

EFFECT OF EARNINGS MANAGEMENT AND DEFERRED TAX ON TAX AVOIDANCE: EVIDENCE USING MODIFIED JONES MODEL ALGORITHM

John MacCarthy *

* Accounting Department, University of Professional Studies, Accra, Ghana
Contact details: Accounting Department, University of Professional Studies, P. O. Box LG 149, Legon-Accra, Ghana



Abstract

How to cite this paper: MacCarthy, J. (2021). Effect of earnings management and deferred tax on tax avoidance: Evidence using modified Jones model algorithm [Special issue]. *Corporate Ownership & Control*, 19(1), 272–287.
<https://doi.org/10.22495/cocv19i1siart5>

Copyright © 2021 The Author

This work is licensed under a Creative Commons Attribution 4.0 International License (CC BY 4.0).
<https://creativecommons.org/licenses/by/4.0/>

ISSN Online: 1810-3057
ISSN Print: 1727-9232

Received: 23.09.2021
Accepted: 20.12.2021

JEL Classification: G30, G32, M41, M42, O16
DOI: 10.22495/cocv19i1siart5

The paper sought to examine earnings management and deferred tax after the passage and post-adoption of the Income Tax Act, 2015 (Act 896) on tax avoidance. This paper examines the effect of earnings management and deferred tax on tax avoidance. A probability sampling technique selected twenty-four firms from 2001 to 2020 on the Ghana Stock Exchange. A quantitative research technique is used to test five hypotheses. Panel data regression is employed to predict the effect of earnings management on tax avoidance. The study revealed that earnings management and other macroeconomic variables accounted for or explained 77.9% of tax avoidance practices of the selected firms. Furthermore, the study revealed a significant and positive relationship between earnings management, deferred tax, and leverage on tax avoidance. The study finds a decrease in the values of earnings management after 2015, signifying a reduction in tax avoidance practice after the passage of Act 896. The study concludes the need to strengthen the public interest theory of regulation to bring earnings management to its lowest point. The study recommends a revision to IAS 12 as a public interest regulation to reduce the discretions to managers on deferred tax.

Keywords: Earnings Management, Deferred Tax, Tax Avoidance, Leverage

Authors' individual contribution: The Author is responsible for all the contributions to the paper according to CRediT (Contributor Roles Taxonomy) standards.

Declaration of conflicting interests: The Author declares that there is no conflict of interest.

1. INTRODUCTION

Financial reporting is an important management tool used to assess the performance of the firms and to support the decision-making process by the stakeholders involved in the business. According to Gajevszky (2015), financial reporting is able to serve its purpose it must be faithfully represented, comparable, verifiable, timely, and understandable to achieve the objective of financial reports. The International Accounting Standard Board (IASB) espoused the essential principle needed to assess the quality of financial reporting is related to the faithfulness of the objectives and quality of

disclosed information in a company's financial reports. This requires that the financial report must be transparent, and should not deceive the users to take a bad decision. Despite the perceived importance that financial reporting quality should provide to management in terms of decision making, the standards provide a lot of discretions that allow management to manoeuvre their ways when preparing the financial reporting to the disadvantage of some of the stakeholders. Management of firms used these discretions provided in the standards in the form of depreciation, deferred tax, and accruals, etc., to smoothen their financial reporting to enhance the financial reports to their advantage.

When this happens the incomes or earnings reported by management do not reflect the current cash flows of the firms correctly. The gap between the firm's actual cash flow and the reported incomes is usually covered under accruals components of the incomes and is usually referred to as earnings management (Bergstresser & Philippon, 2004). Earnings management is an attempt by management to manipulate reported earnings or incomes by using specific accounting methods, or unaccepted depreciation rates or methods or accelerating expense or revenue transactions, or using other methods designed to influence short-term earnings. Earnings management is also known as discretionary accruals or abnormal accruals related to managerial discretion or the portion that can be manipulated by managers. This model was developed by Jones (1991) and modified by Dechow, Sloan, and Sweeney (1995) for calculating the total discretionary accruals (TA). The main idea behind the model is to isolate the accruals into non-discretionary (normal) accruals and discretionary (abnormal). The discretionary accrual is used to determine the earnings management by the managers. The managers then used a subjective judgment to alter the financial reports that do not reflect the objectivity of reported financial statement and the intention is to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting information (Omoye & Eriki, 2014). One of the reasons firms engage in earnings management is to reduce their tax obligations to the revenue agencies. This is done through tax avoidance (legally accepted practice) and tax evasion (an illegal practice) by the firms. Tax avoidance is legitimate while tax evasion is an illegal practice to minimise tax liabilities. Tax avoidance, tax evasion, and tax planning practices are carried out with aim of maximising the firm's tax value to maximise their after-tax earnings to the shareholders of the company. Earnings management is a purposeful intervention in the financial reporting process by management with the intention of obtaining private gain (Healy & Wahlen, 1999; Wu, 2014). Earnings management is manipulation in accounting tools employed with the company's balance sheet and income statements, through a process that is compliant with standards but ultimately may mislead some stakeholders. Managers structured their financial reporting a way to reflect a reduced taxable income or earnings before tax through tax planning practices considered as legal activities (i.e., tax avoidance) as well as illegal activities (i.e., tax evasion) in some circumstances to reduce the tax liability to the government. Tax avoidance is a form of corporate actions and decisions that reflects the management aversion risk (Lanis & Richardson, 2012; Chen, Chen, Cheng, & Shevlin, 2010; Khurana & Moser, 2013; Lanis, Richardson, & Taylor, 2015; Francis, Hasan, Wu, & Yan, 2014). The reaction of tax avoidance on earnings quality has emerged as an issue of interest to analysts, investors, managers, and other market participants (Lipe, 1990; Chan, Chan, Jegadeesh, & Lakonishok, 2006; Cahan, Emanuel, & Sun, 2009). Tax avoidance and tax evasion when done with earnings management is a big concern for the tax authorities as it affects the country's overall tax revenue.

A public institution mandated by law to mobilise tax revenue for the development of the country. The tax authorities need to adopt the appropriate technique to nip this practice from its back to maximise the country's tax revenue. To address these concerns, the tax authorities and other stakeholders empowered to collect tax revenue must adopt appropriate forensic tools to detect earnings management adopted by the executive to evade tax revenue. Previous studies have revealed that managers used deferred tax as a medium to manipulate earnings since the deferred tax has some elements of discretionary that can be exploited to the advantage of managers to achieve their end goals. IAS 12 defined income tax as the sum of current tax and deferred tax. The company's accounting earnings or income is calculated using accounting policies while income tax is calculated using the tax laws. This creates a difference between the company's accounting income and taxable income. The difference between the company's accounting income and the taxable income is categorized as temporary or permanent differences. The temporary differences create either future income tax liabilities (i.e., deferred tax assets) or future tax deductions (i.e., deferred tax assets). The temporary differences are the differences in the collection of receivables and payments of liabilities that will reverse in subsequent years, whereas the permanent differences will not reverse in the future. Permanent differences are the number of revenues or payments that can only affect the accounting income or the taxable income of a certain period. IAS 12 allows management to recognise the deferred tax assets when there are sufficient future taxable profits to offset the recognised tax asset. Therefore, the amount to be recognised as deferred tax assets is based on a subjective estimation of future benefits by management. All managements are interested in achieving the financial performance targets of the firms through higher profit, higher earnings per share (EPS) to protect themselves against their removal by the shareholders. To avoid removal by the shareholders for poor performance in "office" managers sometimes performed ethical and unethical activities to achieve these goals. Additionally, in a competitive and globalised world, companies are exposed to great pressure and must adapt to some of these changes (legal, financial, technological, and economic) pressure to survive. Managers are engaged by shareholders to maximise their value but not to engage in unethical means to achieve this objective. These practices of managers are the negative effect of agency theory. To achieve this objective, many executives engage in unethical behaviour that affects the other stakeholders apart from the shareholders. Jensen (2005) predicts that managers engage in questionable accounting practices among other value-destroying activities to sustain over-valued shares. The pressure put on some managers to act unethical or restructure their mode of operations to survive in the market (Garbeti, Terrin, Bigoni, & Bueno, 2008; Kopicko, 2018; Memary & Wong, 2009; Nkundabanyanga, Omagor, Mpamizo, & Ntayi, 2011). Therefore, managers sometimes tend to concentrate on the survival of the business through unethical behaviours such as earnings management rather

than preparing a financial statement that is faithfully represented, comparable, verifiable, timely, and understandable to achieve the objective of a financial report. From the standpoint of earlier studies, researchers have found evidence between tax avoidance and earnings management that suggests that higher earnings management contributes to higher incomes (Lyimo, 2014; Atwood, Drake, & Myers, 2010; Chen, Dhaliwal, & Trombley, 2012). The government of Ghana introduced transfer pricing, thin capitalisation (i.e., leverage), and general anti-avoidance rules into Income Tax Act, 2015 (Act 896) passed recently in Parliament to curtail the negative effect of earnings management on the country's revenue mobilisation. There is a thin line between tax avoidance and evasion (i.e., fraud). Whereas tax avoidance is within the scope of accounting standards, tax evasion is outside the scope of the accounting standards. Even though tax avoidance and tax evasion share the same objective and approach. The motivation for this paper is to provide empirical evidence that after the passage and post-adoption of Act 896, earnings management has been minimised or still the same. In the face of existing literature outlined in this study, thus managers sometimes used discretionary accruals to tax avoidance. The probing research question that this study aimed to find evidence for this study is *"Do managers adopt earnings management, deferred tax, transfer pricing, leverage, and return-on-assets as mediums for tax avoidance?"* Five hypotheses are developed to provide solutions to the question posed.

The remainder of the paper is structured as follows. Section 2 reviews related literature. Section 3 presents the methods employed to collect data for the study as well as their analysis. Section 4 presents the results and the attendant discussion of the results of the research. Finally, the study ends with some conclusions and limitations of the study in Section 5.

2. LITERATURE REVIEW

This section reviewed related theoretical and empirical on earnings management and tax avoidance. According to Nelson, Elliott, and Tarplay (2003), there is evidence that managers are more likely to manage earnings to increase income than to reduce income and tax liabilities.

2.1. Theoretical review

This theoretical review aims to provide an in-depth understanding of tax avoidance involving earnings management. The main theories underpinning this study are agency theory and public interest theory.

