha and Sanusi (2014: p. 110), the higher dividend payment causes individual to pay high personal tax. Therefore, in order to increase the firm value, firms have to maintain low dividend and low debt. It implies that firms reduce interest payment and taxable dividend without reducing the return on capital. The best strategies of tax deduction and the maximization of firm value are: issue more debt and maintain small dividend payment. However, the empirical evidence produced by Fama and French (1998) proves that the positive and negative relationships exist between the dividend and firm value; and between the former and taxes, respectively. Graham (1999) produced an additional evidence of capital structure in the presence of personal tax. In addition, he measured the changing debt value (incremental) as dependent variable. The results showed that firm uses less debt. He identified two reasons to support his findings: first, the reduction in dividend payment increases the personal tax penalty and decreases the net tax benefit; and second, a lower personal tax rate on the return on equity. These findings also denoted that the corporate tax benefit proportionately diminishes with the tax penalty in personal tax.

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

H2: "Dividend affects positively financial leverage behavior of corporate managers in Benin".

2.2.3. Relationship between interest and financial leverage

Despite the extensive research on firm's financing policies since the seminal paper by Modigliani and Miller (1958), the literature—both theoretical and empirical—of how interest rates and changes in monetary policy regime impact a firm's financing decisions is limited and the results of the existing studies are mixed (Karpavičius and Yu, 2017). The empirical studies have mainly focused on the relation between tax rate and firm leverage. They find that tax rate has a significantly positive impact on the firms' borrowings (see, for example, recent studies by Alaraji *et al.*, 2021; Ali *et al.*, 2022; Chen and Frank, 2022 and Hanlon and Heitzman, 2022). Interest rates vary more than tax rates and their impact on interests paid is substantially higher. The empirical evidence for the relation between interest rates and firm's leverage are mixed. Frank and Goyal (2004) estimate a VAR (1) model of aggregate values of debt and equity of all US public non-financial firms and find that interest rates impact neither debt nor equity significantly. Graham *et al.* (2015) report that aggregate leverage of US unregulated firms is higher in the periods of high 3-month Treasury bill rate over the 1925–2010 period. The effects of interest rates' spreads on firms' leverage and the volume of debt issues are not consistent across different empirical studies. Korajczyk and Levy (2003) find that firms' leverage increases with the difference between the three-month commercial paper rate and the rate on the three-month Treasury bill for firms that pay dividends and/or have a net equity or debt purchase within the quarter, or have a market-to-book ratio smaller or equal to one. Cai *et al.* (2013) report that straight debt initial public offerings' volume increases with the difference in the yields of 10-year Treasury bond and Treasury bill and the difference in the yield on Moody's Baa-rated bonds and on Aaa-rated bonds. Karpavičius and Yu (2017) analyzed whether corporate financing policies of the US industrial firms have depended on borrowing costs over the period from 1975 to 2014. These authors showed that relatively high leverage adjustment costs are able to explain the weak negative relation between interest rates and a firm's leverage and that their results are also consistent with the view that firms target debt-to-asset ratio rather than debt level.

Corporate debt financing is highly sensitive to changes in interest rates. Interest rates affect a corporate debt financing in two main ways. The most visible effect concerns the monthly payments the firm has to make. When interest rates rise, it is more expensive for corporate managers to use debt financing, and this expense is reflected in higher monthly payments. When interest rates fall, it is cheaper for corporate managers to use debt financing and pay less each month. The second effect is not as easy to see, unless you calculate the total amount of interest that corporate managers will pay over the life of the corporate debt. When interest rates rise, the total amount of debt financing that corporate managers pay for any new financial debt increases. When interest rates fall, corporate managers pay less. Interest rates primarily influence a corporation's capital structure by affecting the cost of debt capital. Companies finance operations with either debt or equity capital. *Ceteris paribus*, in the event of an increase in debt interest, in this case the interest rate, corporate managers will prefer equity financing to debt financing, which will reduce financial leverage. It follows that interest therefore has a negative effect on financial leverage. 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 (CBWAS) 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 affects negatively financial leverage behavior of corporate managers in Benin".

2.2.4. Relationship between cash flow and financial leverage

"Statements of cash flows are used to evaluate cash sources and cash usage related to operations, investments and financing. Cash flow from operations shows the information content associated with the company's operating activities and shows the company's internal operational capabilities. Cash flows from investments reflect cash receipts and disbursements used to generate future income while operating cash flows reflect cash receipts related to funding sources and other capital instruments" (Yuliani *et al.*, 2018). Based on a study by Lightstone *et al.* (2014) the classification of operating cash flows compared to investment cash flows and financing for non-financial companies in Canada explained that the presentation of operating cash flows tends to be made as well as possible in order to keep cash flow operating positive. There are different behaviors for the classification of investment cash flows and funding. According to Yuliani *et al.* (2018), cash flow is one of a company's financial performance assessments. Cash flows based on the Financial Accounting Standards are used to evaluate the changes in the net assets of a company. The cash flow statement describes the source and use of cash as explained by Qodriyah (2012). Dickinson (2011) explains that the proxy for cash flow pattern is associated with market inefficiency related to stock market performance. In the maturity stage, the cash flow proxy receives a positive return on performance in the previous year so as to give a signal to the investor.

This study refers to the variables used in Dickinson (2011) that cash flow consists of cash derived from operating activities, cash from investments and cash from financing. According to Shenoy and Koch (1996), two separate strands of the literature on capital structure under asymmetric information consider the relationship between a firm's financial leverage and cash flow. Signaling theory suggests a positive relationship, while pecking order behavior implies a negative relationship. These contrasting theoretical implications appear contradictory. However, *both* are supported in different bodies of empirical literature. Leverage-changing event studies tend to support a positive relationship while cross-sectional studies typically reveal a negative relationship. Thus, in the light of this review of related literature, the fourth hypothesis is formulated as follows:

H4: "Cash flow affects negatively financial leverage behavior of corporate managers in Benin".

2.2.5. Relationship between past leverage and current leverage

For Devereux *et al.* (2017, 2018), corporation taxes typically permit to deduct interest payments but not the opportunity cost of equity finance. They therefore create an incentive to using debt, rather than equity, finance. The potential costs of using excessive debt became more apparent in the recent financial crisis and equalizing the tax treatment of debt and equity has been the subject of numerous tax proposals (see, for example, Mirrlees *et al.*, 2011, 2012). Although theories of capital structure predict tax effects to be of first-order importance, researchers have found it difficult to identify clear effects of taxation on the choice between debt and equity finance. Previous empirical research has however faced the difficulty in identifying with any precision the variation across companies in the marginal tax rate that they face, and it has typically found rather small effects of taxation on capital structure. According to Devereux *et al.* (2017, 2018), despite the theoretical prediction for a positive link between the marginal tax rate and leverage (Modigliani and Miller, 1963), researchers often find it difficult to identify this association empirically. Myers (1984) calls this phenomenon "the capital structure puzzle" and challenges researchers predicts. Although recent studies (for example, Barclay *et al.* (2013); Heider and Ljungqvist (2015); Doidge and Dyck (2015) are more to show that capital structure is affected by taxes as the trade-off theory successful in identifying the tax effects, it remains a question whether measurement errors in tax incentives lead to underestimation of the true tax effect on corporate leverage.

However, there has been little previous research into the tax dynamic influence of past leverage on current leverage. Thus, in the light of this review of related literature, the fifth hypothesis is formulated as follows:

H5: "Past financial leverage affects current financial leverage behavior of corporate managers in Benin".

3. Method and Data

For any researcher wishing to carry out a rigorous study, the choice of an epistemological positioning becomes necessary, as the latter enables them to consolidate the validity and relevance of their research (Thiétart 2014, cited in Tibi *et al.*, 2024: p. 9). Thus, to achieve the objective of this research, we have chosen an objectivist ontological and positivist epistemological posture, reflected in a predominant quantitative analysis approach with a hypothetico-deductive reasoning logic. The methodology covers study design, sampling and data, and modelling.

3.1. Study design

The main objective of this research was to analyze the influence of tax behavior on the investment The main objective of this research was to analyze the influence of tax behavior on financing behavior of corporate managers in Benin. Tax behavior has sociological, psychological and economic aspects. We chose the economic aspect for the purposes of this research. Thus, from an economic point of view, tax behavior is the attitude of making the most of the incentives contained in the tax code in order to achieve one of the following results: *a) 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; *b) 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 variety of tax incentives available and the need to make the most of them; *c) Underpayment of tax*: this is a regular occurrence because of the principle of the least taxed route, established by Beninese law, under which firms may legally opt for the rules that will enable them to pay the least tax, and because corporate managers prefer tax savings to reduce tax charges; *d) 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; *e) Obtaining a tax credit*: given that the tax code contains provisions relating to obtaining a tax credit, for example the tax loss regime, company directors are encouraged to use every possible means to declare an accounting loss or tax loss in order to benefit from the tax credit.

Benin's General Tax Code, like the tax codes of most countries in the rest of 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 therefore focuses on the economic effect of CIT behavior on financing behavior of corporate managers in Benin.

3.2. 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 Central Bank of West African States (CBWAS) National Agency, a National Credit Council, banks, financial institutions and a Professional Association of Banks and Financial Institutions (APBEF). 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). The sample covered banks and DFSs. The sample is made up of joint stock companies that are subject to CIT. 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 and 10 DFSs over the period from 2016 to 2021. 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 sample size to 149 (99 for banks and 50 for DFSs) firm-year observations for the first difference and 128 (88 for banks and 40 for DFSs) firm-year observations for the double difference.

