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Article

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Cogent Business & Management

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Suggested Citation: Tackie, George; Agyei, Samuel Kwaku; Bawuah, Isaac; Adela, Vincent; Bossman, Ahmed (2022) : Tax planning and financial performance of insurance companies in Ghana: the moderating role of corporate governance, Cogent Business & Management, ISSN 2331-1975, Taylor & Francis, Abingdon, Vol. 9, Iss. 1, pp. 1-18,
<https://doi.org/10.1080/23311975.2022.2144097>

This Version is available at:

<https://hdl.handle.net/10419/289348>

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To cite this article: George Tackie, Samuel Kwaku Agyei, Isaac Bawuah, Vincent Adela & Ahmed Bossman (2022) Tax planning and financial performance of insurance companies in Ghana: the moderating role of corporate governance, Cogent Business & Management, 9:1, 2144097, DOI: [10.1080/23311975.2022.2144097](https://doi.org/10.1080/23311975.2022.2144097)

To link to this article: <https://doi.org/10.1080/23311975.2022.2144097>



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Received: 07 July 2021
Accepted: 02 November 2022

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Reviewing editor:
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ACCOUNTING, CORPORATE GOVERNANCE & BUSINESS ETHICS | RESEARCH ARTICLE

Tax planning and financial performance of insurance companies in Ghana: the moderating role of corporate governance

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PUBLIC INTEREST STATEMENT

Recently, insurance companies have concerns about weighty tax exactions, low penetration rate, and the need to retain profit to boost its economic stance and contribution to gross domestic product. Firms' engagement in tax planning helps them to avoid paying needless taxes, thereby increasing after-tax earnings. Bounded by regulations and the need for corporate governance, tax planning activities directed towards improving corporate performance may be constrained. This has precipitated the rise in the literature that seeks to investigate the effect of tax planning on corporate performance. So far, the attention of empirical investigations on the above subject has been on the non-financial firms and the banking industry. Given the indispensable contribution of the insurance industry towards economic growth, we envisage this issue from the perspective of insurance firms in Ghana. We provide intriguing findings that are of significant importance to corporate managers, policymakers, and practitioners across the insurance industry and beyond.

Abstract: The insurance industry is a contributor to gross domestic product (GDP) in the Ghanaian economy and, thus, effort at improving its financial soundness through tax planning (TP) could enhance its level of GDP contribution. Previous studies on TP have been conducted mainly among the non-financial firms, with few on banks. This study turns the attention of TP towards the insurance industry, which has been a good source of fund mobilization in the country. Within the systems panel dynamic generalized method of moments (GMM) framework, the study examined the moderating impact of corporate governance (CG) on the relationship between TP and the performance of insurance companies in Ghana. The study employs the causal design to examine the extent and nature of the cause-and-effect relationship between the quantitative variables used. The data comprised of 117 observations from 35 Ghanaian Insurance firms over the 2012–2017 period. The study found evidence of a non-linear relationship between tax planning measured by effective tax rate (ETR) and the performance of insurance companies measured by return on equity (ROE) and return on asset (ROA). Moreover, the study found that CG moderated the relationship between TP and the performance of insurance companies. The study recommends that managers of insurance companies intensify the CG measures to help mitigate the agency conflict and associated costs between management and shareholders.

Subjects: Business, Management and Accounting; Accounting; Corporate Governance

Keywords: Effective tax rate; return on asset; return on equity; corporate governance; tax planning

1. Introduction

Corporate entities, like all other citizens, are required to pay taxes. Since corporate tax represents the conveyance of wealth from firms to the state (Santana & Rezende, 2016), corporate entities are as much concerned about their tax expenditure as all other business expenditures. Tax planning (TP) has, therefore, become an indispensable part of corporate financial management (Ogundajo & Onakoya, 2016) and takes several forms, including “transfers of revenues by geographical area, redevelopment of the company, haven and loopholes in tax legislation” (Ftouhi & Ghardallou, 2020, p. 329). Ayers et al. (2009) described TP as managing taxable income downward; all activities intended to yield a tax benefit (Wahab & Holland, 2012). Thus, it is expected that as firms engage in TP, they can avoid paying needless tax, thereby increasing after-tax earnings. This has precipitated the rise in the literature that seeks to investigate the effect of TP on other firm variables like profitability, performance, and firm value, among others. While the literature has been ripe about how TP impacts the profitability of non-financial firms, with a few on banks, empirical evidence is scanty on the insurance industry, which in recent times has concerns about its weighty tax exactions, has low penetration rate and thus has a great need to retain profit to boost its economic stance and contribution to gross domestic product (GDP; National Insurance Commission, 2018). Therefore, this study looks at the relationship between tax planning and the performance of the insurance sector in Ghana, taking into account the moderating role of corporate governance.

The insurance industry forms an essential part of a country's financial sector. The insurance industry, being able to make available long-term funds, has been the economic backbone of many developed countries (Boadi et al., 2013). Boadi, Antwi and Larrey reiterate that insurance companies are major sources for mobilising funds that have facilitated the development of such nations in such countries. However, the reverse is true in Ghana, like many other developing countries. The insurance industry's penetration, that is, its contribution to gross domestic product (GDP), is very

low, under 2% (National Insurance Commission, 2018), emphasising the requirement for improved performance in the industry.