2.1.1. Agency theory

The agency theory is a contract between the owners of economic resources (shareholders) and managers (the agents) who are charged with the responsibility of managing and controlling the affairs of the firm (Jensen & Payne, 2003). It explains the relationship between the principal and the agent and the challenges orchestrated from this relationship. The principal appoints the agent legally to make decisions and take actions on its behalf. The

separation of the principal "ownership" and the agent "control" in the principal-agent relationship creates the grounds for potential conflict of interests between the two parties. In this context, the agent is the firm's manager, and the principal is the government. The government creates an enabling environment for the business to flourish and pay more tax, but the managers want to minimize their tax payments to the government. The managers adopt earnings management, deferred taxation, transfer pricing, leverage, etc., as tax avoidance strategies to their advantage. The principal-agent gives rise to the agency problem caused by a conflict of interest between the agent and the principal. The agency problem arises due to an issue with incentives and the presence of discretion in task completion. Sometimes the agents take decisions based solely on their interest and not on the interest of the owners of the firm (shareholders). An agent may be motivated to act in a manner that is not favourable for the principal if the agent is presented with an incentive to act in this way. Some managers sometimes take excessive risks more than necessary not in the best interest of the firms and the shareholders but based on their interest that will rather boost their personal career growth. The managers sometimes resort to earnings management to boost the firms' performance, reduce firms' liabilities, and evade taxes for the firms not because it is what the shareholders want but for their interest. According to Desai and Dharmapala (2009), tax avoidance practices create opportunistic managers (agents) to pursue self-seeking objectives and to manage earnings in ways that provide benefits to managers and that is not to benefit shareholders. Many agents (managers) who manage earnings are more likely to avoid paying more taxes to the tax authorities to isolate themselves from avoiding paying more taxes as tax avoidance serves as a shield from the principal (shareholders) scrutiny. Again, minimized tax payment leaves excess "after-tax" cash flow that can either be distributed as extra dividends or invested in profitable projects. Healy (1985) studied earnings management and opined that devices such as changes in accounting procedures, income maximization, and income smoothing are the major instruments that managers used to manage earnings by many firms. Most debt capital contracts contain several agreements that the borrower should fulfill in the contracts. Some debt contracts agreement required that the company's debt ratio, liquidity ratio, the working capital ratio should not be violated hence the creditor may impose penalties on the borrower such as restrictions on dividends payment, increase in interest costs, and payment of fines. When the managers breach the loan contracts it makes it possible to get a future loan. The consequences of breach of contract are detrimental to the company and such managers of the company will try as much possible to avoid, prevent these negative consequences of breach of loan contracts from happening. Many managers will adopt earnings management practices involving unacceptable accounting methods to report financial performance and also reduce tax payments to the tax authorities. Studies have shown that one of the mediums that managers resort to tax avoidance is through leverage and it is closely related to

earnings management (Koh & Lee, 2015). Another medium that managers resort to tax avoidance is transfer pricing and it is closely related to earnings managers by many researchers (Healy & Wahlen, 1999; Amidu, Coffie, & Acquah, 2019). Many associated firms exploit the relationship between transfer pricing and earnings management to influence their tax avoidance behaviour within the group. Usually, the prices of goods and technical services are under or over between the holding firm and subsidiaries in the developing countries. The motive behind this is to report lower profits in the developing countries and report higher profits for the holding firm usually registered in a tax haven. Extensive research has been conducted relating to the association between earnings management and certain corporate governance practices (Ronen, Tzur, & Yaari, 2006; Kao & Chen, 2009; Benkel, Mather, & Ramsay, 2006; Hutchinson, Percy, & Erkurtoglu, 2008; Demirkan & Platt, 2009; Iyengar, Land, & Zampelli, 2010; Davidson, Goodwin-Stewart, & Kent, 2005; Peasnell, Pope, & Young, 2005). This stream of research has found that the probability of earnings management is lower in companies with stronger internal corporate governance mechanisms.

2.1.2. Public interest theory of regulation

The concern for the public interest theory of regulation was stated by Arthur Cecil Pigou in the 1960s by economists from the Chicago school who began to criticising the assumption of the benevolent regulators. The theory argued that the regulation should seek the protection and benefit of the larger public (Hantke-Domas, 2003). The theory serves as the basis for having regulators such as the central bank, security, and exchange commission, and insurance commission and standards form the IASB to regulate the private interest against the public interest. The exchange of goods and production factors in markets assumes the definition, allocation, and assertion of individual property rights and freedom to contract. The theory opined that the regulation should maximise societal welfare and that should take into consideration the effect of cost/benefit analysis to determine if the cost to improve the operations of the market outweighs the amount of the increased social welfare benefit to be received. The essence of this theory allows public interest regulation to capture factors that will influence the market decision and to help the regulator to replace the market with customer complaints against services. The theory assumes that all economic agents pursue their interests which may sometimes conflict with the public interest. For instance, managers are motivated to manage the firms' earnings to avoid tax payments to the tax authorities. Therefore, the state must conclude that regulation that will promote the public interest and curb the personal interest of the agents at the expense of the state. The theory is often justified due to the imperfections or failures of market conditions. Some examples of public interest theory of regulation include a regulation on prices or profits, requirements of prior approvals to enter or exit the market, and efficient allocation of exclusive resources. The public interest theory on regulation has become the cornerstone of modern

public economies and seeks to correct the wrongs of free-market economies or conditions. The theory is often referred to as the "helping hand" theory of regulation that is based on two assumptions: 1) unhindered markets often fail because of the problems of externalities and 2) governments are caring and capable of correcting the market failures through regulations. The public interest theory regulation is introduced as a legal instrument to implement the perceived wrongs social-economic objectives of an agent against the country's interest. The regulation ensures efficiency, stability, fair and just distribution of income and resource allocation in the country. It can be used to improve the allocation by facilitating, maintaining, or imitating market operation. In short, the regulation has become the instrument used to overcome the disadvantages of imperfect competition and undesirable market operations.

The public interest theory of regulation has been subjected to several criticisms in recent times. There are four main criticisms against the public interest theory on regulation. First, markets and private orderings can take care of most market failures without any government intervention at all, let alone regulation. Second, in the few cases where markets might not work perfectly, private litigation can address whatever conflicts market participants might have. And third, even if markets and courts cannot solve all problems perfectly, government regulators are incompetent, corrupt, and captured, so regulation would make things even worse. Consider these three lines of argument in order. The fourth criticism leveled against the theory is that the regulators do not have sufficient information concerning the cost, demand, quality, and other dimensions of firm behaviour. Despite these criticisms against the theory it has served as a useful tool to regulate private and brought an improvement in the standard-setting especially for IASB for introduction and adoption of International Financial Reporting Standards (IFRS) that has improved upon the financial reporting of firms in recent time.

2.2. Empirical literature

This sub-section reviewed some works carried out by scholars on the relationship between earnings management and tax avoidance, and earnings management and deferred tax to provide the empirical evidence of studies.

2.2.1. Earnings management and tax avoidance

In this sub-section, the study explores the relationship between tax avoidance and earnings management by reviewing pieces of empirical literature to support this study. Pieces of empirical literature suggest that tax avoidance behaviour serves as motivation for earnings management (Graham, Raedy, & Shackelford, 2012; Wang & Chen, 2012). Desai and Dharmapala (2006) and Desai and Dharmapala (2009) opined that earnings management is a complementary tool for tax avoidance, such that managers who are tasked to avoid taxes can simultaneously use those avoidance techniques to manipulate earnings to derive some private benefit. Earnings management is

management discretionary decisions or choice of accounting policies or actions, accrual estimates, voluntary earnings forecast, voluntary disclosures to influence the firm's earning intentionally. According to Osegbue, Nweze, Ifurueze, and Nwoye (2019), tax avoidance is a firm's ability to manage its taxable income downward through more or less aggressive tax planning activities. It is a situation close to abusive tax avoidance, which is the "worst case" of tax aggressiveness. Tax avoidance is observed to contain some degrees of artificiality or abnormality in the firms' financial transactions. The question of legality or illegality lies in courts, tax authorities, or outside observers. A firm's tax position is not considered as tax avoidance or tax aggressive if it is not based on technical merits; the position will be subjected to examination. Dyreng, Hanlon, and Maydew (2008) conducted a study into tax avoidance on earning management in the United States and concluded that there is a significant relationship between tax avoidance and earning management. Previous studies by Desai and Dharmapala (2006), Dhaliwal, Gleason, and Mills (2004), Miller and Skinner (1998) found out that the relationship between earnings management and tax avoidance was closely related. Many researchers found evidence that suggests that companies take advantage through depreciation, amortization, interest income, and carrying over losses as a means to avoid high payments to the tax authorities (Koh & Lee, 2015; Tjondro & Permata, 2019). The studies have established that some firms used earnings management to gain an advantage of tax avoidance through manipulation of specific accruals (Bornemann, Kick, Memmel, & Pfungsten, 2012; Balasubramanyan, Zaman, & Thomson, 2013; Mari, Terzani, Agnello, & Iorio, 2016; De Luca & Paolone, 2019).

2.2.2. Deferred tax and tax avoidance

Lev and Nissim (2004) worked on taxable income using deferred taxes; temporary and permanent tax differences, earnings quality as the dependent and independent variable. Their results show a significant negative effect for temporary tax differences on earning quality. This implies that permanent tax differences and temporary tax differences are relevant as deferred taxes for predicting earnings growth. According to the Canada Revenue Agency (2013), tax avoidance is arrangements that have some legal basis in a technical sense, but firms take advantages beyond the intentions of the legislator that passed tax law. They simplified it to be arrangements made by firms with the primary purpose of avoiding the payment of the required taxes, which could violate the taxation laws. Firms can divide potential tax reduction into arrangements that have the category of tax avoidance, changing gradually from fraud to legitimacy. Dhaliwal et al. (2004) conducted a study on deferred tax and increasing earnings and concluded that permanent differences based on tax accruals have negative effects on firms' incentives to increase reported earnings. Blaylock, Shevlin, and Wilson (2012) studied the effect of tax avoidance on deferred tax

caused by a large positive book-tax differences and earnings persistence, which investigate why temporary tax differs. The study focused on firms with large temporary tax differences because these differences could be a signal of either earnings management. The result shows a significant positive effect of the temporary tax difference on earnings quality stating that temporary tax differences serve as a useful signal of future earnings, with some cases leading to lower earnings. Reidenbach and Robin (1991) opined that the corporate moral development stages parallel a gradual change in tax avoidance to include inadequate books and records, substantial understatement of income, fraudulent failure to file tax returns, lying, deceit, and hiding transaction.