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 (CBWAS). 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.

3.3. Modelling

The dependent or explanatory variable is the financing or financial leverage behavior referred to as LEVERAGE. To explain the financing behavior of corporate managers, tax and non-tax explanatory variables from the theoretical and empirical literature are used; the non-tax variables included in the estimated models are adjusted for tax in order to highlight the impact of the latter. The explanatory variables are corporate income tax denoted by CIT, equity dividends denoted by DIVIDEND, debt interest denoted by INTEREST and cash flow denoted by CASH_FLOW. In addition to the other explanatory variables, the lagged endogenous variable or past financial leverage denoted by LEVERAGE(-1) is introduced into the model in order to take account of cumulative effects of financing decisions using debt or equity. In this way, the model of financing behavior is dynamic. Table 1 presents the variables relating to the financing behavior 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 model testing effect of CIT behavior on financing behavior

***Variable to be explained:* LEVERAGE= Debt-to-Equity Ratio (DER)**			
Explanatory variable	***Definition***	***Expected sign***	***Theory/Author***
CIT	$\frac{Legal\ tax\ rate \times Taxable\ Earnings}{Economic\ Asset}$	Negative	Frank et Goyal (2009).
DIVIDEND	$\frac{Dividend}{Economic\ Asset}$	Negative	TOT, POT
INTEREST	$\frac{Interest}{Economic\ Asset}$	Positive	TOT, POT.
CASH_FLOW	$\frac{Net\ Income + DA^{2} - Dividend}{Total\ Gross\ Tangible\ Fixed\ Assets}$	Positive	POT
LEVERAGE(-1)	$DER(\text{-}1)$	+/-	

Source: Author based on literature review (2024).

[2] Depreciation, amortization and provisions for impairment in value of gross tangible fixed assets.

The general form of financing behavior model is as follows:

$$\mathbf{LEVERAGE} = \mathbf{f}(\mathbf{CIT}, \mathbf{Dividend}, \mathbf{Interest}, \mathbf{Cash\ flow}, \mathbf{Past\ Leverage}) \quad (1)$$

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

$$(\mathbf{LEVERAGE})_{i,t} = \beta_0 + \beta_1(\mathbf{CIT})_{i,t-1} + \beta_2\mathbf{DIVIDEND}_{i,t} + \beta_3\mathbf{INTEREST}_{i,t} + \beta_4\mathbf{CASH\_FLOW}_{i,t} + \beta_5\mathbf{LEVERAGE}_{i,t\text{-}1} + \varepsilon_{it} \quad (2)$$

Where:

STANDARD COEFFICIENTS, INDICES AND ERROR TERM

β_0 = Origin coefficient.	β_5 = Past Leverage coefficient.
β_1 = CIT coefficient.	**i** = Index for firm i, with **i** ∊ **[1; 21]**
β_2 = Dividend coefficient.	**t** = Index of time t, with **t** ∊ **[2011; 2021]**
β_3 = Interest coefficient.	**ε** = Error term.
β_4 = Cash-flow coefficient.	

DEPENDENT VARIABLE

$(\mathbf{LEVERAGE})_{i,t}$	Represents debt-to-equity ratio (DER) of firm i in year t.

INDEPENDENT VARIABLES

$\mathbf{CIT}_{i,t}$	Denotes the ratio of CIT to the economic assets of firm i in year t.
$\mathbf{DIVIDEND}_{i,t}$	Denotes the ratio of dividends to the economic assets of firm i in year t.
$\mathbf{INTEREST}_{i,t}$	Denotes the ratio of interest to financial debt of firm i in year t.
$\mathbf{CASH\_FLOW}_{i,t}$	Refers to the ratio of cash flow to total gross investment in tangible fixed assets by firm i in year t.
$\mathbf{LEVERAGE}_{i,t-1}$	Denotes debt to equity 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 financing by corporate managers in Benin.

4. Test results & analysis with implications

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

4.1. Test results and statistical analysis of financing model

Tests and statistical analyses of financing model are developed.

4.1.1. Results of statistical tests of financing model

Statistical tests include stationarity, Sargan-Hansen, Arellano-Bond and Wald tests.

4.1.1.1. Results of stationarity tests for variables in financing model

Unit root tests are used to determine whether a time series variable is stationary or non-stationary. Stationary time series have a constant mean and variance over time, while non-stationary time series have trends or fluctuations. The aim of this section is to test the panel stationarity of the explained and explanatory variables of the financing model. If the variables are stationary, we can be sure of the reliability of the regression results. The stationarity test avoids the risk of spurious regressions between endogenous and exogenous variables. The stationarity (unit root) tests of Levin *et al.* (2002), Breitung (2001), Im *et al.* (2003), ADF, PP and Hadri (2000) were applied to all the variables in the financing model. 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%).

All these tests reveal that the five variables CASH_FLOW, CIT, DIVIDEND, INTEREST and LEVERAGE are stationary at level at the 1% threshold for Levin-Lin-Chu and Hadri; four variables out of five, CASH_FLOW, CIT, DIVIDEND and LEVERAGE, are stationary at level for PP, and the other, INTEREST, is stationary in first difference for PP ; for ADF, the variable LEVERAGE is stationary at level and the other four variables CASH_FLOW, CIT, DIVIDEND and INTEREST are stationary in first difference; for Im-Pesaran-Shin, the five variables CASH_FLOW, CIT, DIVIDEND, INTEREST and LEVERAGE are stationary in first difference; for Breitung, the variable CIT is stationary at level, the variable DIVIDEND is stationary in first difference and the three other variables CASH_FLOW, INTEREST and LEVERAGE are stationary in second difference. Table 2 summarizes the results of the stationarity tests for the variables used in financing model.

Table 2: Summary of stationarity tests for financing model variables

Synthesis of stationarity or unit root tests of investment 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
DIVIDEND	(0.0000)***	(1.0000)	(0.0714)*		(0.7618)	(0.0000)***	(0.4541)	(0.0000)***	(0.0238)**		(0.0000)***	Stationary
INTEREST	(0.0000)***	(0.5007)	(0.2756)	(0.0000)***	(0.5293)	(0.0203)**	(0.3869)	(0.0012)***	(0.1022)	(0.0000)***	(0.0000)***	Stationary
CASH_FLOW	(0.0000)***	(0.9946)	(0.9870)	(0.0000)***	(0.6649)	(0.0345)**	(0.3512)	(0.0135)**	(0.0088)***		(0.0000)***	Stationary
LEVERAGE	(0.0000)***	(0.9836)	(0.4026)	(0.0339)**	(0.3263)	(0.0014)***	(0.0398)**		(0.0064)***		(0.0000)***	Stationary

Source: Author based on results of stationarity tests on EViews 13

Note: If the p-values (the values in brackets) are less than 0.01(***); 0.05(**); 0.10(*); this means that the variables are stationary at the 1%; 5%; 10% threshold respectively. Given that results on the stationarity of variables sometimes diverge depending on the method applied (Levin-Lin-Chu, Breitung, Im-Pesaran-Shin, ADF, PP, Hadri), a variable is stationary only when at least four out of the six tests indicate that the variable does not have a unit root.

4.1.1.2. Results of Sargan-Hansen test of financing model

The Sargan-Hansen test, also known as the Sargan test, is a statistical test used to assess the validity of over-identification restrictions in a statistical model. It was introduced by John Denis Sargan in 1958 and has several variants derived by him in 1975. The test is commonly used in the context of instrumental variable estimation and Generalized Method of Moments (GMM) estimation. The Sargan test or Sargan- Hansen test is also known as the Hansen test or J-test. The Sargan test is built on the null hypothesis (H0) that the error term should not be correlated with the set of exogenous variables if the instruments are valid. There are three conditions for applying the Sargan test. Firstly, the p-value must be greater than 5%. Secondly, the p-value must not be less than 10%. Thirdly, the p-value must be greater than 0.25 (Roodman 2006). 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 financing model

Financing equation - LEVERAGE		
	J-statistic	Prob
Sargan test	18.12225	0.316787

Source: Author based on various regression results

For the endogenous variable LEVERAGE, 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.

4.1.1.3. Arellano-Bond financing model test results

The Arellano-Bond test is a statistical method used in econometrics to deal with autocorrelation in panel data models. It is named after Manuel Arellano and Stephen Bond, who proposed the method in 1991 on the basis of earlier work by Alok Bhargava and John Denis Sargan in 1983. Panel data refers to data that includes observations on several entities (such as companies or individuals) over time. Autocorrelation, also known as serial correlation, occurs when the error terms in a regression model are correlated over several periods. The Arellano-Bond estimator is a Generalized Method of Moments (GMM) estimator specifically designed to estimate dynamic panel data models. The Arellano-Bond test is used to check for autocorrelation in the error terms of a dynamic panel data model. This is particularly important when lagged variables are used as instruments in the model. The test determines whether there is any dependence between the current error term and the lagged error terms, which may affect the validity of the results. If the test statistic is above the critical value, this suggests the presence of autocorrelation in the model. On the other hand, if the test statistic is below the critical value, this indicates no significant autocorrelation. 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 financing model

Financing model - LEVERAGE		
Test order	m-Statistic	Prob.
AR(1)	-3.490348	0.0005

Source: Author based on various regression results

For the financing 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.

