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RESEARCH PAPER

Capital Structure, Firm Size, Profitability, and Tax Avoidance: Investigating the Oil and Gas Industry of Pakistan

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ABSTRACT

The purpose of the study is to investigate the impact of capital structure, firm size, and profitability on tax avoidance and to examine the tax planning strategies implied in the oil and gas industry of Pakistan. Owing to its rapid expansion and enormous profits, the oil industry is a symbol of blue-chip businesses. One way it supports the economy is by increasing the nation's tax income. An analysis of the tax planning techniques suggested in this industry is essential for efficient legislation and departmental evaluation. In this research, the explanatory research method is implied, and only firm-specific factors are considered for analysis. The effect of capital structure, firm size, and profitability on corporate tax avoidance is examined by the Ordinary least squares (OLS) regression model. As per the results, capital structure has a negative association whereas firm size and profitability have a positive association with tax avoidance.

KEYWORDS: Blue Chip Firms, Capital Structure, Firm Size and Profitability, Tax Avoidance, Tax Evasion, Tax Planning

Introduction

The importance of tax arises due to its diversified role. The national economy of every country depends on tax revenue to achieve its goals. Taxation has revenue as well as non-revenue objectives, which include social welfare, equal distribution of wealth, and national defense, it is used as a tool to protect local industry, etc. This is the major source of revenue for the state. The development and non-development budgets depend on the collection of revenues.

Income tax is a tax that is levied on the income of individuals, corporations, and businesses. It is the most significant source of revenue for the government of Pakistan. The major chunk of income tax is collected from the corporate sector. The oil and gas sector has high growth and earned heavy profits. It contributes a lot to the exchequer account through the tax charge on corporate income.

On the other hand, corporations save their tax expenditures through tax planning. This becomes the cause of the decline in the Tax to GDP ratio. Secondly, this widens the budget deficit, and ultimately the state is trapped in circular debt and left with no choice other than to get loans from the international financial institutions. This paper will explain the association of firm internal factors that result in low corporate tax revenue. The paper will contribute to the literature by adding to the existing literature, as presently little work has been done on this. Secondly, it helps formulate tax policies to enhance the tax revenue and tax-to-GDP ratio, simultaneously.

Literature Review and Hypotheses Development

Tax Planning

The multinational enterprise (MNE) can plan its tax affairs by using a multitude of strategies to reduce its tax legally, which is known as "tax planning" (Cooper & Nguyen, 2020). Directors and CEOs are crucial in selecting a tax management strategy because they are in charge of allocating resources, ensuring performance, and boosting shareholder wealth (Yunira et al., 2023). Effective tax management is a key factor in driving bottom-line performance (Chytis et al., 2020).

Tax avoidance is to reduce or shift the tax liability without violating the law. Tax avoidance is to minimize the total tax obligation due to the variation that exists, in different national tax regimes. (Vlcek, 2019). Businesses would never wish to be taxed at all, and try to avoid it (Rabbi & Almutairi, 2021). Tax avoidance can range from reduction of the corporate tax burden by legitimate use of tax rules to violation of tax laws (Wang et al., 2020).

Corporations plan their tax by opting the favorable legal rules and laws, through which they reduce their tax liability. Tax avoidance is a common phenomenon in all business entities. There is a thin layer between the tax avoidance and tax evasion. The illegal way to enhance tax refunds or to reduce tax liability is tax evasion which is an offense however, if the same goal is achieved by lawful means it is termed tax avoidance.

Capital Structure and Tax Avoidance

Capital structure is the combination of equity and debt financing to build the assets of the company. The debt of the company reduces the tax expense because of interest payments. The capital structure of the company causes them to avoid tax as found in the study (Prabowo, 2020), capital structure is significant and directly related to tax avoidance. Thin capitalization is high debts and a low equity percentage of firm capital. The Companies with more debts results to avoid taxes (Kurniawati & Mukti, 2023). So, relying on the above studies the following relationship is expected between the capital structure and the tax avoidance in oil and gas companies.

Hypothesis 1: Capital structure positively relates to tax avoidance.

Firm Size and Tax Avoidance

Firm size is measured by the value of its assets. The literature depicts a mixed relationship between firm size and tax avoidance. Prabowo (2020) found an insignificant effect on the firm size. The same association is depicted by (Latifatul et al., 2023), in their studies. There is a negative and significant effect of firm size on tax avoidance (Sopiyana, 2022). Radiany et al. (2022) also found a negative but insignificant relationship between firm size and tax avoidance. Based on these studies author expects there exists a negative association between the size of the firm and the tax avoidance, so the following relationship is expected.