3. DATA AND RESEARCH METHODOLOGY

This study is empirical research involving a quantitative research method to collect secondary data to measure phenomena and test research hypotheses (Moyo & Munoriyarwa, 2021). A probability sampling technique involving a multi-stage sampling technique was used to select a sample from the Ghana Stock Exchange (GSE) for this study. The population of the GSE is 38 firms and is stratified into two strata, namely, "other companies" and "financial and insurance companies", as shown in Table 1. The sample selected for this study excludes firms from the insurance and financial sectors because firms in these sectors are highly regulated. The second reason for the exclusions of these firms from the population is because some of the variables required for calculating the discretionary accruals for these firms are not available due to how the financial statements are presented (Abdul Rahman and Haneem Mohamed, 2006; Peasnell et al., 2005; Saleh, Iskandar, & Rahmat, 2005; Park & Shin, 2004).

Table 1. The population of Ghana Stock Exchange

<i>Category</i>	<i>Listed firms</i>
Other companies	26
Financial and insurance companies	12
Total	38

Source: Author's elaboration.

The second stage of the sample selection is to select 24 firms from 26 firms using a simple random technique. The sample of 24 was determined using the Yamane formula shown as equation (1):

$$n = \frac{N}{(1 + N(x^2))} \quad (1)$$

where, n is a sample size, N is the population and x is the level of precision (i.e., $\pm 5\%$).

Secondary data is extracted from the published financial statements of these 24 from the GSE from 2011 to 2020 and organised into dependent, independent, and control variables for the analysis. The study used panel data to assess the effect of earnings management and other variables on tax avoidance. Stata (version 15) was used as the analytical software for this study.

3.1. Research variables

A dependent variable and five independent variables were used to test the research hypotheses on the effect of earnings management and tax avoidance nexus in Ghana. The proxies for these variables: *TA*, *EM*, *DEF*, *TP*, *LEV*, and *ROA* as discussed below.

3.1.1. Dependent variable

Tax avoidance (TA) is defined as a reduction in explicit tax to be paid or payable to the tax authorities (Hanlon & Heitzman, 2010; Yorke et al., 2016; Taylor & Richardson, 2012). *TA* is the dependent variable used in this study and the most acceptable proxy for measuring tax avoidance is the total income tax expense divided by pre-tax accounting income (Hanlon & Heitzman, 2010; Chen et al., 2010; Phillips, 2003; Rego, 2003; Minnick & Noga, 2010; Lanis & Richardson, 2011). *TA* is also known as tax aggressiveness. The proxy for

$$TAC_{it} = (\Delta CA_{it} - \Delta Cash_{it}) - (\Delta CL_{it} - \Delta LTD_{it} - \Delta IT_{it}) - DP_{it} \quad (3)$$

where:

TAC_{it} is the total accrual for firm i in time period t ;
 ΔCA_{it} is the change in current assets for firm i in time period t ;
 $\Delta Cash_{it}$ is the change in cash balance for firm i in time t ;
 ΔCL_{it} is the change in current liabilities for firm i in time t ;
 ΔLTD_{it} is the change in long-term debt plus the current liabilities for firm i in time t ;
 ΔIT_{it} is the change in income tax payable for firm i in time t ; and
 DP_{it} is the depreciation and amortization expense for firm i in time t .

This study employs the modified Jones model (MJM) which is the most powerful instrument to measure earnings management (Dechow et al., 1995). Modified Jones model (MJM) is now widely used in the measure of earnings management practices for firms by researchers and scholars. The modified version of Jones (1991) allows the cross-sectional

$$\frac{TAC_{it}}{TA_{i(t-1)}} = \alpha_1 \left(\frac{1}{TA_{i(t-1)}} \right) + \alpha_2 \left(\frac{\Delta Rev_{it} - \Delta Rec_{it}}{TA_{i(t-1)}} \right) + \alpha_3 \left(\frac{PPE_{it}}{TA_{i(t-1)}} \right) + \varepsilon_{it} \quad (4)$$

where:

TAC_{it} is the total accrual for firm i in time period t , it measures the difference between net income before extraordinary items and discontinued operations and operating cash flows;
 $TA_{i(t-1)}$ is the total asset for the firm i at the end of the previous time or between the t and $t-1$;
 ΔRev_{it} is the change in revenue for firm i at the time t ;
 ΔRec_{it} is the change in receivable for the firm i at the time t ;
 PPE_{it} is the gross property, plant, and equipment for firm i in in time t ; and
 ε_{it} is the error term.

Total accruals were further decomposed into discretionary accruals and non-discretionary accruals (Jones, 1991; Dechow et al., 1995; Rusmin, 2010; Nagata, 2013) to remove the non-discretionary accruals NDC_{it} from equation (3) leaving the residual

measuring *TA* is the difference between the statutory tax rate (*STR*) and the effective tax rate (*ETR*). *ETR* is measured as total corporate tax expense less deferred tax expense divided by earnings before corporate tax (Yorke, Amidu, & Agyemin-Boateng, 2016) after the criticism against the measurement used by Taylor and Richardson (2012) and Noor, Fadzillah, and Mastuki (2010). A resultant positive figure means tax savings which is an indication of tax avoidance and a negative figure implies extra tax liability which the firm has to pay.

$$Tax\ avoidance\ (TA) = STR - ETR \quad (2)$$

3.1.2. Independent variables

Earnings management (EM) is one of the independent variables used to predict the relationship between tax avoidance in this study. Total accrual is defined as the net operating income minus operating cash flow and expressed as equation (3):

data to be included in the model. According to Stoker (1982) using a cross-sectional model provides several advantages over the counterpart time series model promulgated by Peasnell et al. (2005), and Bartov, Gul, and Tsui (2001). In the MJM, the total accrual is then regressed on the gross property, plant, and equipment (*PPE*) and the changes in revenue adjusted for changes in receivables to estimate the firm's discretionary accruals or discretionary decisions (i.e., abnormal accrual) using time series regression on the changes in independent variables arising from management discretionary abnormal decisions and actions to determine the changes to sales, levels of *PPE*. The residual from the regression analysis from equation (3) is referred to as the discretionary accruals or abnormal accruals and cannot be explained by the firm's economic conditions. In equation (4), the is the total accrual for firm i in time t , divided by total asset of the firm i at the previous year or at time $t-1$:

portion which is the discretionary accruals as equation (5):

$$DCA_{it} = TAC_{it} - NDC_{it} \quad (5)$$

The non-discretionary accrual is the true accruals that cannot be manipulated by the firm and it depends on the firm's level of activity while the discretionary accrual is the subjective accounting choices made by managers. The level of discretionary accruals is the discretionary decisions made by the manager on accounting methods and estimate and over the timing to recognised accruals in the financial statements. The discretionary portion of the total accrual is the earnings management. Therefore, the proxy for earnings management is discretionary accrual. The following steps are involved to estimate the level of discretionary accruals (i.e., earnings management) from the data collected for the analysis. The first

step is to calculate the earnings management using coefficient parameters of ordinary least square (OLS) regression. The second step involves the determination of the coefficients of α_1 , α_2 , and α_3 from the regression equation by running a panel

$$\frac{NDC_{it}}{TA_{i(t-1)}} = \alpha_1 \left(\frac{1}{TA_{i(t-1)}} \right) + \alpha_2 \left(\frac{\Delta Rev_{it} - \Delta Rec_{it}}{TA_{i(t-1)}} \right) + \alpha_3 \left(\frac{PPE_{it}}{TA_{i(t-1)}} \right) + \varepsilon_{it} \quad (6)$$

When the non-discretionary accrual is subtracted from the total discretionary accruals the result is the error terms represented by ε_{it} which is the error terms. The ε_{it} is the estimated discretionary accruals (i.e., earnings management) for the firms i in the year t . All variables are deflated by lagged total assets, $TA_{i(t-1)}$ to reduce heteroscedasticity.

Deferred tax (DEF) is one of the independent variables used for the analysis in this study. *DEF* is the timing difference due to a tax effect on incomes and tax liabilities. According to IAS 12, income tax is the sum of current and deferred taxation. There is a difference in the determination of incomes between accounting standards and income tax laws. This difference is either treated as a temporary or permanent difference by IAS 12. *DEF* was used as an independent variable by Kapoutso, Tzovas, and Chelevas (2015), and Dhaliwal et al. (2004) assessed the relationship between earnings and income tax using deferred tax as one of the independent variables and concluded that there was a significant relationship between deferred tax and tax avoidance. The proxy for *DEF* is recorded the deferred tax amount and utilised by each company per year in the financial statements of firms.

Transfer pricing (TP) is another independent variable used in this study. Different measures were used in the past to measure transfer pricing. The changes in prices of intra-firm transactions in accordance with Clausing (2003), exporters price charge for related entities in arm's length transaction (Amidu et al., 2019; Bernard, Jensen, & Scott, 2006), differences in tax rate between countries (Desai & Dharmapala, 2006; Amidu et al., 2019), and the absence of an immediate market to determine the value of intangibles assets (Muhammadi, Ahmed, & Habib, 2016). The study used five factors to construct a transfer pricing index for measuring the proxy of *TP* for each firm selected that is likely to manipulate their international transfer prices for this study. The index includes:

- having a subsidiary or a sibling subsidiary located in a tax haven jurisdiction;
- transacting with the subsidiary or a sibling subsidiary located in a tax haven jurisdiction for the financial year under consideration (Amidu et al., 2019);
- having a parent, a subsidiary, or a sibling subsidiary located in a country with a different tax rate other than a tax haven jurisdiction;
- transacting with the related party located in a country with a different tax rate for the financial year under review;
- payment of royalties related companies with intangible assets between related parties for the financial year under review.

This is a dichotomous variable, which is equal to 1 when the firm transacts business with related parties other else 0 is used similar to the measurement used. A total score of five is

data regression using the statistical software (Stata). The third step is to estimate the discretionary accrual from the total accruals by subtracting the non-discretionary accruals. The non-discretionary accrual is expressed as equation (6):

an indication of a higher transfer pricing manipulation and a score of 0 indicates that the firm does not manipulate its transfer prices. Transfer pricing is projected to relate positively with tax avoidance (Amidu, Coffie & Acquah, 2019).

3.1.3. Control variables

Pieces of empirical literature based on previous studies suggest that there are some factors that are associated with earnings management and are likely to be correlated with tax avoidance. To control for this possible effect of earnings management on tax avoidance the study uses leverage (*LEV*) and return on assets (*ROA*) as control variables for this study.