4.1.1.4. Wald test results for financing model

The Wald test is a statistical test used to assess the significance of estimated parameters in a statistical model. The test compares the estimated value of the parameter with a hypothetical value, often zero, and determines whether there is a significant difference between them. Interpreting the results of the Wald test involves determining whether the estimated value of the parameter is significantly different from the hypothetical value. If the p-value associated with the test statistic is below the chosen significance level, this suggests that the parameter estimate significantly improves the fit of the model, and there is evidence that the variable has an effect. The results of the post estimation Wald test are summarized in table 5 in appendices.

Table 5: Summary of the Wald test results for the financing model

Financing model - LEVERAGE		
	Value	Prob.
t-statistic	-92.44024	0.0000
F-statistic	8545.198	0.0000

Source: Author based on various regression results

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

4.1.2. Results of descriptive analysis of financing model variables

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

4.1.2.1. Descriptive statistics for financing model variables

Table 6 summarizes the descriptive statistics for the variables in financing model, showing the mean, maximum, minimum and standard deviation. According to this table, the average DER is 11.72 for current leverage compared to 11.76 for past financing; which reflects a reduction in financing or financial leverage.

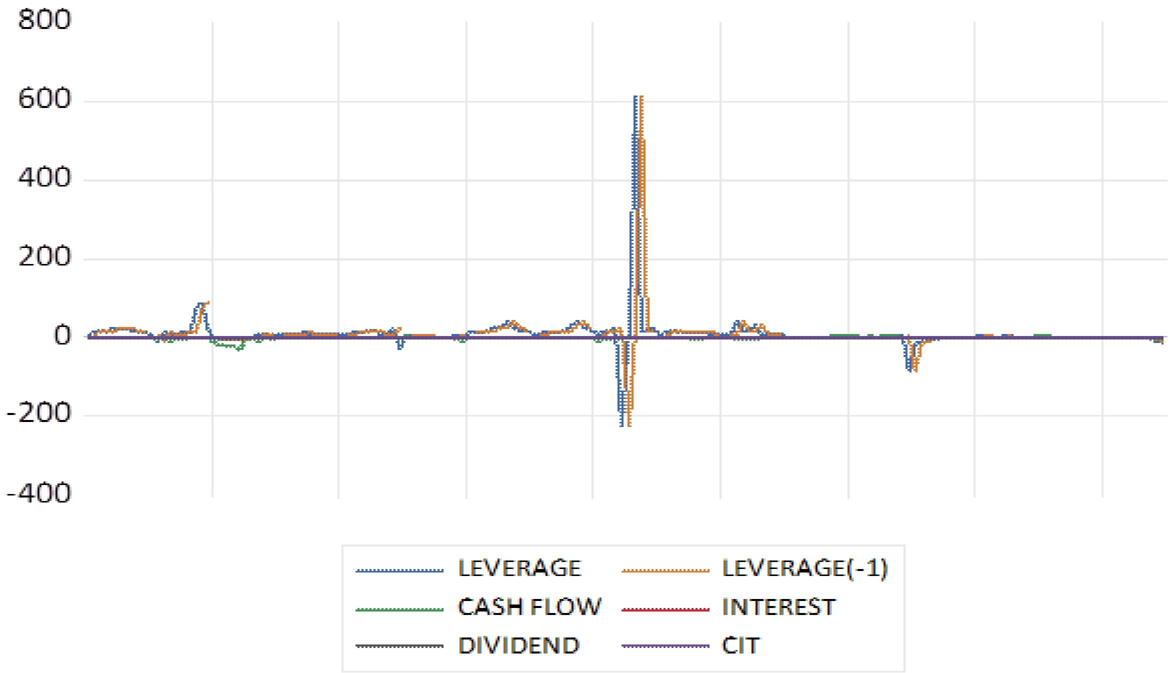
Table 6: Descriptive statistics for financing model variables

	LEVERAGE	LEVERAGE(-1)	CASH_FLOW	INTEREST	DIVIDEND	CIT
Mean	11.72047	11.75992	-0.430048	-0.000969	-0.057543	-0.000586
Maximum	611.2918	611.2918	6.300403	0.283093	0.546923	0.001739
Minimum	-226.8449	-226.8449	-28.83555	-0.069039	-1.620783	-0.005143
Std. Dev.	55.34356	55.19300	4.162286	0.057595	0.327344	0.000945
Obs.	149	149	149	149	149	149

Source: Author based on descriptive statistics in EViews 13.

4.1.2.2. Graphical analysis of variables and residuals from financing model regression

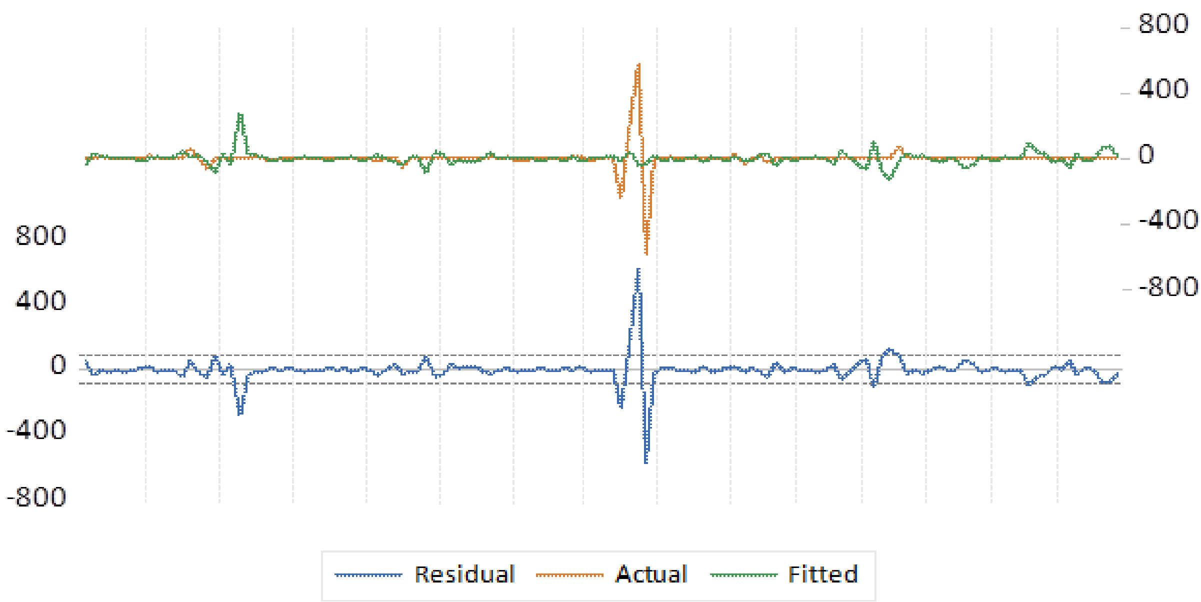
The graphs for the variables CIT, DIVIDEND, INTEREST, CASH_FLOW, LEVERAGE and PAST LEVERAGE in the financing model are as follows.



Graph 1: Graphs of financing model variables

Source: Author from graph results on EViews 13

The graphs of the observed and estimated endogenous variable and the residuals from the regression of the financing model are as follows.



Graph 2: Graphs of endogenous variable and residuals from financing model regression

Source: Author from graph results on EViews 13

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

4.1.2.3. Analysis of correlations between variables in financing model

Preliminary analysis of correlation matrices between variables used in financing 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 a financing model. According to Table 7, in the financing model, there is a strong correlation between CASH_FLOW and DIVIDEND, then between INTEREST and CIT and finally between LEVERAGE and LEVERAGE(-1); and a medium correlation between LEVERAGE(-1) and INTEREST, between LEVERAGE(-1) and CIT, then between INTEREST and DIVIDEND, then between CASH_FLOW and INTEREST and lastly between CASH_FLOW and CIT.

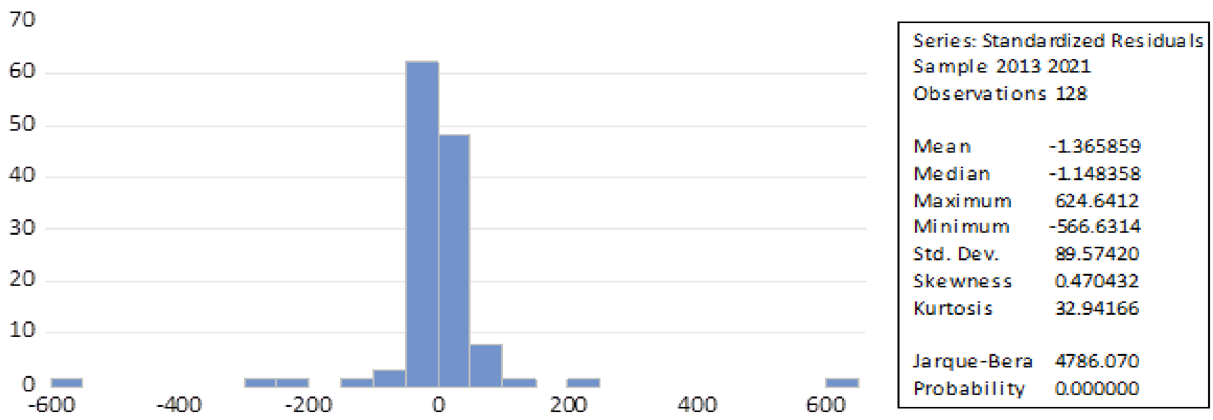
Table 7: Spearman rank-order correlations for variables in financing model

	LEVERAGE	LEVERAGE(-1)	CASH_FLOW	INTEREST	DIVIDEND	CIT
LEVERAGE	1.000000					
LEVERAGE(-1)	0.812714	1.000000				
CASH_FLOW	-0.203935	-0.228026	1.000000			
INTEREST	-0.600576	-0.603120	0.522328	1.000000		
DIVIDEND	-0.071393	-0.094521	0.917859	0.412954	1.000000	
CIT	-0.564014	-0.545665	0.417671	0.758856	0.313721	1.000000

Source: Author based on correlation results on EViews 13.