In terms of financial performance, tax exactions are a major challenge within the insurance industry. For instance, in 2014, when the policy of making non-life insurance firms pay 17.5% VAT was passed, insurance firms were put to sheer fear of having to either lose the existing few clients by raising the prices of products or maintaining customers by bearing the tax incident themselves (MyjoyOnline, 2014). Moreover, in 2016, it was discovered that the decline in the industry's profitability in terms of ROE and premium growth from 16% and 32% respectively in 2015 to 9% and 28% respectively in 2016 was partly as a result of the huge tax expenditure (National Insurance Commission, 2018). This presupposes that to achieve good financial performance with the desirable attendant profit, insurance firms must deem tax planning as an indispensable part of their overall financial planning strategies, as TP has been discovered to be a subset of firms' overall financial planning which takes into account investment, financing and wealth-building strategies of the company (Ogundajo & Onakoya, 2016). But whether TP translates into an economic fortune for corporate firms or not is a debatable question that has not fully been empirically resolved. For instance, Desai and Hines (2002) and S. Chen et al. (2010) reported a direct effect of TP savings on firm performance, arguing that tax characterises the cost of operations and any "tax cost-minimising strategy" leads to higher firm performance. This argument implies that savings made from TP exceed the associated cost and risk.

On the contrary, Desai and Dharmapala (2007), while acknowledging that TP had a positive relationship with accounting performance, reported just as Kawor and Kportogbi (2014) underscore that TP had a neutral association with market performance. In the same vein, Santana and Rezende (2016) and Abdul-Wahab (2010) reported an indirect effect of TP on firm performance. Kportogbi (2013) proposed that the "tax planning-firm performance" nexus is mediated by corporate governance. Thus, even as the insurance industry has good reasons to engage in tax planning, the effect of TP on insurance firms' performance with the moderating role of corporate governance must be specified.

Besides, in both developed and developing countries, only a scant of TP literature has been conducted concerning the financial institutions owing to their special regulatory framework proposed to control their risk exposure. In Ghana, the only few recorded related to only banks (Agyei et al., 2020; Yimbila, 2017), with no study both in developed and developing countries investigating TP within the insurance industry. Meanwhile, as inferred from the 2016 Annual Report of the National Insurance Commission (National Insurance Commission, 2018), the insurance firms are as concerned as any other firm about the dwindling impact of the weighty tax expenditure on their declared profit, thus vindicating this study's inclusion. Moreover, considering that a higher Effective Tax Rate (ETR) has been found in studies like Yimbila (2017) and Ogundajo and Onakoya (2016) to decrease firm performance and vice-versa, this study extends the knowledge posited by Bawuah (2019) that there exists a non-linear relationship between ETR and firm performance measures to corroborate findings by Bawuah (2019).

2. Literature review

2.1. Theoretical review

This study is founded upon the agency theory (S. Chen et al., 2010; Desai & Dharmapala, 2006; Pratama, 2018) and the Scholes-Wolfson framework of tax planning (Akamah et al., 2016; Cen et al., 2018; Wahab et al., 2018).

2.1.1. Agency theory

The agency theory postulates that shareholders must align managers' interests with the firm to ensure that while managers pursue their interests, they pursue that of the firm towards maximising shareholders' wealth. The curbing of agency problems, according to Jensen and Meckling

(1976), results in agency costs. The agency problem thus arises when managers entrusted with due care and proper management of shareholders' wealth become rather concerned about their compensation maximisation at the expense of shareholders' interest (Jensen & Meckling, 1976). This is often a result of the rationality of human behaviour (Sen, 1987; Williamson, 1988), which drives individuals toward maximising their interests. Regarding TP, the problem arises when managers take advantage of the loopholes in the tax laws to reduce the tax liability for their benefit and not for shareholders' wealth maximisation (Desai & Dharmapala, 2009). As per Eisenhardt (1989), the agency theory's application in this study is consistent given that the underlying problem is of corporate nature.

According to Desai and Dharmapala (2006), tax avoidance transactions can be so complicated that they may be a means through which managers can engage in resource-diverting activities such as earnings manipulations and related party transactions so that instead of TP improving upon the value of insurance firms, may rather decrease it. Thus, it is hypothesised that TP will lead to a decreased firm value in light of the agency problem. Intuitively, the inclusion of corporate governance (CG) is expected to curb the agency problem's effect on TP and improve performance. It is again hypothesised that CG moderates the relationship between TP and firm performance.

2.1.2. Scholes-Wolfson framework

The Scholes-Wolfson framework (Scholes & Wolfson, 1992) underscores three important principles contributing to achieving the TP objective (Shackelford & Shevlin, 2001) of maximum after-tax returns. These principles are all contracting parties, all taxes and all costs. All contracting parties mean that effective TP should consider the interest of all the individuals affected by it—shareholders, firms, managers, and society (Abdul-Wahab, 2010; Scholes & Wolfson, 1992). For instance, shareholders' concern about wealth maximisation, managers' concern for maximising compensation and society's concern about efficient resource allocation must be considered by TP to derive value from TP (Abdul-Wahab, 2010). All taxes refer to the consideration given to both actual tax paid and hidden taxes (tax-induced reductions) in planning tax to prevent any undetected tax from derailing the TP of its objective. All costs refer to taking into account both explicit costs—management incentives and transaction costs—and implicit costs, such as agency cost, reputational loss etc., to ensure that the benefits derived from TP are not offset or overridden by the cost incurred.

Thus, in effect, the Scholes-Wolfson tax framework proffers three main principles that must be followed to achieve the desired objective of TP, which is maximising the after-tax rate of returns. It then follows that if TP is conducted with due regard for all these three principles, TP will positively impact the performance of insurance companies. In contrast, the opposite holds when insurance firms fail to consider these three underlying principles Scholes-Wolfson offers for effectively planning tax.