Leverage (LEV) represents the firm's long-term debt ratio with equity capital. Therefore, the debt ratio is an agency problem based on discretionary decisions that can influence performance. It is one of the control variables used to determine the effect on a firm's performance, hence the tax obligation is calculated from this metric. The proxy for leverage is measured is calculated by dividing total debt over total assets as shown below:

$$Debt = Total\ debt / Total\ assets$$

Some studies have reported mixed outcomes on the relationship between tax avoidance and a firm's level of leverage in the past. Agustia (2013) on his part opined that leverage or debt ratios affect earnings management, hence the tax avoidance instrument by firms. A firm with a higher level of leverage tends to have a negative relationship with tax avoidance because managers will have to resort to discretionary decisions (earnings management) in reporting financial statements to avoid a breach of loan covenant of the long-term creditors. Accordingly, Watts and Zimmerman (1986) opined that firms' used debt covenant as a decoy to use earnings management to avoid debt covenant violations. Amidu et al. (2019) concluded there was a positive relationship between *LEV* and *TA* because highly profitable firms are less likely to resort to tax avoidance practices through discretionary decisions. While Hartadinata and Tjaraka (2013) and Tiaras and Wijaya (2015) concluded that debt ratios had no significant effect on tax avoidance.

Return on assets (ROA) is a control variable and is considered as one important factor that influences the financial performance of a firm, hence its contribution to tax liability assessment by the firm. The firms' performances show how well the resources of the firms have been utilized for the benefit of their stakeholders (MacCarthy & Ahlu, 2019; Ogebe, Ogebe, & Alewi, 2013). *ROA* is considered as a superior measure of financial performance than return on equity (*ROE*) because *ROE* is embedded in *ROA*.

$$ROA = \frac{\text{Earnings before interest and taxes}}{\text{Total assets}}$$

According to Amidu et al. (2019) and Kurniasih and Sari (2013), there was a negative relationship between *ROA* and *TA* because highly profitable firms are less likely to resort to tax avoidance practices through discretionary decisions.

$$TA_{it} = \beta_0 + \beta_1(EM)_{it} + \beta_2(DEF)_{it} + \beta_3(TP)_{it} + \beta_4(LEV)_{it} + \beta_5(ROA)_{it} + \varepsilon_{it} \quad (7)$$

where:

TA is the dependent variable of this study;
EM, *DEF*, *TP*, *LEV*, and *ROA* are the independent and control variables in this study;

$\beta_1, \beta_2, \beta_3, \beta_4$ and β_5 are the regression coefficients to be estimated;

β_0 is the constant or the intercepts on the regression equation;

t is the time series of the study (*t* = 1, 2, 3, 4, and 5);
i is the cross-section (i.e., 24 firms listed on the GSE in Ghana);

ε is unique error or error term.

3.3. Research hypotheses development

The following five null hypotheses were espoused to assess the relationship between tax avoidance, earnings management, deferred tax, transfer pricing, leverages, and return on asset so that inference can be made for this study:

H1₀: There is no significant relationship between earnings management (*EM*) and tax avoidance (*TA*). Hence management discretionary accruals do reduce the firm's tax obligation for the period selected for the study.

H2₀: There is no significant relationship between deferred tax (*DEF*) and tax avoidance (*TA*). Hence management does not use the timing difference between the income tax law and accounting standards to reduce the firm's tax obligation for the period selected for the study.

H3₀: There is no significant relationship between transfer pricing (*TP*) and tax avoidance (*TA*). Hence management does not use transfer pricing to reduce the firm's tax obligation for the period selected for the study.

H4₀: There is no significant relationship between leverage (*LEV*) and tax avoidance (*TA*). Hence management does not use leverage to reduce the firm's tax obligation for the period selected for the study.

H5₀: There is no significant relationship between return on assets (*ROA*) and tax avoidance (*TA*). Hence management does not use leverage to reduce the firm's tax obligation for the period selected for the stud.

Each of these hypotheses is accepted or rejected based on the outcome of panel data regression as an analytical tool involving the t-statistic combined with the p-value, at 5% significance level, is used as the decision criteria.

4. EMPIRICAL RESULTS

The results obtained from descriptive statistics, pairwise correlation, and panel data regression and presented and discussed. The result of robust testing is presented in Table 4 and it indicates generally that, there is no serious concern of

3.2. Research model

To estimate the relationship between the earnings management (i.e., discretionary accruals) and the tax avoidance and other control variables, the study adopted the model of Kapoutsou et al. (2015) and modified it slightly to include leverage (*LEV*) and return on assets (*ROA*) as in equation (7):

multicollinearity, normality, autocorrelation, heteroskedasticity, and endogeneity problems for this study.

4.1. Description statistics

This subsection uses descriptive statistics to measure the central tendency and dispersion for the variables used for the analysis. It provides a visual depiction of the averages for each variable taken from the financial statements for the analysis. The descriptive statistic for this study uses the mean, standard deviation, minimum, and maximum of the variables in this study as presented in Table 2.

Table 2. Descriptive statistics for variables

Variable	Mean	Std. Dev.	Min	Max
<i>TA</i>	0.032	0.326	(1.667)	0.250
<i>EM</i>	0.229	0.291	0.042	0.7954
<i>DEF</i>	91,594	1,301,035	(2,535,622)	13,319,997
<i>TP</i>	0.424	0.180	0.200	0.600
<i>LEV</i>	0.283	0.261	0.023	0.813
<i>ROA</i>	0.145	0.367	(0.234)	0.433

Source: Stata version 15 computation.

The second column shows the mean for tax avoidance (*TA*) was 0.032, earnings management (*EM*) was 0.129, deferred tax (*DEF*) was 91,594, transfer pricing was 0.424, leverage (*LEV*) was 0.283, and return on assets (*ROA*) was 0.145 respectively. This implies that tax avoided by the firms on an average was 3.20% with a maximum avoided tax of 25%. Another important revelation is the company that recorded the maximum tax avoidance of 25% also recorded the highest earnings management of 79.54% in 2014. The statutory rate for normal businesses in Ghana is 25% and it means no tax was paid in respect of corporate tax for the company. Therefore, this is not just a coincidence but needs further investigation to assist the future policy direction by the tax authorities. Earnings management (*EA*) has an average of 22.9% as the discretionary component of decisions made by managers with a minimum of 4.2% and a maximum of 79.54%. This suggests that there was a wide range of discretionary activities carried out by the firms within the period studied. *LEV* was 28.3% with a minimum of 2.3% and a maximum of 81.3%. The standard deviation is used to check on the dispersion from the mean values. The standard deviation for the *TA*, *EM*, *DEF*, *TP*, *LEV*, and *ROA* were 0.326, 0.221, 1,301,035, 0.180, 0.261, and 0.367. It shows that the dispersion from the means variables is not significantly wide. Detail analysis of the *EM* values revealed higher values were recorded before 2015, confirming that the passage of the Income Tax Act, 2015 (Act 896) has decreased the rate of earnings management.

4.2. Pearson correlation matrix

This sub-section aims to test the relationship between tax avoidance, earnings management, and other variables using Pearson correlation matrix as an analytical tool to assess the association between the dependent, independent, and control variables in this study. It uses the coefficient index to determine the strength of the relationship between the dependent and independent variables.

4.2.1. Correlation matrix between TA and EM, and other variables

The association between tax avoidance, earnings management, and other variables is assessed and presented in Table 3. The coefficient index is used to determine the strength of the relationship between the dependent and independent variables. Table 3 shows that the correlation between TA, EM, DEF, TP, LEV, and ROA were 0.194, 0.348, 0.102, (0.119) and (0.244), respectively. There was a positive relationship between tax avoidance, earnings management, deferred tax, and transfer pricing, while the relationship between tax avoidance and leverage and return on assets was negative. A positive relationship means between earnings management, deferred tax, and transfer pricing and tax avoidance means when tax avoidance increases then the earnings management, deferred tax and transfer pricing also increases vice versa.

Table 3. Pairwise correlation matrix

	TA	EM	DEF	TP	LEV	ROA
TA	1.000					
EM	0.194	1.000				
DEF	0.348	0.014	1.000			
TP	0.102	0.199	0.037	1.000		
LEV	(0.119)	0.033	0.006	(0.113)	1.000	
ROA	(0.244)	0.054	(0.204)	0.106	0.488	1.000

Source: Author's Stata version 15 computation.

The positive relationship between earnings management and tax avoidance confirms with previous studies conducted by Amidu, Kwakye, Harvey, and Yorke (2016) and Desai and Dharmapala (2009) that earnings management is used for tax avoidance by firms. The second motivation for using Pearson's correlation matrix is to serve as a check for multicollinearity within the variables. Usually, the acceptable threshold for the avoidance of correlation within the independent variables should be below 0.8, and figures above this threshold suggest the existence of multicollinearity between the variables. Table 3 shows that there is no issue of correlation between independent variables used for the panel data regression. According to Anderson, Sweeney, and Williams (2009), the existence of multicollinearity would not affect how the regression is performed but rather affect the interpretation of the result.

4.3. Regression results

This sub-section provides the result of the panel data regression. The regression analysis is inferential statistics used to determine whether the relationship observed in the sample is similar to that of the larger population.

4.3.1. Econometric techniques for efficient estimation

Hausman test is the econometrics tool used to decide between the fixed effect model and random effect model for this analysis. The null hypothesis (H_0) of using the Hausman test to decide for the suitable estimator assumes a random effect estimator and the alternate hypothesis (H_a) is the fixed effects estimator (Greene, 2012). The decision criteria are to reject H_0 and choose a fixed effects estimator, is when the p-value is less than or equal to 5% and otherwise, random effects estimator should be used, when the p-value is greater than and statistically significant (i.e., when the p-value > 0.05).

Table 4. Test results from the Hausman test

Variable	Coefficients			
	(b)	(B)	(b-B)	$\sqrt{\text{diag}(V_b - V_B)}$
EM	0.204	0.048	0.156	0.080
DEF	0.047	0.040	0.007	0.016
TP	(0.406)	(0.360)	(0.046)	0.108
LEV	(0.008)	(0.028)	0.020	0.012
ROA	(0.000)	(0.006)	0.006	0.009

Notes: b = consistent under H_0 and H_a , obtained from xtreg; B = inconsistent under H_a , efficient under H_0 , obtained from xtreg.

Test: H_0 : difference in coefficients not systematic.

$\text{Chi}^2(5) = (b-B)'(V_b - V_B)^{-1}(b-B) = 4.60$

$\text{Prob} > \text{Chi}^2 = 0.4664$ ($V_b - V_B$ is not positive definite).

Source: Author's Stata version 15 computation.