4.1.2.4. Normality analysis of financing model errors

The histogram of the financing model is shown below.



Graph 3: Histogram and normality test for errors in financing model.

Source: Author based on results of residual tests on EViews 13.

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 the financing model are not stationary. The normality of their distribution is invalidated.

4.2. Financing model estimation results and interpretations

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

4.2.1. Financing model estimation results

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

Table 8: Summary of LEVERAGE estimate

$$\mathbf{LEVERAGE = f(CIT, DIVIDEND, INTEREST, CASH\_FLOW, LEVERAGE(-1)}$$

VARIABLE	COEFFICIENT	PROB.
CIT	10926.67	0.0000***
DIVIDEND	237.8896	0.0000***
INTEREST	-1985.808	0.0000***
CASH_FLOW	-0.647586	0.0000***
LEVERAGE(-1)	-0.057038	0.0000***

Note: (***), (**) and (*) denote variables significant at 1%, 5% and 10% respectively.

Source: Author based on regression results

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

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

By substituting the coefficients, this equation becomes:

@DADJ(LEVERAGE) = -0.0570383261994*@DADJ(LEVERAGE(-1)) - 0.647585684011*@DADJ(CASH_FLOW) - 1985.80810924*@DADJ(INTEREST) + 237.889615085*@DADJ(DIVIDEND) + 10926.6688473*@DADJ(CIT) (4)

4.2.2. Interpreting the financing model

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

4.2.2.1. Econometric interpretations of financing 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 financing (LEVERAGE) 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, DIVIDEND, INTEREST, CASH_FLOW and LEVERAGE(-1) are all significant at the 1% level.

4.2.2.2. Economic interpretations of financing model

In the estimated financing model, the explanatory variables are CIT, DIVIDEND, INTEREST, CASH_FLOW and LEVERAGE(-1). The results of the estimations indicate that the most attractive factors in decreasing order of the financial leverage of firms in Benin are corporation income tax (CIT) and dividends (DIVIDEND).

The explanatory variable relating to corporate income tax (CIT) has a positive sign and is significant in the long term at the 1% threshold. This sign is consistent with trade-off theory (TOT). The positive impact of CIT is more pronounced in the long term. A 1% increase in CIT boosts corporate leverage in Benin by 10,926.67% in the long term.

The explanatory variable concerning equity dividends (DIVIDEND) 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 the DIVIDEND variable increases by 1%, *ceteris paribus*, the financial leverage of firms in Benin increases by 237.8896%.

The INTEREST variable has a negative and significant effect on the financial leverage of firms in Benin 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 financial leverage. The results show that when the INTEREST variable increases by 1%, *ceteris paribus*, the financial leverage of firms in Benin decreases by 1985.808%. It should also be noted that the negative impact of interest on financial debts is greater in the long term.

As for the explanatory variable CASH_FLOW, the estimates show that it reduces financial leverage, 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 10% increase in CASH_FLOW leads to a 6.47586% reduction in the financial leverage of Beninese firms over the long term.

The lagged dependent variable or firms' past leverage (LEVERAGE(-1)) has an associated coefficient that is negative and significant at the 1% level in the long term. In fact, when the past leverage of firms increases by 10%, *ceteris paribus*, the current leverage of firms decreases by 0.57%. This result shows that firms' current financial leverage is held back by their past financial leverage, due to the mobility of capital, difficult access to capital markets and the differential treatment of debt and equity in terms of corporation tax in Benin. Indeed, this state of affairs confirms the stylized fact that corporate managers in Benin generally complain about the burden of corporation tax in their financing behavior.

In total, all hypotheses H1, H2, H3, H4 and H5 are verified.

4.3. Policy implications of the findings

The tax policy suggestions arising from the results of CIT behavior on financial leverage 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.

5. Conclusion

The results showed that the main determinants of financing behavior are the variables that offer the firm a tax shield. Thus, corporate managers who prefer tax savings to financial savings when it comes to financing the firm distort the firm's financing rules from the outset. Now, any tax incentive, whether it relates to investment, financing or the firm's earnings, is a source of bias that causes enormous financial and economic problems for the firm. Indeed, any tax shield at the level of a firm eligible for a given tax incentive generates, after arbitration between the stakeholders, a tax rise at the level of another firm not eligible for this tax incentive, the two firms being identical and belonging to the same class of financing risk; the effect is cancelled out at the level of the State that legally granted this incentive (Agossadou, 2023). In-depth tax reform is needed to prevent corporate managers from making financing decisions for tax purposes rather than on the basis of management objectives. From this point of view, a question deserves to be asked: what is the influence of tax behavior on the earnings behavior of corporate managers? The answer to this research question will be the subject of a later paper.

REFERENCES

1. Aggarwal, R. (1994). International Differences in Capital Structure Norms: An Empirical Study of Large European Companies. *MIR: Management International Review*, *34*, 5–18.
2. Agossadou, S. T. M. D. C. (2023). Incidence of Debt Interest Deduction in Computing Corporate Income Tax-CIT. *Revue Française d'Economie et de Gestion*, *4*(12), Article 12. https://doi.org/10.5281/zenodo.10429196
3. Alaraji, F. A. A. S., Mohaisen, H. A., Sabri, T. M. M., & Al-Abedi, T. K. (2021). The Extent of the Impact of Taxes on Financing Decisions and Control Processes in those Decisions. *Studies of Applied Economics*, *39*(11), Article 11. https://doi.org/10.25115/eea.v39i11.6030
4. Ali, S., Rangone, A., & Farooq, M. (2022). Corporate Taxation and Firm-Specific Determinants of Capital Structure: Evidence from the UK and US Multinational Firms. *Journal of Risk and Financial Management*, *15*(2), Article 2. https://doi.org/10.3390/jrfm15020055
5. Anderson, C. W., & Makhija, A. K. (1999). Deregulation, disintermediation, and agency costs of debt: Evidence from Japan1. *Journal of Financial Economics*, *51*(2), 309–339. https://doi.org/10.1016/S0304-405X(98)00054-3
6. Aujean, M., Ceriani, V., & Valenduc, C. (2014). Financing Investment and Fiscal Neutrality: Risk Capital Deduction in Perspective. *Reflets et perspectives de la vie economique*, *1*, 49–62.
7. Azokli, R., & Adjibi, W. (2007). *« Microfinance au Bénin: Évolution et perspectives »*. African Microfinance Transparency (AMT).
8. Banque mondiale. (2018). *Bénin—Analyse de la mobilisation des recettes fiscales,* (pp. 1–74). Banque mondiale.
9. Barclay, M. J., Heitzman, S. M., & Smith, C. W. (2013). Debt and taxes: Evidence from the real estate industry. *Journal of Corporate Finance*, *20*, 74–93. https://doi.org/10.1016/j.jcorpfin.2012.12.002
10. Bernstein, P. L. (1996). Dividends:ThePuzzle. *Journal of Applied Corporate Finance*, *9*(1), 16–22. https://doi.org/10.1111/j.1745-6622.1996.tb00097.x
11. Bertrandon, J., & Collette, C. (1989). *Gestion fiscale et finances de l'entreprise* (2. éd., mise à jour). Paris : Presses Univ. de France.
12. Bevan, A. A., & Danbolt, J. (2000). *Dynamics in the Determinants of Capital Structure in the UK* (SSRN Scholarly Paper