Hypothesis 2: Firm size is inversely related to tax avoidance.

Profitability and Tax Avoidance

Profitability is measured as earnings before depreciation, interest, and tax expense as a percentage of total assets. The highly profitable firms wish to pay taxes and fulfill their corporate social responsibility. However, the literature shows a mixed relationship as research results (Rizal & Yantieka, 2022) said profitability reduces tax

avoidance. Another case with the results of research from (Irianto et al., 2017; Parisi, 2016) said profitability had a positive effect on tax avoidance. Profitability is insignificant and does not affect the tax avoidance by the firms (Apriatna & Oktris, 2022). The same results are found by (Radiany et al., 2022), Profitability and leverage do not affect tax avoidance. So, it seems there is no relationship between profitability with tax avoidance.

Hypothesis 3: Profitability and tax avoidance have no relationship.

Table 1
The expected theoretical relationship between dependent and independent variables and their measures

Variables	Measure	Expected relationship
TA	Net Income/Earning before	+or direct relationship
CS	Total liabilities/Total assets	+or direct relationship
FS	Natural log of total assets	-Or inverse relationship
PFTY	EBIT & Dep. /Total assets	-Or inverse relationship

Theories – An Overview

Thirty years ago, was when the discussion about tax dodging began. Theories of Dodging Taxes the authors review the literature to reduce the numerous corporate tax evasion hypotheses to a few core theories, each of which, is then analyzed in terms of its overall and relative significance. To accomplish this, the authors review all of the papers that are cited in Wilde and Wilson (2018) as well as the tax avoidance section (Hanlon & Heitzman, 2010). For each, we look over the major specification and determine the principal independent variable(s), dependent variable(s), and control variables. The authors identify five primary ideas that are utilized to explain business tax avoidance based on the results of this survey.

Agency Costs – We start by looking at the agency costs theory. According to agency theory, managers may choose tax strategies that differ from the one that maximizes business value in a tax context if management and control are kept apart (Chen & Chu, 2005; Crocker & Slemrod, 2005; Slemrod, 2004). Managers occasionally even resort to intricate tax planning to obscure their actions. While we recognize that other theory groups and the distribution of variables within each category make sense, these categories have a solid theoretical foundation and can cover a wide range of tax avoidance literature. thereby encouraging excessive risk-taking (Rego & Wilson, 2012) or rent diversion (Desai et al., 2007). Research on executive traits, ownership structure, company governance, and managerial incentives are among the research that looks into agency-related tax evasion (Armstrong et al., 2015).

Tax Enforcement – The second theory, which is based on the traditional Allingham and Sandmo (1972) model, is tax enforcement. According to this hypothesis, the willingness to engage in tax evasion is determined by a trade-off between the likelihood of being caught and the seriousness of the punishment vs paying less in taxes. Studies have indicated a correlation between reduced tax evasion and the possibility of enforcement (Kubick et al., 2016). Included in this category is the concept of business size, which has been associated with size-based tax enforcement incentives as well as political costs (Gaertner et al., 2023).

Financial Reporting – Financial reporting tradeoffs and incentives make up the third theory. Businesses have a trade-off in book-tax conformance environments since they are motivated to declare large profitability to shareholders but minimal taxable income to the tax authority. The attractiveness of tax transactions is significantly impacted by non-tax factors, such as financial reporting, as demonstrated by (Shackelford

et al., 2011). Numerous research (Balakrishnan et al., 2019; Frank et al., 2018) have demonstrated a relationship between financial reporting and tax aggressiveness.

Financial Constraints – The financial limitations theory is the fourth one. Investment and finance decisions are interrelated, as demonstrated by the landmark paper by Fazzari et al. (1988), where internal funds offer a cost advantage over external debt or stock issuances. The ramifications for business tax behavior are as follows: internal cash flow generation, such as through tax planning, becomes more advantageous when financial restrictions drive up the cost of external funding. According to Edwards et al. (2016), businesses that experience more financial difficulty plan more cash for taxes. According to Dyreng and Markle (2016), businesses with limited resources participate in far less income shifting because their shifted earnings aren't as readily available to support their operations.