The result from the Hausman test presented in Table 4 shows that the $\text{Chi}^2 = 4.60$, p-value = 0.4664. This means that the p-value is greater than 5%. Since the p-value is greater than 5% (p-value < 0.05), the study failed to reject H_0 and conclude that the preferred estimator model for the assessment is a random effect estimator (Greene, 2003). Therefore, the suitable model to estimate the between earnings management and tax avoidance is the random effect model. The motivation for panel data regression is to use the Hausman hypothesis to select the most suitable estimator devoid of endogeneity challenges

for the analysis. According to Beck, Katz, and Tucker (1998), one advantage in the use of panel data over only cross-sectional or time-series data is that random effects estimator there is a correlation between the unobserved individual heterogeneity and the observed independent variables. With the regression estimator correctly specified, the study proceeds to test for the other underlying assumptions such as normality, autocorrelation, and heteroskedasticity to ensure they are also not violated. The outcome is presented in Table 5.

Table 5. Summary of testing regression assumption

Tests	Tests statistics and hypotheses	Null hypothesis
1	Test for normality: Econometrics tool: Kolmogorov-Smirnov*/Shapiro-Wilk test Result: Chi ² (4) = 3.79, and p-value = 0.186 Null hypothesis: Data is normally distributed. Decision: Assumption not violated and model fit for regression.	Accepted
2.	Test for autocorrelation: Econometrics tool: Breusch-Godfrey test Result: Chi ² (4) = 1.35, and p-value = 0.226 Null hypothesis: Data is autocorrelated. Decision: Assumption not violated and model fit for regression	Rejected
3.	Test for endogeneity: Test for unobserved individual heterogeneity: Econometrics tool: Hausman test Result: Chi ² (5) = 4.60, p-value = 0.4664 Null hypothesis: Random effect estimator. Decision: The most suitable model for regression is the random effect estimator.	Accepted
4.	Test for heteroskedasticity: Econometrics tool: Breusch-Pagan/Cook-Weisberg test Result: BP = 2.71, and p-value = 0.321 Null hypothesis: It is homoscedastic. Decision: Confirmation of random effect estimator as a most suitable model for regression.	Accepted

Source: Author's elaboration.

The diagnostic tests for normality, autocorrelation, and heteroscedasticity from Table 5 show that the model passes all the diagnostic tests. Therefore, the model has violated any underlying regression assumptions; it is stable and rightly specified as the goodness of fit for the analysis.

4.3.2. Panel regression results

The result from the random effect estimator is presented in Table 6 and shows the relationship between the dependent variable (*TA*) and independent variables (*EM*, *DEF*, *TR*, *LEV*, and *ROA*). The correlation between the dependent variable (*TA*) and the five independent variables (*EM*, *DEF*, *TR*, *LEV*, and *ROA*) when considered simultaneously (i.e., the multiple correlation coefficients, *R*). The R-squared (*R*²) is the measure of the goodness of fit of the model. It indicates statistically the percentage of the variance in the dependent variable that the independent variables explain collectively. The *R*² of the model summary explains the fraction of the variation in the dependent variable that is explained or accounted for by

the independent variables. The *R*² is the fraction of the dependent variable that can be explained or accounted for by the independent variables. When the *R*² is higher it means the data points are closer to the regression line. Table 6 shows the between of model the summary, that is the, *R*² is 0.8029 or 80.29% while the overall of the model summary, is 0.7790 or 77.9%, which is within the acceptable level and closer to 100%. This implies that the independent variables of the model can explain about 77.9% of the changes that are happening for the tax avoidance for the firms selected for this study. This implies that the earnings management, deferred tax, transfer pricing, leverage, and return on assets of the model explain about 77.9% of the relationship tax avoidance. This leaves about 22.16% unexplained by this regressive model. The "rho" gives the proportion of the variation in the dependent variable that can be explained by the ε_{it} (Caruso & Cliff, 1997). The error ε_{it} is not correlated with the regressors variables and it assumes that random effects estimator ($corr(\varepsilon_{it}, X_i) = 0.00$).

Table 6. The random effect estimator result

Model summary: (R²)						
Within: 0.6965		Number of obs.: 240				
Between: 0.8029		Number of groups: 24				
Overall: 0.7790		Average: 10				
p-value: 0.000		Wald chi ² (5) = 93.33				
Corr (ε_{it}, X_i) = 0.00						
<i>TA</i>	Coefficients	Std. Err.	Z-statistics	P> z 	95% Conf. Interval	
<i>EM</i>	0.243	0.071	-2.030	0.043	-0.282	-0.005
<i>DEF</i>	0.122	0.005	-4.000	0.000	-0.032	-0.011
<i>TP</i>	0.039	0.051	0.770	0.003	-0.060	0.138
<i>LEV</i>	0.161	0.013	-4.780	0.000	-0.086	-0.036
<i>ROA</i>	-0.083	0.011	7.880	0.000	0.063	0.104
Constant	0.281	0.048	5.880	0.000	0.187	0.374
sigma_u	0.024					
sigma_e	0.029					
rho	0.416 (fraction of variance due to u _i)					

Source: Author's Stata version 15 computation.

Table 6 shows that the results between *TA* (dependent variable) and the five independent variables in terms of coefficients, standard errors, t-statistics, p-values, and 95% confidence interval. It revealed that the regression model fits well since

the p-values of the independent variables are statistically significant, that is p-value is less than 5%. Table 6 shows the results of the panel regression output of the estimated coefficients, along with the standard errors, Z-Statistics, and p-values for

the variables used in this analysis. It also shows the signs and the size of the coefficients of the independent variables to aid the explanation of the direction and effect on the dependent variable. Table 6 shows that *EM*, *DEF*, *TP*, and *LEV* have a positive relationship with *TA* with the coefficients of 0.243, 0.122, 0.039, and 0.161 respectively while the relationship between *ROA* has a negative relationship with *TA*. The positive relationship between tax avoidance and earnings management is consistent with previous studies conducted by Dhaliwal, Li, Tsang, and Yang (2011), Frank, Lynch, and Rego (2009), and Hanlon (2005).

4.3.3. Discussion of the results

The study observed that both the independent and control variables (*EM*, *DEF*, *TP*, *LEV*, and *ROA*) are statistically significant to explain the variation in the *TA* since the p-values were lesser than 5%. The coefficient of *EM* to *TA* was 0.243 and implied that earnings management practices (i.e., discretionary accruals decisions) increase firms' tax avoidance by 2.43%. The result means that a 1% increase in *EM* increases *TA* by 0.243%. Therefore, an average statutory tax rate of 25% is lowered by tax avoidance of 2.43%. This outcome is consistent with Desai and Dharmapala (2009), Dhaliwal et al. (2004), Yorke et al. (2016), and Taylor and Richardson (2012), who concluded that earnings management affects tax avoidance positively. The study observed the relationship between *EM* and *TA* is inconsonant with the public interest theory of regulation that opined that all economic agents pursue their interests. Therefore, there is a need for the solid regulator to seek the public protection and benefits at large. Again, the paper observed that the agency theory supports the finding that individuals seek to maximize their economic gains. The outcome suggests that tax avoidance is systematically associated with earnings management. Therefore, based on the result in Table 6 and the explanations, the study failed to reject the null hypothesis ($H1_0$) and concludes that earnings management (*EM*) has a significant relationship or influence on tax avoidance (*TA*). Secondly, *DEF* to *TA* was 0.122 and implies that a 1% increase in deferred tax increase the firm gains from tax avoidance is 1.22%. The study observed that this outcome is consistent with the public interest theory of regulation and Bunaca and Nurdayadi (2019), De Simone, Robinson, and Stomberg (2013), Romanus (2007), and Diehl (2010), who concluded that deferred tax affects tax avoidance positively. Those firms used deferred tax as a medium to minimize their tax liabilities to tax authorities. This finding implies continuous monitoring of private economic activities to ensure consistency with the overall public objective.

Therefore, based on Table 6 and the explanations, the study failed to reject the null hypothesis ($H2_0$). This study concludes that deferred tax (*DEF*) has a significant relationship or influence on tax avoidance (*TA*). Again, there was a positive and statistically significant relationship between tax avoidance and transfer pricing. The study observed from Table 6 that a 1% increase in *TP* and firms increases *TA* by 3.9%. This outcome is consistent with (Amidu et al., 2019; Donaldson & Davis, 1991;

Jensen, 2005; Muhammadi et al., 2016; Healy & Wahlen, 1999). This study observed from different pieces of literature that managers of firms resort to transfer pricing as a means to enhance tax avoidance. The ideal is to report lower profits in the sectors with higher tax rates or the developing countries and report higher earnings for the sectors with tax holidays or the parent firms usually located in a tax haven. Therefore, based on the result in Table 6 and the explanations, the study failed to reject the null hypothesis ($H3_0$) for this study to conclude that transfer pricing (*TP*) has a significant relationship or influence on tax avoidance.

Furthermore, the study observed that leverage (*LEV*), one of the control variables used in this study, has a positive and statistically significant relationship with tax avoidance (*TA*) in Table 6. The outcome of Table 6 on the relationship between *LEV* and *TA* is inconsonant with agency theory the previous studies of Kurniasih and Sari (2013), Ngadiman and Puspitasari (2014), Irianto, Sudibyo, and Wafirli (2017), DeFond and Jiambalvo (1994), and Park and Shin (2004). They concluded in their studies that higher leverage leads to higher tax avoidance. The study observed that a 1% increase in leverage increases their tax avoidance by 16.1%. The challenges of the agent-principal relationship best explain this action. Firms that want to minimize tax payment borrow more (usually through associated financial firms) subsequently pay more interest to reduce profit hence lowering the tax to the government (Richardson & Lanis, 2007). The agent (i.e., the managers) and the principal (i.e., the government) are based on the agency theory. The government wants to get more income tax, but the managers want to minimize tax payment through leverage (Irianto et al., 2017). Low tax payment is possible because the interest cost of borrowing is an allowable tax expense that reduces the profit before tax. Determination of the company's debt levels is one of the management discretionary decisions and influences the firm's earnings management (Zamri, Rahman, & Isa, 2013). Therefore, leveraged firms are more motivated to engage in earnings manipulation to avoid debt covenant violation. Furthermore, higher leverage leads to increased interest expense costs, affecting firm performance (Desai & Dharmapala, 2009; Gompers, Ishii, & Metrick, 2003). Therefore, based on the result in Table 6 and the explanations, the study failed to reject the null hypothesis ($H4_0$) for this study to conclude that leverage (*LEV*) has a significant relationship or influence on tax avoidance (*TA*). Again, the study observed that return on asset (*ROA*), another control variable used in this study, has a negative and insignificant relationship with tax avoidance (*TA*) in Table 6. The outcome of Table 6 on the relationship between *ROA* and *TA* is inconsonant with agency theory the previous studies of Amidu et al. (2019) and Kurniasih and Sari (2013). This is because a firm whose financial statements showed profit cannot use discretionary accruals to plan tax avoidance using discretionary accruals. Kurniasih and Sari (2013) concluded that profit is the most important determinant of effective tax rate and a higher profit has a lower opportunity to plan tax avoidance. The study observed that a 1% increase in leverage decreases their tax avoidance by 8.3%.