233551). https://doi.org/10.2139/ssrn.233551
13. Black, F., & Scholes, M. (1974). The effects of dividend yield and dividend policy on common stock prices and returns. *Journal of Financial Economics*, *1*(1), 1–22.
14. Booth, L., Aivazian, V., Demirguc-Kunt, A., & Maksimovic, V. (2001). Capital Structures in Developing Countries. *The Journal of Finance*, *56*(1), 87–130.
15. Cai, K. N., Jiang, X., & Lee, H. W. (2013). *Debt Ipo Waves, Investor Sentiment, Market Conditions, And Issue Quality*. https://doi.org/10.1111/jfir.12018
16. Chen, H., & Frank, M. Z. (2022). The Effect of Taxation on Corporate Financing and Investment. *The Review of Corporate Finance Studies*, *11*(1), 47–87. https://doi.org/10.1093/rcfs/cfab005
17. Choi, P. M. S., Chung, C. Y., & Kim, D. (2020). Corporate tax, financial leverage, and portfolio risk. *The North American Journal of Economics and Finance*, *54*, 101264. https://doi.org/10.1016/j.najef.2020.101264
18. Dallari, P., End, N., Miryugin, F., Tieman, A. F., & Yousefi, S. R. (2018). Pouring Oil on Fire: Interest Deductibility and Corporate Debt. *IMF Working Papers*, *2018*(257). https://doi.org/10.5089/9781484389102.001.A000
19. DeAngelo, H., & Masulis, R. W. (1980). Optimal capital structure under corporate and personal taxation. *Journal of Financial Economics*, *8*(1), 3–29. https://doi.org/10.1016/0304-405X(80)90019-7
20. Devereux, M., Maffini, G., & Xing, J. (2017). Corporate Tax Incentives and Capital Structure: New Evidence from UK Firm-Level Tax Returns. *Journal of Banking & Finance*, *88*. https://doi.org/10.1016/j.jbankfin.2017.12.004
21. Devereux, M. P., Maffini, G., & Xing, J. (2018). Corporate tax incentives and capital structure: New evidence from UK firm-level tax returns. *Journal of Banking & Finance*, *88*, 250–266. https://doi.org/10.1016/j.jbankfin.2017.12.004
22. Dickinson, V. (2011). Cash Flow Patterns as a Proxy for Firm Life Cycle. *The Accounting Review*, *86*(6), 1969–1994.
23. Doidge, C., & Dyck, A. (2015). Taxes and Corporate Policies: Evidence from a Quasi Natural Experiment. *The Journal of Finance*, *70*(1), 45–89. https://doi.org/10.1111/jofi.12101
24. DONALDSON, G. (1962). *In Defense of Preferred Stock*. Harvard Business Review.
25. Du, J., Shen, G., & Zou, J. (2023). Tax incentives and firm financing structures: Evidence from China's accelerated depreciation policy. *International Tax and Public Finance*, *30*(5), 1346–1373. https://doi.org/10.1007/s10797-022-09762-w
26. Efendi, Srifitri, R., & Berliana, S. (2023). *The Impact Of Interest Rates On Firms Financial Decisions* (arXiv:2311.14738). arXiv. https://doi.org/10.48550/arXiv.2311.14738
27. El Hourani, M. (2022). *Capital bancaire, asymétrie d'information et offre de crédit: Evidences empiriques de la région MENA*.
28. Elton, E. J., & Gruber, M. J. (1970). Marginal Stockholder Tax Rates and the Clientele Effect. *The Review of Economics and Statistics*, *52*(1), 68–74. https://doi.org/10.2307/1927599
29. Faccio, M., & Xu, J. (2015). Taxes and Capital Structure. *Journal of Financial and Quantitative Analysis*, *50*(3), 277–300.
30. Fama, E. F., & French, K. R. (1998). Taxes, Financing Decisions, and Firm Value. *The Journal of Finance*, *53*(3), 819–843. https://doi.org/10.1111/0022-1082.00036
31. Fama, E. F., & French, K. R. (2002). Testing Trade-Off and Pecking Order Predictions about Dividends and Debt. *The Review of Financial Studies*, *15*(1), 1–33.
32. Fischer, E. O., Heinkel, R., & Zechner, J. (1989). Dynamic Capital Structure Choice: Theory and Tests. *The Journal of Finance*, *44*(1), 19–40. https://doi.org/10.2307/2328273
33. Frank, M. Z., & Goyal, V. K. (2004). The effect of market conditions on capital structure adjustment. *Finance Research Letters*, *1*(1), 47–55. https://doi.org/10.1016/S1544-6123(03)00005-9
34. Ghosh, C., Nag, R., & Sirmans, C. F. (2000). The Pricing of Seasoned Equity Offerings: Evidence from REITs. *Real Estate Economics*, *28*(3), 363–384. https://doi.org/10.1111/1540-6229.00805
35. Gordon, M. J. (1959). Dividends, Earnings, and Stock Prices. *The Review of Economics and Statistics*, *41*(2), 99–105. https://doi.org/10.2307/1927792
36. Graham, J. R. (1999). Do personal taxes affect corporate financing decisions? *Journal of Public Economics*, *73*(2), 147–185. https://doi.org/10.1016/S0047-2727(99)00006-7
37. Graham, J. R., Leary, M. T., & Roberts, M. R. (2015). A century of capital structure: The leveraging of corporate America. *Journal of Financial Economics*, *118*(3), 658–683. https://doi.org/10.1016/j.jfineco.2014.08.005
38. HAIDARA, A. (2023). *Les mécanismes de réduction des asymétries d'information sur le marché de crédit: Revue de littérature*. https://doi.org/10.5281/zenodo.7582316
39. Halíček, R., & Karfíková, M. (2022). Tax Incentivisation of Debt Financing vs. Equity Financing: Present Status and Approaches to Solve the Tax Asymmetry. *Acta Universitatis Carolinae Iuridica*, *68*(4), 15–28.
40. Hamada, R. S. (1969). PORTFOLIO ANALYSIS, MARKET EQUILIBRIUM AND CORPORATION FINANCE. *The Journal of Finance*, *24*(1), 13–31. https://doi.org/10.1111/j.1540-6261.1969.tb00339.x
41. Hanlon, M., & Heitzman, S. (2022). Corporate Debt and Taxes. *Annual Review of Financial Economics*, *14*(Volume 14, 2022), 509–534. https://doi.org/10.1146/annurev-financial-101221-103806
42. Heider, F., & Ljungqvist, A. (2015). As certain as debt and taxes: Estimating the tax sensitivity of leverage from state tax changes. *Journal of Financial Economics*, *118*(3), 684–712. https://doi.org/10.1016/j.jfineco.2015.01.004
43. Horne, J. C. V. (1974). *Fundamentals of Financial Management*. Prentice-Hall.
44. Horne, J. C. V., & Wachowicz, J., John. (2004). *Fundamentals of Financial Management*.
45. Hossain, M. S. (2021). A revisit of capital structure puzzle: Global evidence and analysis. *International Review of Economics & Finance*, *75*, 657–678. https://doi.org/10.1016/j.iref.2021.05.001
46. Hussain, A., Ahmad, S. A., Mia, S., Ahmed, F., & Prommee, P. (2024). Relationship between business information, business networking, access to finance and financial performance of social enterprises: Perspective of resource-based view and signalling theory. *Cogent Business & Management*, *11*(1), 2285062. https://doi.org/10.1080/23311975.2023.2285062

47. Jensen, M. C. (1986). Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. *The American Economic Review*, *76*(2), 323–329.
48. Kajola, S., Adewumi, A., & Oworu, O. (2015). *DIVIDEND PAY-OUT POLICY AND FIRM FINANCIAL PERFORMANCE: EVIDENCE FROM NIGERIAN LISTED NON-FINANCIAL FIRMS*. https://www.semanticscholar.org/paper/DIVIDEND-PAY-OUT-POLICY-AND-FIRM-FINANCIAL-EVIDENCE-Kajola-Adewumi/a6473c220cb1a9075fe144930573d29d746ee121
49. Karpavičius, S., & Yu, F. (2017). The impact of interest rates on firms' financing policies. *Journal of Corporate Finance*, *45*, 262–293. https://doi.org/10.1016/j.jcorpfin.2017.05.007
50. Kim, E. H. (1978). A Mean-Variance Theory of Optimal Capital Structure and Corporate Debt Capacity. *The Journal of Finance*, *33*(1), 45–63. https://doi.org/10.2307/2326349
51. Korajczyk, R. A., & Levy, A. (2003). Capital structure choice: Macroeconomic conditions and financial constraints. *Journal of Financial Economics*, *68*(1), 75–109. https://doi.org/10.1016/S0304-405X(02)00249-0
52. Korzh, N. (2015). The evolution of capital structure theories and their classification. *Journal "Socio-Economic Problems and the State," 1*(12), 182–189.
53. Kraus, A., & Litzenberger, R. H. (1976). Skewness Preference and the Valuation of Risk Assets*. *The Journal of Finance*, *31*(4), 1085–1100. https://doi.org/10.1111/j.1540-6261.1976.tb01961.x
54. Lightstone, K., Wilcox, K., & Beaubien, L. (2014). Misclassifying cash flows from operations: Intentional or not? *International Journal of Accounting & Information Management*, *22*(1), 18–32.
55. Lintner, J. (1962). Dividends, Earnings, Leverage, Stock Prices and the Supply of Capital to Corporations. *The Review of Economics and Statistics*, *44*(3), 243–269. https://doi.org/10.2307/1926397
56. Litzenberger, R. H., & Ramaswamy, K. (1982). The Effects of Dividends on Common Stock Prices Tax Effects or Information Effects? *The Journal of Finance*, *37*(2), 429–443. https://doi.org/10.2307/2327346
57. MacKie-Mason, J. K. (1990). Do Taxes Affect Corporate Financing Decisions? *The Journal of Finance*, *45*(5), 1471–1493. https://doi.org/10.2307/2328746
58. Mendoza, J. A. M., Yelpo, S. M. S., Ramos, C. L. V., & Fuentealba, C. L. D. (2021). Monitoring and Managerial Discretion Effects on Agency Costs: Evidence from an Emerging Economy. *BAR - Brazilian Administration Review*, *18*(1). https://www.redalyc.org/journal/841/84168225002/html/
59. Mfopain, A. (2007). Le choix des incitations fiscales par les entreprises. Une étude à partir d'un échantillon d'entreprises camerounaises des villes de Yaoundé et Douala. *La Revue des Sciences de Gestion*, *224–225*(2–3), 155–166. https://doi.org/10.3917/rsg.224.0155
60. Miller, M. H. (1977). Debt and Taxes*. *The Journal of Finance*, *32*(2), 261–275. https://doi.org/10.1111/j.1540-6261.1977.tb03267.x
61. Miller, M. H., & Modigliani, F. (1961). Dividend Policy, Growth, and the Valuation of Shares. *The Journal of Business*, *34*(4), 411–433.
62. Miller, M. H., & Rock, K. (1985). Dividend Policy under Asymmetric Information. *Journal of Finance*, *40*(4), 1031–1051.
63. Mirrlees, J., Adam, S., Besley, T., Blundell, R., Bond, S., Chote, R., Gammie, M., Johnson, P., Myles, G., & Poterba, J. (2011). The Mirrlees Review: Conclusions and Recommendations for Reform*. *Fiscal Studies*, *32*, 331–359. https://doi.org/10.1111/j.1475-5890.2011.00140.x
64. Mirrlees, J., Adam, S., Besley, T., Blundell, R., Bond, S., Chote, R., Gammie, M., Johnson, P., Myles, G., & Poterba, J. (2012). The Mirrlees review: A proposal for systematic tax reform. *National Tax Journal*, *65*(3), 655–684.
65. Modigliani, F., & Miller, M. H. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Economic Review*, *48*(3), 261–297.
66. Modigliani, F., & Miller, M. H. (1963). Corporate Income Taxes and the Cost of Capital: A Correction. *The American Economic Review*, *53*(3), 433–443.
67. Moussavou, J. (2017). Asymétries d'information et crowdfunding. Le cas du financement de projets entrepreneuriaux. *Revue française de gestion*, *268*(7), 61–76. https://doi.org/10.3166/rfg.2017.00176
68. Myers, S. C. (1984). The Capital Structure Puzzle. *The Journal of Finance*, *39*(3), 574–592. https://doi.org/10.1111/j.1540-6261.1984.tb03646.x
69. Myers, S. C. (1993). Still Searching For Optimal Capital Structure. *Journal of Applied Corporate Finance*, *6*(1), 4–14.
70. Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, *13*(2), 187–221. https://doi.org/10.1016/0304-405X(84)90023-0
71. Naidu, G. N. (1986). Capital Structure Strategies of Australian and South African Firms. *Management International Review*, *26*(2), 52–61.
72. Ngongang, D. (2015). Asymétrie d'information et rationnement du crédit bancaire dans les P.M.E. camerounaises. *Revue Congolaise de Gestion*, *Numéro 20*(1), 11–54. https://doi.org/10.3917/rcg.020.0011
73. Ohrn, E. (2018). The Effect of Corporate Taxation on Investment and Financial Policy: Evidence from the DPAD. *American Economic Journal: Economic Policy*, *10*(2), 272–301.
74. Princen, S. (2012). Determining the impact of taxation on corporate financial decision-making. *Reflets et perspectives de la vie économique*, *LI*(3), 161–170. https://doi.org/10.3917/rpve.513.0161
75. Qodriyah, R. L. (2012). LABA ATAU ARUS KAS SEBAGAI PARAMETEK KINERJA PERUSAHAAN BERDASARKAN SIKLUS HIDUP PERUSAHAAN. *Jurnal Akuntansi Dan Ekonomi Bisnis*, *1*(1), Article 1. https://doi.org/10.33795/jaeb.v1i1.300
76. Rajan, R. G., & Zingales, L. (1995). What Do We Know about Capital Structure? Some Evidence from International Data. *Journal of Finance*, *50*(5), 1421–1460.
77. Roodman, D. (2006). How to Do xtabond2: An Introduction to "Difference" and "System" GMM in Stata. *Working Papers*, Article 103. https://ideas.repec.org//p/cgd/wpaper/103.html