2.2. Empirical review

Empirically, the relationship between TP and other firm variables has received considerable attention. Also, the moderating impact of CG on TP has been widespread in the literature. This section reviews some major scholarly works done on TP to establish gaps for the current study.

2.2.1. Tax planning and firm performance

The work of Yee et al. (2018) assessed the nexus between tax avoidance and firm value while moderating CG. According to the Malaysia-ASEAN CG report, the study sampled 100 Public Listed Malaysian firms of good disclosure using cross-sectional data. The study found a significant negative relationship between TP and firm value for both models (one with CG variable and the other without). Thus, their finding implied that Malaysian firms added to cost rather than profit in trying to cut down tax liabilities. Besides, the negative value generated on TP was not a result of agency cost as, even with the interactive variable of CG, TP still had a negative value on firms. Thus, other costs such as reputational loss and remuneration to tax experts could account for the

negative impact of TP on firm value. The main drawback of this study is the use of cross-sectional data, which is vulnerable to bias due to inadequate response, variable misclassification, and inability to reveal the relationship between outcome and time exposure.

Contrary to Yee et al. (2018) findings, Pratama (2018) discovered a positive relationship between tax avoidance and firm market value. Using 4-year data from 2012 to 2015 from 184 Indonesian manufacturing companies, Pratama (2018) examined the effect of the related transaction and TP on companies' market value and discovered that TP positively affected Indonesian companies' market value at a ten per cent significance level. Thus, for Indonesian manufacturing firms, tax avoidance benefited them. This work focused on the manufacturing companies only; thus, findings cannot be extended to the financial sector. Kirkpatrick and Radicic (2020) assessed the influence of TP activities on the value of firms employing dynamic panel estimations. Their study found substantial dynamics in firm value resulting from TP activities, suggesting that lagged firm value affects current firm value and thus stresses "the need for a full review of the adequacy and relevance of tax accounting disclosure".

Within the Chinese context, Zhang et al. (2017) examined the link between tax avoidance and firm performance among listed Chinese firms. Employing Structural Equation Modeling (SEM) for analysis, the authors found a significant negative relationship between tax avoidance and the performance of Chinese listed firms. This result was attributed to the opacity of the Chinese stock market. However, the study also found an indirect positive relationship between tax avoidance and market value through firm growth and profitability moderating. Thus, as firms engage in TP, firm growth is stimulated, and profitability increases, which eventually helps expand the market value. The study concludes that tax avoidance can be a value-adding activity provided internal supervision and management capability are strengthened. In this study, the findings may be tentative since the study included both non-financial and financial firms, which are highly regulated, compared to non-financial companies.

Similarly, using pairwise VAR Granger causality, Salawu et al. (2017) discovered no causal link between corporate TP and firm value for the study that covered 50 non-financial quoted Nigerian firms from 2004 to 2014. This study confirmed the findings of Kawor and Kportogbi (2014), who found no relationship between TP and the market value of Ghanaian-listed manufacturing companies. Other studies like X. Chen et al. (2014) and Desai and Dharmapala (2009) similarly discovered a negative relationship between TP and the performance of firms, concluding that the problem of agency probably could have been the culprit for the negative impact of TP on the performance of firms. These findings lead us to the hypothesis:

H₀₁ : TP does not impact the performance of insurance companies in Ghana.

2.3. Moderating impact of CG on TP and performance relationship

Extant literature points out that corporate governance influences firm performance. In line with this, Khanchel (2007) suggest that strong corporate governance practices are determined by factors such as autonomous directors, independent committees, the board size, split of chairmanship and CEO positions, competence of audit committee members, board and audit committee meetings, and auditor reputation. Waweru (2014) also indicate that in sub-Saharan Africa, quality CG is triggered by audit quality and firm value.

Using panel data generated from the annual reports of 18 sampled commercial banks for ten years, 2004–2014, and measuring CG by board size and non-executive directors, Yimbila (2017) discovered that CG significantly moderated the relationship between TP and performance of sampled commercial banks in Ghana after discovering the significant positive relationship between the interactive variable of ETR/board size and firm performance. Meanwhile, the same study found a rather negative relationship for the interactive variable ETR*non-executive directors and firm performance while also documenting a positive relationship between both board size and non-executive directors and bank

performance. In contrast to these findings, Pathan and Faff (2013) found in their study that board size and independent directors impacted negatively on bank performance.

The study by Akenbor and Kiabel (2014), which assessed the impact of TP on the performance of Nigerian banks and the moderating effect of CG, also found evidence of a positive impact of CG on the relationship between TP and firm value for Nigerian commercial banks, even though findings equally notes that the accruable tax savings did not significantly outweigh TP cost.

In their study, Ahmed and Khaoula (2013) provided a new way to assess the moderating impact of CG on the TP-performance relationship. They posited that a moderating variable could affect either the strength or form of the relationship. With the use of board size and independent outside directors as measures of CG, the study discovered that board size moderated the form of the TP-performance relationship. In contrast, independent outside directors moderated the strength of the relationship.

Lanis and Richardson (2011), who examined the relationship between the board of directors and TP within the Tunisian context, discovered that the board's characteristics influenced the decision to practice TP, confirming that strong CG in firms could influence TP decisions. CG thus has some level of moderation on the effectiveness of TP. Lanis and Richardson (2011), however, found that the inclusion of more independent directors significantly decreased the impetus of TP among firms as more independent directors seemed to offer a more transparent CG. The above findings lead us to the hypothesis:

H₀₂ : CG has no moderating impact on the TP-performance relationship.