This is because taxes are calculated on the company's profit and once the profit is declared is expected to be paid. Therefore, based on the result in Table 6 and the explanations, the study rejects the null hypothesis (H_5) for this study to conclude that return on assets (ROA) has a significant relationship or influence on tax avoidance (TA).

4.3.4. Robustness test and estimation procedure

To check for the robustness of the model for the analysis, the study used two different regression methods as recommended by Boozer (1997) to enhance the efficacy of the statistical analysis and

also allow for the identification of complex behavioural patterns. The outcome of the coefficients of the variables and the R^2 for the first regression is consistent with the outcome for the second coefficients of the variables and the R^2 obtained in this study. This implies that the output from the random effect estimator is stable and devoid of heteroscedasticity and endogeneity challenges for the analyses. Therefore, the study proceeded to estimate the parameters that predict the relationship between tax avoidance and earnings management from the result of the random effect estimator in Table 6 and expressed in the form of multiple regression equation in equation (8):

$$TA = 0.281 + 0.243EM + 0.122DEF + 0.039TP + 0.161LEV - 0.083ROA \quad (8)$$

5. CONCLUSION

The purpose of this paper is to establish earnings management, as well as other variables, that are used by firms selected from the Ghana Stock Exchange (GSE) to means of tax avoidance to the tax authority. The study provided empirical evidence that earnings management, leverage, and transfer pricing are some of the mediums used to resort to tax avoidance practices in Ghana. The benefit of tax avoidance does accrue to the benefit of the shareholders but to the benefit of managers (agents) as dictated by agency theory. The decisions and actions collectively referred to as discretionary accruals (earnings management), deferred tax, transfer pricing, leverage are management decisions that aim to enhance the value of the firm and reduce tax obligation to the tax authorities. There is an urgent need for the public interest theory of regulation to protect the public at large and to reduce this unethical behaviour engaged by managers to resort to tax avoidance at the expense of revenue needed for the development of the country. This study can make important recommendations based on the findings that the tax authorities, as well as other stakeholders, must help to curb these negative practices that are inimical to the economic development of the country. First of all, even though earnings management is normally used for tax avoidance by firms. However, the practice entails some risk which must be expensive when found by the tax authorities and

therefore, shareholders are encouraged to take a center stage to bring it to a minimum in the country. Again, even though the recent introduction of IFRS has improved the quality of the presentation of financial statements by firms. A further revision is needed for IAS 12 on income taxation to reduce the discretionary options provided to managers of firms regarding the treatment and level of deferred tax to be recognised in the financial statement. There were a few limitations of this study. Firstly, the used earnings management (EM), deferred tax (DEF), transfer pricing (TP), leverage (LEV), and return on assets (ROA) as the independent and control variables to assess the effect on TA were not exhaustive. Other mediums such as income splitting, stock option, and intellectual capital can be used as discretionary accruals by managers to influence TA . Secondly, the theoretical assumption for data integrity requires excluding the financial and insurance firms from the GSE, but the result is generalized to the entire population of GSE. Lastly, the study could have exploited the recent promotion of effective corporate governance to remedy the agent-principal conflict. The suggestion is because effective corporate governance regulations aim, among things, to curtail the activities of illegal earnings management. A future study should consider expanding the variables to include corporate governance variables as moderating effect on tax avoidance.

REFERENCES

1. Abdul Rahman, R., & Haneem Mohamed Ali, F. (2006). Board, audit committee, culture and earnings management: Malaysian evidence. *Managerial Auditing Journal*, 21(7), 783-804. <https://doi.org/10.1108/02686900610680549>
2. Abdul Wahab, N. S., & Holland, K. (2014). The persistence of book-tax differences. *The British Accounting Review*, 47(4), 339-350. <https://doi.org/10.1016/j.bar.2014.06.002>
3. Agustia, D. (2013). Pengaruh faktor good corporate governance, free cash flow, dan leverage terhadap manajemen laba [The influence of good corporate governance, free cash, and leverage on earnings management]. *Journal of Accounting and Finance*, 15(1), 27-42. <https://doi.org/10.9744/jak.15.1.27-42>
4. Amidu, M., Coffie, W., & Acquah, P. (2019). Transfer pricing, earnings management and tax avoidance of firms in Ghana. *Journal of Financial Crime*, 26(1), 235-259. <https://doi.org/10.1108/JFC-10-2017-0091>
5. Amidu, M., Kwakye, T. O., Harvey, S., & Yorke, S. M. (2016). Do firms manage earnings and avoid tax for corporate social responsibility? *Journal of Accounting and Taxation*, 8(2), 11-27. <https://doi.org/10.5897/JAT2016.0218>
6. Amidu, M., Yorke, S. M., & Harvey, S. (2016). The effects of financial reporting standards on tax avoidance and earnings quality: A case of an emerging economy. *Journal of Accounting and Finance*, 16(2), 129-150. Retrieved from http://www.m.www.na-businesspress.com/JAF/AmiduM_Web16_2_.pdf

7. Anderson, D. R., Sweeney, D. J., & Williams, T. A. (2009). *Statistics for business and economics*. South-Western Cengage Learning. Retrieved from <https://cutt.ly/iYLcDEL>
8. Armstrong, C. S., Blouin, J. L., & Larcker, D. F. (2012). The incentives for tax planning. *Journal of Accounting and Economics*, 53(1-2), 391-411. <https://doi.org/10.1016/j.jacceco.2011.04.001>
9. Atwood, T. J., Drake, M. S., & Myers, L. A. (2010). Book-tax conformity, earnings persistence and the association between earnings and future cash flows. *Journal of Accounting and Economics*, 50(1), 111-125. <https://doi.org/10.1016/j.jacceco.2009.11.001>
10. Balasubramanian, L., Zaman, S., & Thomson, J. B. (2013). *Are banks forward-looking in their loan loss provisioning? Evidence from the Senior Loan Officer Opinion Survey (SLOOS)* (FRB of Cleveland Working Paper No. 13-13). <https://doi.org/10.26509/wp-201313>
11. Bartov, E., Gul, F. A., & Tsui, J. S. L. (2001). Discretionary accruals and audit qualifications. *Journal of Accounting and Economics*, 30(3), 421-452. [https://doi.org/10.1016/S0165-4101\(01\)00015-5](https://doi.org/10.1016/S0165-4101(01)00015-5)
12. Beck, N., Katz, J. N., & Tucker, R. (1998). Taking time seriously: Time-series-cross-section analysis with a binary dependent variable. *American Journal of Political Science*, 42(4), 1260-1288. <https://doi.org/10.2307/2991857>
13. Benkel, M., Mather, P., & Ramsay, A. (2006). The association between corporate governance and earnings management: The role of independent directors. *Corporate Ownership & Control*, 3(4), 65-75. <https://doi.org/10.22495/cocv3i4p4>
14. Bergstresser, D., & Philippon, T. (2004). CEO incentives and earnings management. *Journal of Financial Economics*, 80(3), 511-529. <https://doi.org/10.1016/j.jfineco.2004.10.011>
15. Bernard, A. B., Jensen, J. B., & Scott, P. K. (2006). *Transfer pricing by US based multinational firms* (NBER Working Paper No. 12493). <https://doi.org/10.3386/w12493>
16. Blaylock, B., Shevlin, T., & Wilson, R. J. (2012). Tax avoidance, large positive temporary book-tax differences, and earnings persistence. *Accounting Review*, 87(1), 91-120. <https://doi.org/10.2308/accr-10158>
17. Boozer, M. A. (1997). Econometric analysis of panel data by Badi H. Baltagi, Wiley, 1995. *Econometric Theory*, 13(5), 747-754. <https://doi.org/10.1017/S0266466600006150>
18. Bornemann, S., Kick, T., Memmel, C., & Pfingsten, A. (2012). Are banks using hidden reserves to beat earnings benchmarks? Evidence from Germany. *Journal of Banking & Finance*, 36(8), 2403-2415. <https://doi.org/10.1016/j.jbankfin.2012.05.001>
19. Bunaca, R. A., & Nurdayadi. (2019). The impact of deferred tax expense and tax planning toward earnings management and profitability. *Jurnal Bisnis dan Akuntansi*, 21(2), 215-236. <https://doi.org/10.34208/jba.v21i2.625>
20. Cahan, S. F., Emanuel, D., & Sun, J. (2009). The effect of earnings quality and country-level institutions on the value relevance of earnings. *Review of Quantitative Finance and Accounting*, 33(4), 371. <https://doi.org/10.1007/s11156-009-0117-z>
21. Canada Revenue Agency. (2013). *Aggressive tax planning*. Retrieved from <https://www.canada.ca/en/revenue-agency/corporate/about-canada-revenue-agency-cra/tax-alert/aggressive-tax-planning.html>
22. Caruso, J. C., & Cliff, N. (1997). Empirical size, coverage, and power of confidence intervals for Spearman's Rho. *Educational and Psychological Measurement*, 57(4), 637-654. <https://doi.org/10.1177/0013164497057004009>
23. Chan, C. K., Chan, L. K. C., Jegadeesh, N., & Lakonishok, J. (2006). Earnings quality and stock returns. *The Journal of Business*, 79(3), 1041-1082. <https://doi.org/10.1086/500669>
24. Chen, L. H., Dhaliwal, D. S., & Trombley, M. A. (2012). Consistency of book-tax differences and the information content of earnings. *The Journal of the American Taxation Association*, 34(2), 93-116. <https://doi.org/10.2308/atax-50174>
25. Chen, S., Chen, X., Cheng, Q., & Shevlin, T. (2010). Are family firms more tax aggressive than non-family firms? *Journal of Financial Economics*, 95(1), 41-61. <https://doi.org/10.1016/j.jfineco.2009.02.003>
26. Clausing, K. A. (2003). Tax-motivated transfer pricing and US intrafirm trade. *Journal of Public Economics*, 87(9-10), 2207-2223. [https://doi.org/10.1016/S0047-2727\(02\)00015-4](https://doi.org/10.1016/S0047-2727(02)00015-4)
27. Davidson, R., Goodwin-Stewart, J., & Kent, P. (2005). Internal governance structures and earnings management. *Accounting and Finance*, 45(2), 241-267. <https://doi.org/10.1111/j.1467-629x.2004.00132.x>
28. Davidson, W. N., III, Jiraporn, P., Kim, Y. S., & Nemecek, C. (2004). Earnings management following duality-creating successions: Ethnostatistics, impression management, and agency theory. *Academy of Management Journal*, 47(2), 267-275. <https://doi.org/10.5465/20159577>
29. De Luca, F., & Paolone, F. (2019). The impact of the financial crisis on earnings management: Empirical evidence from Italian and Spanish listed companies. *Corporate Ownership & Control*, 16(2), 121-130. <https://doi.org/10.22495/cocv16i2art12>
30. De Simone, L., Robinson, J. R., & Stomberg, B. (2011). Distilling the reserve for uncertain tax positions: The revealing case of Black Liquor. Paper presented at the 2011 American Accounting Association Annual Meeting — Tax Concurrent Sessions. <https://doi.org/10.2139/ssrn.1905209>
31. Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting earnings management. *The Accounting Review*, 70(2), 193-225. Retrieved from <https://www.jstor.org/stable/248303>
32. DeFond, M. L., & Jiambalvo, J. (1994). Debt covenant violation and manipulation of accruals. *Journal of Accounting and Economics*, 17(1-2), 145-176. [https://doi.org/10.1016/0165-4101\(94\)90008-6](https://doi.org/10.1016/0165-4101(94)90008-6)
33. Demirkan, S., & Platt, H. (2009). Financial status, corporate governance quality, and the likelihood of managers using discretionary accruals. *Accounting Research Journal*, 22(1), 93-117. <https://doi.org/10.1108/10309610910987475>
34. Desai, M. A., & Dharmapala, D. (2006). Corporate tax avoidance and high-powered incentives. *Journal of Financial Economics*, 79(1), 145-179. <https://doi.org/10.1016/j.jfineco.2005.02.002>
35. Desai, M. A., & Dharmapala, D. (2009). Earnings management, corporate tax shelters, and book-tax alignment. *National Tax Journal*, 62(1), 169-186. <https://doi.org/10.17310/ntj.2009.1.08>
36. Dhaliwal, D. S., Gleason, C. A., & Mills, L. F. (2004). Last-chance earnings management: Using the tax expense to meet analysts' forecasts. *Contemporary Accounting Research*, 21(2), 431-459. <https://doi.org/10.1506/TFVU-UYT1-NNYT-1YFH>
37. Dhaliwal, D. S., Li, O. Z., Tsang, A., & Yang, Y. G. (2011). Voluntary nonfinancial disclosure and the cost of equity capital: The initiation of corporate social responsibility reporting. *The Accounting Review*, 86(1), 59-100. <https://doi.org/10.2308/accr.00000005>