78. Ross, S. A. (1977). The Determination of Financial Structure: The Incentive-Signalling Approach. *Bell Journal of Economics*, *8*(1), 23–40.
79. Shenoy, C., & Koch, P. D. (1996). The firm's leverage-cash flow relationship. *Journal of Empirical Finance*, *2*(4), 307–331. https://doi.org/10.1016/0927-5398(95)00011-9
80. Shyam-Sunder, L., & Myers, C. S. (1999). Tester un compromis statique par rapport aux modèles hiérarchiques de structure du capital1. *Journal of Financial Economics*, *51*(2), 219–244. https://doi.org/10.1016/S0304-405X(98)00051-8
81. Solomon, E. (1963). Leverage And The Cost Of Capital. *Journal of Finance*, *18*(2), 273–279.
82. Sørensen, P. B. (2014). Taxation and the Optimal Constraint on Corporate Debt Finance. *CESifo Working Paper Series*, Article 5101. https://ideas.repec.org//p/ces/ceswps/_5101.html
83. Spengel, C., Heckemeyer, J. H., Bräutigam, R., Nicolay, K., Klar, O., & Stutzenberger, K. (2016). The effects of tax reforms to address the debt-equity bias on the cost of capital and on effective tax rates. *ZEW Expertises*, *65*. https://ideas.repec.org//b/zbw/zewexp/148156.html
84. Taha, R., & Sanusi, N. A. (2014). OVERVIEW OF CAPITAL STRUCTURE THEORY. *Studies in Business and Economics*, *9*(2), 108–116.
85. TIBI, L., YAMB Martine, L. belle, TUEGNO MATAWO FOKOU, R. J., & NDOUNBISSI, R. (2024). Recours au financement alternatif des TPE du secteur informel au Cameroun: Un regard sur les facteurs explicatifs. *International Journal of Accounting, Finance, Auditing, Management and Economics*. https://doi.org/10.5281/zenodo.10634367
86. Titman, S., & Wessels, R. (1988). The Determinants of Capital Structure Choice. *The Journal of Finance*, *43*(1), 1–19. https://doi.org/10.1111/j.1540-6261.1988.tb02585.x
87. Walter, J. E. (1963). Dividend Policy: Its Influence on the Value of the Enterprise. *The Journal of Finance*, *18*(2), 280–291. https://doi.org/10.1111/j.1540-6261.1963.tb00724.x
88. Weichenrieder, A. J., & Klautke, T. (2008). Taxes and the Efficiency Costs of Capital Distortions. *CESifo Working Paper Series*, Article 2431. https://ideas.repec.org//p/ces/ceswps/_2431.html
89. Yang, J., Davis, G., & Leatham, D. (2001). Impact of Interest Rate Swaps on Corporate Capital Structure: An Empirical Investigation. *Applied Financial Economics*, *11*, 75–81. https://doi.org/10.2139/ssrn.322684
90. Yilmaz, I. (2022). Leverage and Investment Cash Flow Sensitivity: Evidence from Muscat Securities Market in Oman. *Sage Open*, *12*(3), 21582440221119487. https://doi.org/10.1177/21582440221119487
91. Yuliani, Isnurhadi, & Utami, D. (2018). The Association Between Cash Flow and Leverage for Firm Life Cycle. *KnE Social Sciences*. https://doi.org/10.18502/kss.v3i10.3444

APPENDICES

Appendix 1: Stationarity tests for the variables used

1. **Variable CIT**

Panel unit root test: Summary				
Series: **CIT**				
Date: 10/23/23 Time: 16:39				
Sample: 2011 2021				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 1				
Newey-West automatic bandwidth selection and Bartlett kernel				
			Cross-	
Method	Statistic	Prob.**	sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-5.98542	0.0000	13	107
Breitung t-stat	-1.29145	0.0983	13	94
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.64657	0.2590	13	107
ADF - Fisher Chi-square	35.1231	0.1090	13	107
PP - Fisher Chi-square	58.8876	0.0002	13	109
** Probabilities for Fisher tests are computed using an asymptotic Chi				
-square distribution. All other tests assume asymptotic normality.				
Panel unit root test: Summary				
Series: **D(CIT)**				
Date: 10/23/23 Time: 16:40				
Sample: 2011 2021				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 1				
Newey-West automatic bandwidth selection and Bartlett kernel				
			Cross-	
Method	Statistic	Prob.**	sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-17.8531	0.0000	13	89
Breitung t-stat	0.35620	0.6392	13	76
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.49295	0.0063	13	89
ADF - Fisher Chi-square	68.3846	0.0000	13	89
PP - Fisher Chi-square	91.3504	0.0000	13	96
** Probabilities for Fisher tests are computed using an asymptotic Chi				
-square distribution. All other tests assume asymptotic normality.				
Panel unit root test: Summary				
Series: **D(CIT,2)**				
Date: 10/23/23 Time: 16:41				
Sample: 2011 2021				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-12.4363	0.0000	11	77
Breitung t-stat	-2.57526	0.0050	11	66
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.82378	0.0341	11	77
ADF - Fisher Chi-square	55.0135	0.0001	11	77
PP - Fisher Chi-square	100.245	0.0000	11	77

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

Hadri Unit Root Test on CIT

Null Hypothesis: Stationarity
Series: **CIT**
Date: 10/23/23 Time: 17:41
Sample: 2011 2021
Exogenous variables: Individual effects, individual linear trends
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 122
Cross-sections included: 13 (8 dropped)

Method	Statistic	Prob.**
Hadri Z-stat	7.99058	0.0000
Heteroscedastic Consistent Z-stat	13.6791	0.0000

* Note: High autocorrelation leads to severe size distortion in Hadri test,
leading to over-rejection of the null.
** Probabilities are computed assuming asymptotic normality