2.4. Non-linear relationship between TP (ETR) and firm performance

Yimbila (2017) found a negative relationship between TP and bank performance among Ghanaian commercial banks. Yimbila partly attributes the negative relationship between TP and bank performance to the high average industry ETR that was found to be greater than the statutory tax rate. By implication, lower levels of ETR among the firms could have reversed the negative relationship to a positive one.

Similarly, Ogundajo and Onakoya (2016), in their work entitled, "TP and performance of Nigerian manufacturing companies", documented that the average ETR was around 26% for the industry, which was 1% higher than the statutory tax rate. In effect, TP measured by ETR impacted negatively on the performance measured by returns on asset (ROA). The authors note that Nigerian firms have not been adept in utilising the TP opportunities and thus recommended that a more robust TP was required to lower ETR to enable the manufacturing companies to accrue benefits from TP.

Moreover, Chasbiandani and Martani (2012) investigated the relationship between long-run tax avoidance behaviour and firm performance in Indonesia. They reported that long-run TP was significantly negatively related to performance. Like the aforementioned studies, they attributed their results to the high industry ETR among the manufacturing companies.

Reasoning through the above-mentioned studies with their findings, Bawuah (2019) posits that at lower levels of ETR, TP will positively impact firm performance; that is, at a lower level of ETR, any further increase in ETR will cause an increase in ROA or ROE. And at higher levels of ETR, TP impacts negatively on firm performance; that is, at higher levels of ETR, any additional increase in ETR will cause a decline in ROA or ROE. This leads us to the question, "What levels of ETR are considered low to warrant an improved performance or high to result in a decline in performance or optimal to merit maximised performance?" In trying to answer the above questions, we follow the hypothesis of Bawuah (2019):

H₀₃: There is no quadratic non-linear relationship between ETR and the performance of insurance companies in Ghana.

3. Methodology

The study examined the impact of tax planning on the performance of insurance companies in Ghana, taking into account the moderating effect of corporate governance and controlling for other variables such as firm size, firm age, claims ratio and current ratio. The study included all life and non-life insurance companies in Ghana, with data available from 2012 to 2017. In effect, 35 insurance companies were employed in the study, but only two were listed on the Ghana Stock Exchange. The basic model assesses the effect of tax planning on the performance of insurance companies. Still, the model was also extended to account for both the moderating impact of corporate governance and the non-linear impact of ETR based on the proposition by Bawuah (2019). The estimation of the ROE models, which formed the basis for the ROA models, are as follows:

$$PFM(ROE)_{it} = \beta_0 + \beta_1(ROE)_{it-1} + \beta_2 \ln ETR_{it} + \beta_3 \ln CR_{it} + \beta_4 \ln D2E_{it} + \beta_5 \ln \text{firm size}_{it} + \beta_6 \ln \text{firm age}_{it} + \beta_7 \ln \text{claims ratio}_{it} + \mu_i + \varepsilon_{it}$$

$$PFM(ROE)_{it} = \beta_0 + \beta_1(ROE)_{it-1} + \beta_2 \ln ETR_{it} + \beta_3 \ln CR_{it} + \beta_4 \ln D2E_{it} + \beta_5 \ln \text{firm size}_{it} + \beta_6 \ln \text{firm age}_{it} + \beta_7 \ln \text{claims ratio}_{it} + \beta_8 \ln ETRSQ_{it} + \mu_i + \varepsilon_{it}$$

$$PFM(ROE)_{it} = \beta_0 + \beta_1(ROE)_{it-1} + \beta_2 \ln ETR_{it} + \beta_3 \ln CR_{it} + \beta_4 \ln D2E_{it} + \beta_5 \ln \text{firm size}_{it} + \beta_6 \ln \text{firm age}_{it} + \beta_7 \ln \text{claims ratio}_{it} + \beta_8 \ln BS_{it} + \beta_9 \ln NED_{it} + \mu_i + \varepsilon_{it}$$

Where $PFM(ROE)_{it}$ are the performance ratios, returns on equity and returns on assets for insurance firm i in time t ; $(ROE)_{it-1}$ is the lag of the returns on equity and returns on the asset; $\ln ETR_{it}$ is the natural log of the effective tax rate of firm i in time t ; $\ln CR_{it}$ is the natural log of the current ratio of firm i in time t ; $\ln D2E_{it}$ is the natural log of debt to equity of firm i in time t ; $\ln \text{firm size}_{it}$ is the natural log of the total assets of firm i in time t ; $\ln \text{firm age}_{it}$ is the natural log of the age of firm i in time t ; $\ln \text{claims ratio}_{it}$ is the natural log of the claims ratio of the firm i in time t ; $\ln BS_{it}$ is the natural log of the board size of firm i in time t ; $\ln NED_{it}$ is the natural log of non-executive directors of firm i in time t .

It is expected that tax planning in the presence of corporate governance will have a positive impact on the financial performance of insurance companies in Ghana. The full names of the variables, their measurement, source, and expected signs are detailed in Table 1.