38. Diehl, K. A. (2010). Ratio of deferred tax liabilities to shares as a predictor of stock prices. *Accounting & Taxation*, 2(1), 95–105. Retrieved from <http://www.theibr2.com/RePEc/ibf/acttax/at-v2n1-2010/AT-V2N1-2010-7.pdf>
39. Donaldson, L., & Davis, J. H. (1991). Stewardship theory or agency theory: CEO governance and shareholder returns. *Australian Journal of Management*, 16(1), 49–64. <https://doi.org/10.1177/031289629101600103>
40. Dyreng, S. D., Hanlon, M., & Maydew, E. L. (2008). Long-run corporate tax avoidance. *The Accounting Review*, 83(1), 61–82. <https://doi.org/10.2308/accr.2008.83.1.61>
41. Francis, B. B., Hasan, I., Wu, Q., & Yan, M. (2014). Are female CFOs less tax aggressive? Evidence from tax aggressiveness. *Journal of the American Taxation Association*, 36(2), 171–202. <https://doi.org/10.2308/atax-50819>
42. Frank, M. M., Lynch, L. J., & Rego, S. O. (2009). Tax reporting aggressiveness and its relation to aggressive financial reporting. *The Accounting Review*, 84(2), 467–496. <https://doi.org/10.2308/accr.2009.84.2.467>
43. Gajevszky, A. (2015). Assessing financial reporting quality: Evidence from Romania. *Audit Financiar*, 13(1), 69–80. Retrieved from <https://cutt.ly/gYLKZp1>
44. Garbeti, A., Terrin, A., Bigoni, M., & Bueno, M. (2008). *Empresa familiar: Competências e perspectivas*. Presidente Prudente (Faculdade de Ciências Econômicas e Administrativas de Presidente Prudente). Retrieved from <https://ru.scribd.com/document/358428882/Empresa-Familiar-competencias-e-Perspectivas>
45. Gatsi, J. G., Anipa, C. A. A., Gadzo, S. G., & Ameyibor, J. (2016). Corporate social responsibility, risk factor and financial performance of listed firms in Ghana. *Journal of Applied Finance & Banking*, 6(2), 21–38. Retrieved from http://www.scribd.com/Upload/JAFB%2fVol%206_2_2.pdf
46. Gompers, P. A., & Ishii, J. L., & Metrick, A. (2003). Corporate governance and equity prices. *Quarterly Journal of Economics*, 118(1), 107–155. <https://doi.org/10.2139/ssrn.278920>
47. Graham, J. R., Raedy, J. S., & Shackelford, D. A. (2012). Research in accounting for income taxes. *Journal of Accounting and Economics*, 53(1–2), 412–434. <https://doi.org/10.1016/j.jacceco.2011.11.006>
48. Greene, W. H. (Ed.). (2003). Minimum distance estimation and the generalized method of moments. In *Econometric analysis* (5th ed.). Boston, MA: Pearson.
49. Greene, W. H. (2012). *Econometric analysis* (7th ed.). Boston, MA: Pearson.
50. Hanlon, M. (2005). The persistence and pricing of earnings, accruals, and cash flows when firms have large book-tax differences. *The Accounting Review*, 80(1), 137–166. <https://doi.org/10.2308/accr.2005.80.1.137>
51. Hanlon, M., & Heitzman, S. (2010). A review of tax research. *Journal of Accounting and Economics*, 50(2–3), 127–178. <https://doi.org/10.1016/j.jacceco.2010.09.002>
52. Hantke-Domas, M. (2003). The public interest theory of regulation: Non-existence or misinterpretation? *European Journal of Law and Economics*, 15, 165–194. <https://doi.org/10.1023/A:1021814416688>
53. Hartadinata, O. S., & Tjaraka, H. (2013). Analysis of the influence of managerial ownership, debt policy, and company size on tax aggressiveness. *Journal of Economics and Business*, 23(3), 48–59.
54. Healy, P. M. (1985). The effect of bonus schemes on accounting decisions. *Journal of Accounting and Economics*, 7(1–3), 85–107. [https://doi.org/10.1016/0165-4101\(85\)90029-1](https://doi.org/10.1016/0165-4101(85)90029-1)
55. Healy, P. M., & Wahlen, J. M. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting Horizons*, 13(4), 365–383. <https://doi.org/10.2308/acch.1999.13.4.365>
56. Hutchinson, M. R., Percy, M., & Erkurtoglu, L. (2008). An investigation of the association between corporate governance, earnings management and the effect of governance reforms. *Accounting Research Journal*, 21(1), 239–262. <https://doi.org/10.1108/10309610810922495>
57. Income Tax Act, 2015 (Act 896). Retrieved from <https://cutt.ly/KYNSpLr>
58. Irianto, B. S., Sudibyo, Y. A., & Wafirli, A. (2017). The influence of profitability, leverage, firm size and capital intensity towards tax avoidance. *International Journal of Accounting and Taxation*, 5(2), 33–41. <https://doi.org/10.15640/ijat.v5n2a3>
59. Iyengar, R. J., Land, J., & Zampelli, E. M. (2010). Does board governance improve the quality of accounting earnings? *Accounting Research Journal*, 23(1), 49–68. <https://doi.org/10.1108/10309611011060524>
60. Jensen, M. C. (2005). Agency costs of overvalued equity. *Financial Management*, 34(1), 5–19. <https://doi.org/10.1111/j.1755-053X.2005.tb00090.x>
61. Jensen, K. L., & Payne, J. L. (2003). Management trade-offs of internal control and external auditor expertise in auditing. *Journal of Practice & Theory*, 22(2), 99–119. <https://doi.org/10.2308/aud.2003.22.2.99>
62. Jones, J. J. (1991). Earnings management during import relief investigations. *Journal of Accounting Research*, 29(2), 193–228. <https://doi.org/10.2307/2491047>
63. Kao, L., & Chen, A. (2004). The effects of board characteristics on earnings management. *Corporate Ownership & Control*, 1(3), 96–107. <https://doi.org/10.22495/cocv1i3p9>
64. Kapoutso, E., Tzovas, C., & Chelevas, C. (2015). Earnings management and income tax avoidance from Greece. *Corporate Ownership & Control*, 12(2), 523–541. <https://doi.org/10.22495/cocv12i2c5p1>
65. Khurana, I. K., & Moser, W. J. (2013). Institutional shareholders' investment horizons and tax avoidance. *Journal of the American Taxation Association*, 35(1), 111–134. <https://doi.org/10.2308/atax-50315>
66. Koh, Y., & Lee, H.-A. (2015). The effect of financial factors in firm's financial and tax reporting decisions. *Asian Review of Accounting*, 23(2), 110–138. <https://doi.org/10.1108/ARA-01-2014-0016>
67. Kopicco, M. S. (2008). Why employees and managers engage in unethical practices. *Senior Honors Theses & Projects*, 590. Retrieved from <https://commons.emich.edu/honors/590/>
68. Kurniasih, T., & Sari, M. M. R. (2013). Pengaruh return on assets, leverage, corporate governance, ukuran perusahaan dan kompensasi rugi fiskal pada tax avoidance [Pengaruh profitabilitas, leverage, corporate governance, company size, and fiscal loss compensation on tax avoidance]. *Economic Studies Bulletin*, 18(1), 58–66. Retrieved from <https://ojs.unud.ac.id/index.php/bse/article/view/6160/4647>
69. Lanis, R., & Richardson, G. (2011). The effect of board of director composition on corporate tax aggressiveness. *Journal of Accounting and Public Policy*, 30(1), 50–70. <https://doi.org/10.1016/j.jaccpubpol.2010.09.003>
70. Lanis, R., & Richardson, G. (2012). Corporate social responsibility and tax aggressiveness: An empirical analysis. *Journal of Accounting and Public Policy*, 31(1), 86–108. <https://doi.org/10.1016/j.jaccpubpol.2011.10.006>
71. Lanis, R., Richardson, G., & Taylor, G. (2015). Board of director gender and corporate tax aggressiveness: An empirical analysis. *Journal of Business Ethics*, 144, 577–596. <https://doi.org/10.1007/s10551-015-2815-x>