Intermediate results on CIT

Cross section	LM	Variance HAC	Bandwidth	Obs
BAB	0.1529	8.18E-07	3.0	10
BGFI	0.1327	5.84E-08	3.0	10
BIIC	0.1675	7.99E-08	0.0	10
BOA	0.5000	6.92E-09	9.0	10
BSIC	0.0994	8.07E-09	1.0	10
CCEI	0.1562	2.68E-06	1.0	10
ECOBANK	0.1478	1.06E-06	3.0	10
NSIA	0.1344	6.67E-08	1.0	10
ORABANK	0.0975	6.24E-08	1.0	10
SGB	0.5000	2.11E-08	9.0	10
UBA	0.3298	1.29E-07	6.0	10
FECECAM		Dropped from Test		
PADME		Dropped from Test		
VITALFINANCE	0.2866	7.11E-09	3.0	6
FINADEV	0.2228	2.77E-09	1.0	6
RENACA		Dropped from Test		
BETHESDA		Dropped from Test		
ACFB		Dropped from Test		
SIANSON		Dropped from Test		
ALIDE		Dropped from Test		
COMUBA		Dropped from Test		

2. Variable DIVIDEND

Panel unit root test: Summary				
Series: **DIVIDEND**				
Date: 10/23/23 Time: 16:34				
Sample: 2011 2021				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 1				
Newey-West automatic bandwidth selection and Bartlett kernel				
			Cross-	
Method	Statistic	Prob.**	sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-5.79577	0.0000	21	146
Breitung t-stat	5.52779	1.0000	21	125
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	0.71208	0.7618	21	146
ADF - Fisher Chi-square	42.3918	0.4541	21	146
PP - Fisher Chi-square	62.0150	0.0238	21	149
** Probabilities for Fisher tests are computed using an asymptotic Chi				
-square distribution. All other tests assume asymptotic normality.				
Panel unit root test: Summary				
Series: **D(DIVIDEND)**				
Date: 10/23/23 Time: 16:36				
Sample: 2011 2021				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 1				
Newey-West automatic bandwidth selection and Bartlett kernel				
			Cross-	
Method	Statistic	Prob.**	sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-30.1228	0.0000	21	126
Breitung t-stat	-1.46579	0.0714	21	105
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-4.34675	0.0000	21	126
ADF - Fisher Chi-square	90.9879	0.0000	21	126
PP - Fisher Chi-square	133.516	0.0000	21	128
** Probabilities for Fisher tests are computed using an asymptotic Chi				
-square distribution. All other tests assume asymptotic normality.				
Panel unit root test: Summary				
Series: **D(DIVIDEND,2)**				
Date: 10/23/23 Time: 16:38				
Sample: 2011 2021				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
			Cross-	
Method	Statistic	Prob.**	sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-14.2214	0.0000	11	77

Breitung t-stat	-3.17091	0.0008	11	66
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.45595	0.0070	11	77
ADF - Fisher Chi-square	65.9547	0.0000	11	77
PP - Fisher Chi-square	121.628	0.0000	11	77

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

Hadri Unit Root Test on DIVIDEND

Null Hypothesis: Stationarity
Series: **DIVIDEND**
Date: 10/23/23 Time: 17:43
Sample: 2011 2021
Exogenous variables: Individual effects, individual linear trends
Newey-West automatic bandwidth selection and Bartlett kernel
Total number of observations: 170
Cross-sections included: 21

Method	Statistic	Prob.**
Hadri Z-stat	8.25567	0.0000
Heteroscedastic Consistent Z-stat	23.3289	0.0000

* Note: High autocorrelation leads to severe size distortion in Hadri test,
leading to over-rejection of the null.
** Probabilities are computed assuming asymptotic normality

Intermediate results on DIVIDEND

Cross section	LM	Variance HAC	Bandwidth	Obs
BAB	0.1416	0.000182	1.0	10
BGFI	0.1554	0.004216	3.0	10
BIIC	0.1275	0.182858	0.0	10
BOA	0.2874	1.18E-06	5.0	10
BSIC	0.1859	0.000862	0.0	10
CCEI	0.1603	0.001668	1.0	10
ECOBANK	0.1659	7.19E-05	0.0	10
NSIA	0.1284	1.36E-05	0.0	10
ORABANK	0.1320	0.000312	2.0	10
SGB	0.5000	5.96E-05	9.0	10
UBA	0.2014	0.000730	0.0	10
FECECAM	0.4167	4.13E-06	4.0	6
PADME	0.4167	0.000108	4.0	6
VITALFINANCE	0.5000	2.34E-08	5.0	6
FINADEV	0.2534	0.007101	3.0	6
RENACA	0.5000	0.000246	5.0	6
BETHESDA	0.5000	0.000390	5.0	6
ACFB	0.2646	6.31E-05	3.0	6
SIANSON	0.1590	9.89E-05	1.0	6
ALIDE	0.5000	0.000172	5.0	6
COMUBA	0.1709	0.045767	2.0	6

3. Variable INTEREST

Panel unit root test: Summary
Series: **INTEREST**
Date: 10/23/23 Time: 16:30
Sample: 2011 2021
Exogenous variables: Individual effects, individual linear trends

Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 1				
Newey-West automatic bandwidth selection and Bartlett kernel				
			Cross-	
Method	Statistic	Prob.**	sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-7.57983	0.0000	21	146
Breitung t-stat	0.00174	0.5007	21	125
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	0.07339	0.5293	21	146
ADF - Fisher Chi-square	44.0008	0.3869	21	146
PP - Fisher Chi-square	53.9576	0.1022	21	149
** Probabilities for Fisher tests are computed using an asymptotic Chi				
-square distribution. All other tests assume asymptotic normality.				
Panel unit root test: Summary				
Series: **D(INTEREST)**				
Date: 10/23/23 Time: 16:31				
Sample: 2011 2021				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 1				
Newey-West automatic bandwidth selection and Bartlett kernel				
			Cross-	
Method	Statistic	Prob.**	sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-26.1095	0.0000	21	122
Breitung t-stat	-0.59611	0.2756	21	101
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.04774	0.0203	21	122
ADF - Fisher Chi-square	75.4580	0.0012	21	122
PP - Fisher Chi-square	110.103	0.0000	21	128
** Probabilities for Fisher tests are computed using an asymptotic Chi				
-square distribution. All other tests assume asymptotic normality.				
Panel unit root test: Summary				
Series: **D(INTEREST,2)**				
Date: 10/23/23 Time: 16:32				
Sample: 2011 2021				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
			Cross-	
Method	Statistic	Prob.**	sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-19.4441	0.0000	11	77
Breitung t-stat	-3.94886	0.0000	11	66
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-3.06830	0.0011	11	77
ADF - Fisher Chi-square	72.1344	0.0000	11	77
PP - Fisher Chi-square	114.577	0.0000	11	77

** Probabilities for Fisher tests are computed using an asymptotic Chi					
-square distribution. All other tests assume asymptotic normality.					
Hadri Unit Root Test on INTEREST					
Null Hypothesis: Stationarity					
Series: **INTEREST**					
Date: 10/23/23 Time: 17:45					
Sample: 2011 2021					
Exogenous variables: Individual effects, individual linear trends					
Newey-West automatic bandwidth selection and Bartlett kernel					
Total number of observations: 170					
Cross-sections included: 21					
Method				Statistic	Prob.**
Hadri Z-stat				32.8130	0.0000
Heteroscedastic Consistent Z-stat				31.6154	0.0000
* Note: High autocorrelation leads to severe size distortion in Hadri test,					
leading to over-rejection of the null.					
** Probabilities are computed assuming asymptotic normality					
Intermediate results on INTEREST					

Cross section	LM	Variance HAC	Bandwidth	Obs
BAB	0.0761	1.03E-05	0.0	10
BGFI	0.1047	0.000113	1.0	10
BIIC	0.1097	1.61E-05	2.0	10
BOA	0.3699	3.62E-07	5.0	10
BSIC	0.5000	2.19E-06	9.0	10
CCEI	0.5000	2.99E-05	9.0	10
ECOBANK	0.1561	3.75E-06	1.0	10
NSIA	0.1218	7.91E-06	0.0	10
ORABANK	0.1275	3.55E-05	1.0	10
SGB	0.4028	1.73E-06	7.0	10
UBA	0.2861	5.69E-05	6.0	10
FECECAM	0.5000	6.13E-07	5.0	6
PADME	0.5000	1.99E-05	5.0	6
VITALFINANCE	0.5000	0.000185	5.0	6
FINADEV	0.5000	7.70E-06	5.0	6
RENACA	0.5000	3.48E-06	5.0	6
BETHESDA	0.5000	6.10E-06	5.0	6
ACFB	0.5000	4.12E-07	5.0	6
SIANSON	0.5000	6.40E-05	5.0	6
ALIDE	0.1992	1.62E-05	1.0	6
COMUBA	0.5000	8.96E-05	5.0	6

4. Variable CASH_FLOW

Panel unit root test: Summary				
Series: **CASH_FLOW**				
Date: 10/23/23 Time: 16:24				
Sample: 2011 2021				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 1				
Newey-West automatic bandwidth selection and Bartlett kernel				
			Cross-	