Equations 1, 2 and 3 were estimated by use of the systems dynamic panel estimation technique proposed by Roodman (2009a, 2009b). According to Arellano and Bond (1991), this technique includes the lag dependent variable in the estimation to assess the auto-regressive nature of the dependent variable, which in our case are ROE and ROA, and correct for the biases brought forth by the differenced approach, to resolve the problem of endogeneity as a result of the lagged dependent variable in the regressors, especially for small samples. More so, this technique resolves the problem of endogeneity by using an instrumental variable approach and reduces overidentification while accounting for cross-sectional dependence. Given regard to the foregoing features, the current study found the system general methods of moments (GMM) approach by Roodman (2009a, 2009b) and popularised by Agyei et al. (2020), Agyei et al. (2021), Asiamah et al. (2022a), (2022b), and Boateng et al. (2018), and Bossman et al. (2022), and Love and Zicchino (2006) to be appropriate for the regression analysis. The general form of the system GMM estimation used is specified in Equations 4 and 5.

$$\ln ROA_{it} = \gamma_0 + \gamma_1 \ln ROA_{it-\tau} + \sum_{h=1}^5 \gamma_h W_{h,it-\tau} + \theta_i + \mu_i + \varepsilon_{it} \quad (4)$$

Table 1. List of variables and measurements

Variable	Meaning	Measurement	Source	Expected Sign
PFM	Returns on Asset Returns on Equity	(Profit after tax/ Total Asset) x 100% (Profit after tax/ Equity) x 100%	Bawuah (2019) Bawuah (2019)	N/A N/A
ETR	Effective Tax Rate	(Tax expense— deferred tax) x 100%/ Profit before tax	Agyei et al. (2020)	+
CR	Current ratio	Current asset/ Current liabilities	Agyei et al. (2020)	±
D2E	Debt to equity	(Current + non- current liabilities)/ equity	Bawuah (2019)	±
Firmsize	Firm's Size	Natural log of Total Asset	Bawuah (2019)	±
Firmage	Firm's Age	Natural log (current year—year of establishment)	Bawuah (2019)	±
Claimsratio	Claims ratio	Net claims/net premium	Agyei et al. (2020)	±
BS	Board size	Total number of board members	Yimbila (2017)	±
NED	Non-executive directors	Non-executive directors * 100/ Board size	Yimbila (2017)	±

$$\ln ROA_{it} - \ln ROA_{it-\tau} = \gamma_1 (\ln ROA_{it-\tau} - \ln ROA_{it-2\tau}) + \sum_{h=1}^5 \gamma_h (W_{h,it-\tau} - W_{h,it-2\tau}) + (\mu_t - \mu_{t-\tau}) + \varepsilon_{it-\tau} \quad (5)$$

Where $\ln PFM(ROE/ROA)$ is the performance of firm i in time t ; γ_0 is a constant; W is a vector of control variables (Current ratio, Debt to equity, firm size, firm age, claims ratio); τ represents the coefficient of autoregression which is one for the specification, μ_t is the time-specific constant, θ_i is the firm-specific effect, and ε_{it} is the error term.

Referring to Agyei et al. (2020), Agyei et al. (2021), and Boateng et al. (2018), the “explanatory indicators” are described as supposed endogenic and only “time-invariant” variables are regarded as “strictly exogenous” (Roodman, 2009b). The “strict exogeneity” of the time-invariant indicators is hanged on the results from the “Sargan overidentification and the Hansen J tests”, as shown in Tables 2 and 3.

4. Descriptive summary

The descriptive statistics on the dependent variable (Returns on asset—ROA and Returns on equity—ROE), independent variable (Effective Tax Rate—ETR) and the controlled variables (currentratio, debt-toequity, boardsize, nonexecdirectors, firmsize, firmage and claimsratio) have been displayed in Table 4.

From Table 4, the average ROA of -0.01 implies that, on the average, insurance firms in Ghana make a loss of 0.01 on every cedi invested in assets, while on the contrary, the mean roe is 0.144, denoting that on average, insurance firms generate a profit of 0.144 on every cedi of shares within the industry. This finding reflects that insurance companies in Ghana make a better financial fortune on shareholders' equity than on invested assets. Insurance Companies may consider cutting back on needless capital expenditure as the industry is purely service-oriented and thus less capital-intensive. The mean effective tax rate of 21.05% implies that the insurance industry pays 21.05% of its net

Table 2. Regression results (a)

	(ROA)	(ROE)	(ROA)	(ROE)
	a	aa	Aaa	aaaa
lnLETR	−0.0915** (0.0325)	−0.148*** (0.0341)	0.453*** (0.0996)	0.377** (0.116)
lnCR	0.154 (0.0779)	0.267** (0.0857)	0.240** (0.0778)	0.296* (0.120)
lnD2E	0.102* (0.0475)	0.755*** (0.108)	0.103 (0.0734)	0.752*** (0.145)
lnNED	−0.621 (0.439)	−0.581 (0.545)	−0.341 (0.498)	−0.124 (0.559)
lnBS	0.0540 (0.280)	−0.0502 (0.318)	−0.0157 (0.249)	−0.00709 (0.273)
Firmsize	−0.0715* (0.0321)	−0.0629 (0.0344)	−0.0636 (0.0340)	−0.0539 (0.0353)
Firmage	0.300** (0.0926)	0.320** (0.0926)	0.325*** (0.0876)	0.328*** (0.0762)
Claimsratio	−0.0270*** (0.00389)	−0.0271*** (0.00369)	−0.0281*** (0.00437)	−0.0303*** (0.00416)
lnETRSQ			−0.126*** (0.0264)	−0.125*** (0.0334)
_cons	1.161 (1.832)	1.871 (2.131)	−0.492 (2.110)	−0.579 (2.403)
Net Effects of ETR				
AR(1) [p-value]	0.075	0.059	0.055	0.042
AR(2) [p-value]	0.216	0.233	0.210	0.307
Sargan OIR	0.010	0.007	0.011	0.007
Hansen OIR	0.270	0.200	0.152	0.144
DHT for Instruments				
(a)GMM Instruments for levels				
H excluding group	0.675	0.650	0.696	0.478
Diff(null, H = exogenous)	0.136	0.094	0.062	0.094
(b) IV(years, eq(diff))				
H excluding group	0.288	0.223	0.167	0.143
Diff(null, H = exogenous)	0.222	0.187	0.198	0.289
Fisher	246.23***	97.10***	276.05***	157.75***
Instruments	34	34	34	34
Insurance firms	35	35	35	35
Observations	114	114	114	114
Time Dummies	YES	YES	YES	YES