72. Lev, B., & Nissim, D. (2004). Taxable income, future earnings, and equity values. *The Accounting Review*, 79(4), 1039-1074. <https://doi.org/10.2308/accr.2004.79.4.1039>
73. Lipe, R. (1990). The relationship between stock returns and accounting earnings alternative information. *The Accounting Review*, 65(1), 49-71. Retrieved from <https://www.jstor.org/stable/247876>
74. Lyimo, G. D. (2014). Assessing the measures of quality of earnings: Evidence from India. *European Journal of Accounting Auditing and Finance Research*, 2(6), 17-28. Retrieved from <https://www.eajournals.org/wp-content/uploads/Assessing-the-measures-of-Quality-of-Earnings-Evidence-from-India.pdf>
75. MacCarthy, J., & Ahulu, H. (2019). Does capital structure affect firms' performance in Ghana? Panel data analysis. *Accounting and Finance Research*, 8(4), 131-143. <https://doi.org/10.5430/afr.v8n4p131>
76. Mari, L. M., Terzani, S., Agnello, M., & Iorio, S. (2016). Il rischio di manipolazione dei bilanci in tempi di crisi: Analisi di un campione di imprese quotate [The risk of balance sheet manipulation in times of crisis: Analysis of a sample of companies]. *Italian Journal of Accounting and Business Economics*, 1(4), 23-39. Retrieved from https://www.researchgate.net/publication/303347683_IL_rischio_di_manipolazione_dei_bilanci_in_tempi_di_crisi_analisi_di_un_campione_di_impresa_quotate
77. Mearns, R., & Wong, K. Y. (2009). An investigation of the expectancy theory elements for motivating employees. In *Proceedings of the 2009 International Association of Computer Science and Information Technology Conference*. <https://doi.org/10.1109/IACSIT-SC.2009.45>
78. Miller, G. S., & Skinner, D. J. (1998). Determinants of the valuation allowance for deferred tax assets under SFAS No. 109. *The Accounting Review*, 73(2), 213-233. Retrieved from <https://www.jstor.org/stable/248466>
79. Minnick, K., & Noga, T. (2010). Do corporate governance characteristics influence tax management? *Journal of Corporate Finance*, 16(5), 703-718. <https://doi.org/10.1016/j.jcorpfin.2010.08.005>
80. Moyo, D., & Munoriyarwa, A. (2021). Data must fall': Mobile data pricing, regulatory paralysis and citizen action in South Africa. *Information, Communication & Society*, 24(3), 365-380. <https://doi.org/10.1080/1369118X.2020.1864003>
81. Muhammadi, A. H., Ahmed, Z., & Habib, A. (2016). Multinational transfer pricing of intangible assets: Indonesian tax auditors' perspectives. *Asian Review of Accounting*, 24(3), 313-337. <https://doi.org/10.1108/ARA-10-2014-0112>
82. Nagata, K. (2013). Does earnings management lead to favorable IPO price formation or further underpricing? Evidence from Japan. *Journal of Multinational Financial Management*, 23(4), 301-313. <https://doi.org/10.1016/j.mulfin.2013.05.002>
83. Nelson, M. W., Elliott, J. A., & Tarplay, R. L. (2003). How are earnings managed? Examples from auditors. *Accounting Horizons*, 17-35. <https://doi.org/10.2139/SSRN.301518>
84. Newberry, K. J., & Novack, G. F. (1999). The effect of taxes on corporate debt maturity decisions: An analysis of public and private bond offering. *Journal of the American Taxation Association*, 21(2), 1-16. <https://doi.org/10.2308/jata.1999.21.2.1>
85. Ngadiman, N., & Puspitasari, C. (2014). The effect of leverage, institutional ownership, and company size on tax avoidance in manufacturing sector companies listed on the Indonesia Stock Exchange 2010-2012. *Accounting Journal*, 18(1), 408-421.
86. Nkundabanyanga, S. K., Omagor, C., Mpamizo, B., & Ntayi, J. M. (2011). The love of money, pressure to perform and unethical marketing behavior in the cosmetic industry in Uganda. *International Journal of Marketing Studies*, 3(4). <https://doi.org/10.5539/ijms.v3n4p40>
87. Noor, R. M., Fadzillah, N. S. M., & Mastuki, N. (2010). Corporate tax planning: A study on corporate effective tax rates of Malaysian listed companies. *International Journal of Trade, Economics and Finance*, 1(2), 189-193. <https://doi.org/10.7763/IJTEF.2010.V1.34>
88. Ogebe, P., Ogebe, J., & Alewi, K. (2013). The impact of capital structure on firms' performance in Nigeria (MPRA Working Paper No. 47173). Retrieved from https://mpra.ub.uni-muenchen.de/46173/1/MPRA_paper_46173.pdf
89. Omoye, A. S., & Eriki, P. O. (2014). Corporate governance determinants of earnings management: Evidence from Nigerian quoted companies. *Mediterranean Journal of Social Sciences*, 5(23), 553. <https://doi.org/10.5901/mjss.2014.v5n23p553>
90. Osegbue, I. F., Nweze, A., Ifurueze, M., & Nwoye, C. M. (2019). Effects of tax sheltering on earnings management in Nigeria. *Research Papers in Economics and Finance*, 3(2), 45-69. <https://doi.org/10.18559/ref.2018.2.5>
91. Park, Y. W., & Shin, H.-H. (2004). Board composition and earnings management in Canada. *Journal of Corporate Finance*, 10(3), 431-457. [https://doi.org/10.1016/S0929-1199\(03\)00025-7](https://doi.org/10.1016/S0929-1199(03)00025-7)
92. Peasnell, K. V., Pope, P. F., & Young, S. (2005). Board monitoring and earnings management: Do outside directors influence abnormal accruals? *Journal of Business Finance & Accounting*, 32(7-8), 1311-1346. <https://doi.org/10.1111/j.0306-686X.2005.00630.x>
93. Phillips, J. D. (2003). Corporate tax-planning effectiveness: The role of compensation based incentives. *The Accounting Review*, 78(3), 847-874. <https://doi.org/10.2308/accr.2003.78.3.847>
94. Rego, S. O. (2003). Tax-avoidance activities of US multinational corporations. *Contemporary Accounting Research*, 20(4), 805-833. <https://doi.org/10.1506/VANN-B7UB-GMFA-9E6W>
95. Reidenbach, R. E., & Robin, D. P. (1991). A conceptual model of corporate moral development. *Journal of Business Ethics*, 10(4), 273-284. <https://doi.org/10.1007/BF00382966>
96. Richardson, G., & Lanis, R. (2007). Determinants of the variability in corporate effective tax rates and tax reform: Evidence from Australia. *Journal of Accounting and Public Policy*, 26(6), 689-704. <https://doi.org/10.1016/j.jaccpubpol.2007.10.003>
97. Romanus, R. N. (2007). *The impact of earnings quality on investors' and analysts' reactions to restatement announcements* (Doctoral dissertation, Virginia Polytechnic Institute and State University). Retrieved from <https://techworks.lib.vt.edu/handle/10919/28082>
98. Ronen, J., Tzur, J., & Yaari, V. (2006). The effect of directors' equity incentives on earnings management. *Journal of Accounting and Public Policy*, 25(4), 359-389. <https://doi.org/10.1016/j.jaccpubpol.2006.05.007>
99. Rusmin, R. (2010). Auditor quality and earnings management: Singaporean evidence. *Managerial Auditing Journal*, 25(7), 618-638. <https://doi.org/10.1108/02686901011061324>

100. Saleh, M. M., Iskandar, T. M., & Rahmat, M. M. (2005). Earnings management and board characteristics: Evidence from Malaysia, *Jurnal Pengurusan*, 24(1), 77-104. Retrieved from <http://journalarticle.ukm.my/1763/1/Jp24-04.pdf>
101. Stoker, T. M. (1982). The use of cross-section data to characterize macro functions. *Journal of the American Statistical Association*, 77(378), 369-380. <https://doi.org/10.1080/01621459.1982.10477819>
102. Taylor, G., & Richardson, G. (2012). International corporate tax avoidance practices: Evidence from Australian firms. *International Journal of Accounting*, 47(4), 469-496. <https://doi.org/10.1016/j.intacc.2012.10.004>
103. Tiaras, I., & Wijaya, H. (2015). Pengaruh likuiditas, leverage, manajemen laba, komisaris independen dan ukuran perusahaan terhadap agresivitas pajak [Effect of liquidity, leverage, earnings management, independent commissioners and firm size on tax aggressiveness]. *Journal of Accounting*, 19(3), 380-397. <https://doi.org/10.24912/ja.v19i3.87>
104. Tjondro, E., & Permata, A. A. (2019). Earning management or tax avoidance? Company decision on accounting and tax reporting cost. In *Proceedings of the International Conference on Tourism, Economics, Accounting, Management, and Social Science*. <https://doi.org/10.2991/teams-19.2019.4>
105. Wang, S., & Chen, S. (2012). The motivation for tax avoidance in earnings management. Paper presented at the *International Conference on Engineering and Business Management* (pp. 447-450). Retrieved from https://file.scirp.org/pdf/EBM2012_2013042216154683.pdf
106. Watts, R., & Zimmerman, J. (1986). *Positive accounting theory*. Englewood Cliffs, NJ: Prentice Hall Inc.
107. Wu, R.-S. (2014). Predicting earnings management: A nonlinear approach. *International Review of Economics & Finance*, 30(1), 1-25. <https://doi.org/10.1016/j.iref.2013.11.001>
108. Yorke, S. M., Amidu, M., & Agyemin-Boateng, C. (2016). The effects of earnings management and corporate tax avoidance on firm value. *International Journal of Management Practice*, 9(2), 1-21. <https://doi.org/10.1504/IJMP.2016.076741>
109. Zamri, N., Rahman, A. R., & Isa, N. S. M. (2013). The impact of leverage on real earnings management. *Procedia Economics and Finance*, 7, 86-95. Retrieved from <https://core.ac.uk/download/pdf/82198457.pdf>