Method	Statistic	Prob.**	sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-6.19622	0.0000	21	146
Breitung t-stat	2.55084	0.9946	21	125
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	0.42591	0.6649	21	146
ADF - Fisher Chi-square	44.9025	0.3512	21	146
PP - Fisher Chi-square	66.7820	0.0088	21	149
** Probabilities for Fisher tests are computed using an asymptotic Chi				
-square distribution. All other tests assume asymptotic normality.				
Panel unit root test: Summary				
Series: **D(CASH_FLOW)**				
Date: 10/23/23 Time: 16:26				
Sample: 2011 2021				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 1				
Newey-West automatic bandwidth selection and Bartlett kernel				
			Cross-	
Method	Statistic	Prob.**	sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-19.8879	0.0000	21	123
Breitung t-stat	2.22478	0.9870	21	102
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.81893	0.0345	21	123
ADF - Fisher Chi-square	64.7953	0.0135	21	123
PP - Fisher Chi-square	85.7712	0.0001	21	128
** Probabilities for Fisher tests are computed using an asymptotic Chi				
-square distribution. All other tests assume asymptotic normality.				
Panel unit root test: Summary				
Series: **D(CASH_FLOW,2)**				
Date: 10/23/23 Time: 16:27				
Sample: 2011 2021				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
			Cross-	
Method	Statistic	Prob.**	sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-14.9827	0.0000	11	77
Breitung t-stat	-5.01248	0.0000	11	66
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.19589	0.0140	11	77
ADF - Fisher Chi-square	60.9274	0.0000	11	77
PP - Fisher Chi-square	103.377	0.0000	11	77
** Probabilities for Fisher tests are computed using an asymptotic Chi				
-square distribution. All other tests assume asymptotic normality.				
Hadri Unit Root Test on CASH_FLOW				
Null Hypothesis: Stationarity				

Series: **CASH_FLOW**				
Date: 10/23/23 Time: 17:48				
Sample: 2011 2021				
Exogenous variables: Individual effects, individual linear trends				
Newey-West automatic bandwidth selection and Bartlett kernel				
Total number of observations: 170				
Cross-sections included: 21				
Method			Statistic	Prob.**
Hadri Z-stat			8.29268	0.0000
Heteroscedastic Consistent Z-stat			22.8267	0.0000
* Note: High autocorrelation leads to severe size distortion in Hadri test,				
leading to over-rejection of the null.				
** Probabilities are computed assuming asymptotic normality				
Intermediate results on CASH_FLOW				
Cross		Variance		
section	LM	HAC	Bandwidth	Obs
BAB	0.1440	0.263233	0.0	10
BGFI	0.1325	2.736187	0.0	10
BIIC	0.1398	33.45728	3.0	10
BOA	0.1453	0.014103	0.0	10
BSIC	0.1647	0.120219	0.0	10
CCEI	0.1357	1.169959	0.0	10
ECOBANK	0.1495	0.134912	0.0	10
NSIA	0.1657	0.247880	0.0	10
ORABANK	0.1511	3.948790	1.0	10
SGB	0.2677	0.193843	5.0	10
UBA	0.1320	3.699084	1.0	10
FECECAM	0.2619	0.008174	3.0	6
PADME	0.4167	0.051885	4.0	6
VITALFINANCE	0.2642	0.022845	3.0	6
FINADEV	0.1837	0.001497	2.0	6
RENACA	0.5000	0.013740	5.0	6
BETHESDA	0.5000	0.012326	5.0	6
ACFB	0.4167	0.088434	4.0	6
SIANSON	0.5000	0.001136	5.0	6
ALIDE	0.5000	0.005015	5.0	6
COMUBA	0.5000	0.090252	5.0	6

5. Variable LEVERAGE

Panel unit root test: Summary				
Series: **LEVERAGE**				
Date: 10/23/23 Time: 16:05				
Sample: 2011 2021				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 1				
Newey-West automatic bandwidth selection and Bartlett kernel				
			Cross-	
Method	Statistic	Prob.**	sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-10.1024	0.0000	21	143
Breitung t-stat	2.13367	0.9836	21	122

Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.45019	0.3263	21	143
ADF - Fisher Chi-square	59.3592	0.0398	21	143
PP - Fisher Chi-square	68.2702	0.0064	21	149
** Probabilities for Fisher tests are computed using an asymptotic Chi				
-square distribution. All other tests assume asymptotic normality.				
Panel unit root test: Summary				
Series: **D(LEVERAGE)**				
Date: 10/23/23 Time: 16:13				
Sample: 2011 2021				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0 to 1				
Newey-West automatic bandwidth selection and Bartlett kernel				
			Cross-	
Method	Statistic	Prob.**	sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-19.2240	0.0000	21	120
Breitung t-stat	-0.24653	0.4026	21	99
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.99829	0.0014	21	120
ADF - Fisher Chi-square	90.9123	0.0000	21	120
PP - Fisher Chi-square	106.089	0.0000	21	128
** Probabilities for Fisher tests are computed using an asymptotic Chi				
-square distribution. All other tests assume asymptotic normality.				
Panel unit root test: Summary				
Series: **D(LEVERAGE,2)**				
Date: 10/23/23 Time: 16:21				
Sample: 2011 2021				
Exogenous variables: Individual effects, individual linear trends				
Automatic selection of maximum lags				
Automatic lag length selection based on SIC: 0				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
			Cross-	
Method	Statistic	Prob.**	sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-11.5071	0.0000	11	77
Breitung t-stat	-1.82665	0.0339	11	66
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.43398	0.0758	11	77
ADF - Fisher Chi-square	48.2202	0.0010	11	77
PP - Fisher Chi-square	87.0410	0.0000	11	77
** Probabilities for Fisher tests are computed using an asymptotic Chi				
-square distribution. All other tests assume asymptotic normality.				
Hadri Unit Root Test on LEVERAGE				
Null Hypothesis: Stationarity				
Series: **LEVERAGE**				
Date: 10/23/23 Time: 17:51				
Sample: 2011 2021				
Exogenous variables: Individual effects, individual linear trends				
Newey-West automatic bandwidth selection and Bartlett kernel				

Total number of observations: 170				
Cross-sections included: 21				
Method			Statistic	Prob.**
Hadri Z-stat			46.1834	0.0000
Heteroscedastic Consistent Z-stat			32.6781	0.0000
* Note: High autocorrelation leads to severe size distortion in Hadri test,				
leading to over-rejection of the null.				
** Probabilities are computed assuming asymptotic normality				
Intermediate results on LEVERAGE				
Cross		Variance		
section	LM	HAC	Bandwidth	Obs
BAB	0.1449	18.29057	1.0	10
BGFI	0.5000	72.81831	9.0	10
BIIC	0.2004	2.587928	4.0	10
BOA	0.1567	1.371170	1.0	10
BSIC	0.1631	103.2052	2.0	10
CCEI	0.1250	3.281541	1.0	10
ECOBANK	0.1278	62.79322	1.0	10
NSIA	0.5000	5.323271	9.0	10
ORABANK	0.5000	5131.061	9.0	10
SGB	0.2639	2.548004	6.0	10
UBA	0.5000	24.34691	9.0	10
FECECAM	0.5000	0.005188	5.0	6
PADME	0.5000	0.000504	5.0	6
VITALFINANCE	0.5000	9.35E-07	5.0	6
FINADEV	0.5000	124.3101	5.0	6
RENACA	0.2436	0.001896	3.0	6
BETHESDA	0.5000	0.024369	5.0	6
ACFB	0.3153	0.000648	3.0	6
SIANSON	0.5000	0.000834	5.0	6
ALIDE	0.5000	0.004209	5.0	6
COMUBA	0.4167	1.508272	4.0	6

Appendix 2: Variable regressions and Sargan test in EViews

Dependent Variable: **LEVERAGE**				
Method: **Panel Generalized Method of Moments**				
Transformation: First Differences				
Date: 11/10/23 Time: 08:49				
Sample (adjusted): 2013 2021				
Periods included: 9				
Cross-sections included: 21				
Total panel (unbalanced) observations: 128				
White period (period correlation) instrument weighting matrix				
White period (cross-section cluster) standard errors & covariance (d.f.				
corrected)				
Standard error and t-statistic probabilities adjusted for clustering				
Instrument specification: @DYN(LEVERAGE,-2)				
Constant added to instrument list				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CIT	10926.67	443.7457	24.62372	0.0000
DIVIDEND	237.8896	4.265188	55.77471	0.0000
INTEREST	-1985.808	25.38406	-78.23051	0.0000
CASH_FLOW	-0.647586	0.057010	-11.35916	0.0000

LEVERAGE(-1)	-0.057038	0.000617	-92.44024	0.0000
	Effects Specification			
Cross-section fixed (first differences)				
Mean dependent var	0.123359	S.D. dependent var		81.12515
S.E. of regression	91.02970	Sum squared resid		1019228.
J-statistic	18.12225	Instrument rank		21
Prob(J-statistic)	0.316787			

Appendix 3: Arellano-Bond Serial Correlation Test

Arellano-Bond Serial Correlation Test for LEVERAGE				
Equation: Untitled				
Date: 11/10/23 Time: 08:51				
Sample: 2011 2021				
Included observations: 128				
Test order	m-Statistic	rho	SE(rho)	Prob.
AR(1)	-3.490348	-273258.389522	78289.732275	0.0005
AR(2)	-0.897204	-285140.867653	317810.379550	0.3696

Appendix 4: Wald Test

Wald Test for LEVERAGE:			
Equation: Untitled			
Test Statistic	Value	df	Probability
t-statistic	-92.44024	123	0.0000
F-statistic	8545.198	(1, 123)	0.0000
Chi-square	8545.198	1	0.0000
Null Hypothesis: C(1)=0			
Null Hypothesis Summary:			
Normalized Restriction (= 0)		Value	Std. Err.
C(1)		-0.057038	0.000617
Restrictions are linear in coefficients.			