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3. Regression results with moderating effect of board size and NED

	(ROA)	(ROA)	(ROE)	(ROE)
	b	Bb	bbb	bbbb
lnLETR	2.644*** (0.411)	6.986*** (1.711)	3.130*** (0.645)	8.456*** (2.341)
lnCR	0.214* (0.0839)	0.191* (0.0893)	0.301** (0.0995)	0.274* (0.105)
lnD2E	0.0367 (0.0659)	0.147 (0.0934)	0.683*** (0.119)	0.827*** (0.158)
lnBS	4.420*** (0.648)	−0.0945 (0.349)	4.977*** (0.982)	−0.0949 (0.346)
lnNED	−0.376 (0.502)	3.616** (1.041)	−0.0439 (0.612)	4.520** (1.349)
Firmsize	−0.0961** (0.0310)	−0.134** (0.0433)	−0.0746* (0.0347)	−0.134** (0.0450)
Firmage	0.369*** (0.0901)	0.432*** (0.111)	0.406*** (0.0943)	0.420** (0.124)
Claimsratio	−0.0284*** (0.00340)	−0.0322*** (0.00390)	−0.0296*** (0.00376)	−0.0312*** (0.00461)
lnETRxlnBS	−1.393*** (0.206)		−1.645*** (0.324)	
lnETRxlnNED		−1.619*** (0.388)		−1.964*** (0.530)
_cons	−8.102** (2.665)	−16.21** (4.525)	−10.29** (3.277)	−19.37** (5.709)
AR(1) [p-value]	0.021	0.065	0.013	0.045
AR(2) [p-value]	0.161	0.250	0.224	0.358
Sargan OIR	0.010	0.014	0.007	0.011
Hansen OIR	0.409	0.371	0.353	0.293
DHT for Instruments				
(a)GMM Instruments for levels				
H excluding group	0.683	0.724	0.836	0.596
Diff(null, H = exogenous)	0.255	0.205	0.150	0.187
(b) IV(years, eq(diff))				
H excluding group	0.465	0.380	0.371	0.327
Diff(null, H = exogenous)	0.156	0.271	0.235	0.182
Fisher	93.97***	76.68***	79.00***	64.20***
Instruments	34	34	34	34
Insurance firms	35	35	35	35
Observations	114	114	114	114
Time Dummies	YES	YES	YES	YES

Table 4. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
roa	187	−0.01	0.254786	−2.1523	0.341929
roe	187	0.144291	1.521339	−8.11846	14.80305
effectivet~e	128	21.01456	37.65971	−342.28	126.6751
currentratio	187	1.357443	2.135548	−1.68262	22.93289
debttoequity	187	1.845965	16.60298	−156.977	154.7791
boardsize	186	7.22043	1.673259	4	11
nonexecdir~s	184	75.82837	11.32558	50	100
Firmsize	185	16.81718	1.94673	10.79121	20.2404
Firmage	178	2.765924	1.027073	0.693147	4.532599
Claimsratio	186	39.67268	23.13235	1.673603	165.5693

profit as tax to the nation on average. It also points to the fact that the level of tax planning within the insurance industry (21.05%) is below the statutory tax rate of 25%. Thus, insurance firms in Ghana can avoid needless tax expenditure, an indication of robust tax planning by insurance companies.

The mean current ratio (currentratio) was 1.36, indicating that, on average, the current assets within the industry could finance the current liabilities by nearly one and a half times, an indication of the good liquidity stance of the industry. The mean debt to equity ratio (debttoequity) of 1.85 implies that on average, debt holders have nearly twice as many claims as the shareholders of the industry's assets. However, the very high standard deviation implies that this observation may not hold for most individual firms. The average board size within the industry was 7, ranging from 4 to 11. Approximately 76% of the board members were non-executive directors, denoting that board decisions are more objectively made across the majority of the firms. The sizes of the firms in terms of their asset size and the ages did not differ significantly from one another, as the natural log of their assets ranged from 10 to 20, whereas that of the age also ranged from 0.69 to 4.53. Taking the natural log of these two variables seems to have reduced the extent of variation among the observations, which is ideal for the regression analysis.

The claims ratio (claimratio) distribution showed much variation among observations. While some firms paid as little as 1.67% of their premium as claims, others paid as huge as 166% of their premium as claims, even though collectively, the average claim ratio was 39.6%, indicating that the industry pays a few per cent of its premium as claims. While this may sound gratifying to potential investors, potential clients may find it unwelcoming, as low claims ratio may also be an obvious indication of firms failing to honour presented claims.

5. Correlation matrix

Before the panel regression analysis could be carried out, it was necessary to conduct the multi-collinearity pre-test analysis to identify the existence of collinearity (multi-collinearity) among the regressors, as multi-collinearity can reduce the reliability of coefficients of the regression. The study relied on the pairwise correlation matrix to achieve this objective. Table 5 shows no existence of multi-collinearity as none of the correlation coefficients of any paired independent variables was significantly above 0.5. Therefore, it is clear that both the dependent and the controlled variables can be employed in the regression analysis.

6. Empirical results and discussion

Table 2 displays the GMM regression output. The first two columns display the result of the effect of tax planning on firm performance based on a linear relationship between ETR (a proxy for tax planning) and ROA/ROE (proxies for performance), while the last two columns specify the

Table 5. Pearson correlation matrix

	InROA	InROE	InLETR	InCR	InD2E	InBS	InNED	Firmsize	firmage	claimsratio
InROA	1.0000									
InROE	0.8569	1.0000								
	0.0000									
InLETR	-0.1476	-0.2014	1.0000							
	0.1108	0.0274								
InCR	-0.0873	-0.2056	0.2891	1.0000						
	0.3123	0.0138	0.0012							
InD2E	0.0441	0.5008	-0.2729	-0.3597	1.0000					
	0.6079	0.0000	0.0023	0.0000						
InBS	-0.0724	-0.0763	0.0769	0.0366	0.0388	1.0000				
	0.4006	0.3635	0.394	0.622	0.6065					
InNED	-0.0567	0.0259	-0.0419	-0.0942	0.1283	0.16	1.0000			
	0.5101	0.7584	0.6456	0.2061	0.0887	0.03				
Firmsize	-0.101	-0.1105	-0.1314	0.1297	0.0003	0.2618	-0.1776	1.0000		
	0.2421	0.189	0.1442	0.0802	0.9973	0.0003	0.0164			
Firmage	0.2102	0.1777	-0.3741	-0.1608	0.0631	0.1895	-0.0925	0.1256	1.0000	
	0.0152	0.0357	0.0000	0.033	0.4125	0.0115	0.2236	0.0946		
claimsratio	-0.0682	0.3069	-0.082	-0.2618	0.3671	0.0275	-0.0742	-0.1343	0.2712	1.0000
	0.4285	0.0002	0.3655	0.0003	0.0000	0.7105	0.318	0.0692	0.0003	

relationship following the idea propounded by Bawuah (2019) that there is a quadratic nonlinear relationship between ETR and ROA/ROE, thus signifying this by the inclusion of the squared term of ETR. The results of the diagnostic tests such as autocorrelation, Sargan and Hansen J test, and a test of instrument validity with the number of observations and cross-sections displayed in the latter rows of the table indicate that the instruments used in the study were exogenous and more so, instrument proliferation was not a problem for all the models. It can therefore be concluded that the models were all correctly specified.

It can be observed that in both the linear and quadratic models, the tax planning proxied by ETR is significantly related to firm performance proxied by ROA and ROE. But while the linear model reported a negative relationship between ETR and ROA/ROE, the quadratic model reported a positive relationship between ETR and ROA/ROE, and a rather negative relationship between ETRsq and ROA/ROE, signifying that before ETR assumed the negative relationship with ROA/ROE as reported in the linear model, there was an existing positive relationship unaccounted for in the linear model. This positive relationship declined to a negative one after ETR crossed its maximum threshold, as can be understood by the significant negative relationship between ETRsq and ROA/ROE. This lays credence to the findings by Bawuah (2019) that ETR exhibits a quadratic nonlinear relationship with ROA/ROE such that ETR at lower levels is positively related to ROA/ROE while at higher levels is negatively related to ROA/ROE. This is especially so because while at some point in time, high values of ETR may mean that a firm is making high profits, thus causing Tax planning (ETR) to exhibit a positive relationship with performance (ROA/ROE) when ETR rises very highly beyond a certain limit, it may mean that the firm is failing to plan taxes very well; thus, tax planning at these higher values of ETR begin to exhibit a negative relationship with firm performance.

Focusing on the quadratic model, then, the ETR coefficients of 0.453 and 0.377 imply that at the lower levels of ETR, any unit increase in ETR is linked with 0.453 and 0.377 unit increases in ROA and ROE, respectively. In contrast, the coefficients of the ETRsq of -0.126 and -0.125 denote that after ETR crosses its maximum threshold, every unit increase in ETR will lead to a 0.126 and 0.125 drop-in ROA and ROE, respectively. This proves that there is a maximum threshold of ETR to be estimated and that the insurance industry must stay within its boundary to ensure good financial outcomes from planning tax. It can thus be concluded that for insurance companies in Ghana, tax planning positively impacts firm performance only at lower values of ETR, but as ETR rises beyond a certain maximum threshold, tax planning by the insurance companies will yield only a negative turn on firm financial performance. This finding confirms that of Yimbila (2017), which disclosed that banks in Ghana performed financially poorly due to payment of higher ETR. Similarly, Ogundajo and Onakoya (2016) and Chasbiandani and Martani (2012) also discovered that manufacturing firms with lower ETR performed better in terms of finance and had higher firm value, whereas firms which paid very high ETR were financially unsound.

At a 5% level of significance, the current ratio was found to be positively related to ROE in the linear model and ROA in the nonlinear model, implying that the greater the liquid assets of insurance companies in Ghana relative to their short-term liability, the better their financial performance or profitability. Specifically, a unit increase in the current ratio results in a 0.267 unit increase in ROE and a 0.24 increase in ROA. Debt-to-equity also reported a positive relationship with ROE at a 1% level of significance, which similarly indicates that a unit increase in debt relative to the equity of insurance companies in Ghana results in a 0.75 unit increase in ROE. The increase in ROE without a corresponding increase in ROA following an increase in debt to equity could result from insurance companies borrowing large amounts to buy back their stock and not from an increase in net income, which could have yielded similar results in ROA. Thus, this buying back of stock reduces equity marginally relative to net income, hence a rise in ROE.

More so, firms' age of the insurance companies was positively linked to their financial performance at a 1% level of significance. The result indicates that a unit increase in the age of the firms leads to a 0.3 unit increase in profitability in terms of ROE and ROA. This result confirms the findings by Bawuah (2019), Kipsha (2013), and Osunsan et al. (2015), who advanced that

ageing of the firm comes with experience and refined knowledge about good service delivery, which results in high customer satisfaction, higher revenue and higher operating income. Noteworthy also is the significant negative relationship between claims ratio and the performance of insurance companies. It was discovered that a unit increase in the claims relative to premium resulted in an approximately 0.03 unit decrease in the performance of insurance firms in terms of ROE and ROA. This finding could result from the insurance companies paying too many claims relative to the premium received. Claims represent a transfer of wealth from the insurance companies to clients, whereas premium represents a transfer of wealth from clients to the insurance companies; thus, when claims become too much relative to premium, the obvious results should be a financial downturn in the industry. The projected results report that the size of the board (BS), the size of insurance firms in Ghana (firm size) and the presence of non-executive directors (NED) had no significant effect on the financial performance of insurance companies in Ghana.

Table 3 reports on the TP effect on firm performance, taking into account the moderating role of board size (BS) and non-executive directors (NED). It can be observed from Table 2 that following the inclusion of the moderators, BS and NED, ETR assumed a significantly positive relationship with ROA and ROE, implying that board size and the presence of non-executive directors in the insurance industry moderate the relationship between TP and firm performance. Specifically, with the inclusion of BS, a unit increase in ETR led to a 2.644 and 3.13 unit increase in ROA and ROE, respectively, and also, with the inclusion of NED, a unit increase in ETR led to 6.986 and 8.456 unit increases in ROA and ROE respectively. The positive relationship between ETR and ROA/ROE after the inclusion of the CG variables has been found in prior works such as Desai and Hines (2002), Minnick and Noga (2010), and Yimbila (2017), who submitted that CG helps firms to mitigate the agency conflict between management and shareholders. Accordingly, the benefits accruing from tax savings are expended in the firm's interest, resulting in improved performance.

It was, however, found that the coefficient of the interaction between ETR and BS (−1.39 and −1.64) and ETR and NED (−1.62 and −1.96) were negative, which signified that the increase in both board size and non-executive directors was inimical to the firm financial performance. These findings corroborate that of Minnick and Noga (2010), who advance that the cost incurred in keeping large board size and non-executive directors could far outweigh the benefit that accrues from keeping them. Thus, costs like remuneration and delayed decision making, among others, that come with a large board size could be more costly for the insurance firm than the benefit the large board size and the non-executive directors may bring aboard. Thus, within the insurance companies keeping a larger board size and non-executive directors derailed TP of its benefits.

7. Summary and conclusions

This study investigates the impact of TP on the performance of Ghanaian insurance companies, considering the moderating effect of CG and controlling for firm size, firm age, claims ratio, and current ratio. The study included all life and non-life insurance companies in Ghana with available data from 2012 to 2017. Using data from 35 insurance companies, the study employed the systems dynamic GMM framework to examine the effect TP has on the performance of Ghanaian insurance companies. The study's linear model reported a negative relationship between ETR and ROA/ROE but a significantly positive nonlinear quadratic relationship between ETR and ROA/ROE. The study found a positive moderating effect of board size and non-executive directors on both the ETR and ROA/ROE relationship of insurance firms. However, the interaction between ETR and BS, and ETR and NED were negative, suggesting that an increase in both board size and non-executive directors is detrimental to the financial performance of insurance companies.

The study concludes that high values of ETR may mean that a firm is making high profits; thus, high levels of ETR in such instances would be positively related to the financial performance (measured by ROA or ROE) of insurance companies. But also, the study reveals that at some point in time, high ETR levels could indicate a failure on the part of firms to plan taxes very well and thus would result in a negative relationship between ETR and firm performance. The study also

concludes that corporate governance measures are poorly executed across the Insurance Industry, gleaned from the negative moderating impact of CG variables on ROA/ROE.

The study is significant in several ways; first, to the insurance firms, their managers and shareholders as the study reveal the essence of tax planning within the industry to help mitigate loss and maximise profit and, thus, shareholders' value. Secondly, it also contributes to the body of knowledge on tax planning in the insurance industry. Also, it serves as substantiating reference for the non-linear relationship between ETR and ROE/ROA, which was discovered by Bawuah (2019). The study's major limitation is the use of an unbalanced data set which may hamper effective generalisation. Besides, the panel period was short due to the fact that NIC does not keep the financial data of insurance companies for more than six years.

The study recommends that managers of insurance companies intensify the CG measures to help mitigate the agency conflict and associated costs between management and shareholders. Furthermore, insurance firms should maintain a sizable board to avoid incurring extra costs in keeping a large board size and non-executive directors.

Funding

The authors received no direct funding for this research.

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Disclosure statement

The authors hold no potential conflicts of interest.

Data availability statement

Access to the all the data used in this study was granted by the National Insurance Commission, Ghana, and they are available on request <https://nicgh.org/>.

Citation information

Cite this article as: Tax planning and financial performance of insurance companies in Ghana: the moderating role of corporate governance, George Tackie, Samuel Kwaku Agyei, Isaac Bawuah, Vincent Adela & Ahmed Bossman, *Cogent Business & Management* (2022), 9: 2144097.

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