Investment Opportunities – Investment opportunities, encompassing location, intangible, capital, and opportunity investments, comprise the fifth theory. The relationship between corporation taxes and company investment has been demonstrated in earlier research (Giroud & Rauh, 2019; Hassett & Hubbard, 2002). Effective tax rates and other summary measures of corporate tax evasion should be able to capture the activities that firms engage in, even though the directionality of this relationship is usually that tax incentives stimulate investment. For instance, tax incentives may encourage businesses to operate in several countries, especially those with low tax rates, and to invest in R&D-based intangibles, the income from which may be readily transferred (Grubert, 2003; Hines Jr & Rice, 1994). At the company level, this behavior is also reflected in Cash ETR and UTB; therefore, factors connected to investments should account for variations in these measures of tax avoidance.

Material ad Methods

Data Collection

The secondary data from audited annual reports of companies has been used for analysis. Due to the unavailability of relevant data, out of the twelve petroleum and gas companies listed in the PSX, one company is excluded and eleven have been considered. To measure the variables that explained tax avoidance, we extracted data for the last 10 years (2012-2021) of these eleven companies.

This research primarily used the pooled ordinary least square (OLS) regression method to determine the results, it analyses the time series and cross-sectional data simultaneously. In addition, the fixed effects model and random effects model are also applied to check the robustness of the results. Furthermore, the Hausman specification test and the Breusch-Pagan Lagrange Multiplier test are also applied. By using these methods, the unobserved heterogeneity and endogeneity in the model were to be captured. The model's heteroskedasticity was managed by using a FE model with a strong standard error. The "Breusch and Pagan Lagrangian Multiplier Test" (BPLM) P-value was used to determine the appropriateness of the pooled OLS and RE model. Stata software is used to run the empirical analysis. The purpose of this study is to uncover the firm-specific factors that lead to tax avoidance of high-growth firms.

The theoretical model can be written as follows:

Tax Avoidance = f (Capital Structure, Firm Size & Profitability)

Econometric Model

$$TAit = \alpha i + \beta CSit + \beta_1 FSit + \beta_2 PFTYit + \varepsilon it$$

Where:

Explained variable:

TA= tax avoidance (Net Income/Earning before tax).

Explanatory variables:

CS= capital structure (total liabilities/total assets)

FS= firm size (natural log of total assets)

PFTY= profitability (sum of earnings before interest, tax, and depreciation/total assets)

Results and Discussion

As discussed above Table 1 shows the expected relationship between the dependent and independent variables, witnessed from the previous literature. And the following Table 2 displays the research's descriptive statistical findings. Table 3 explains the relationship between the variables and their significance. Table 4 displays the results of the Hausman test.

Table 2
Descriptive statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
TA	100	-25.9447	48.82979	26.07843	11.48229
CS	100	.2039	1.1309	.5980105	.2551016
FS	100	23.93	27.59	25.3972	0.999227
PFTY	100	-0.14	0.43	0.135	0.116024

Table 2 explains the descriptive statistics. It describes the mean values and the possible deviation of the variable values from the mean. The effective tax rate is 26%, which shows that on average the industry pays 26% tax, which is less than the actual corporate tax rate. Hence the companies avoid taxes. Capital structure measured through financial leverage typically has a mean value of approximately 0.6, which means the industry follows 60% debt financing and 40% equity financing. The average profitability is about 13%.

Table 3
Empirical results

Variable	Pooled OLS model	Fixed effects model	Random effects model
CS	-2.38	0.27	-2.38
FS	0.08	3	0.08
PFTY	10.83	35.84*	10.83
Lag Variable	0.53***	0.15	0.53***
R-squared	.3436	.1021	.3436

legend: * p<0.05; ** p<0.01; *** p<0.001

Table 3 displays three models' empirical findings: pooled OLS, fixed effects, and random effects model. As well, we conducted a Hausman test to determine the appropriate model for panel data regression between fixed effects and random effects models. The test results are presented in Table 4.

The empirical result shows capital structure has a negative association whereas firm size and profitability have a positive association with tax avoidance. The more debt financing leads to less tax avoidance, this may be because of less taxable income due to the interest expense. The larger firms, plan to minimize their tax liabilities by avoiding taxes. Similarly, the more profit the more chances to avoid taxes.

For the variable CS, the coefficient is -2.38. This suggests that for a one-unit increase in CS, the dependent variable is expected to decrease by 2.38 units, holding all other variables constant. Similarly, for the variable FS, a one-unit increase is associated with an expected increase in the dependent variable by 0.08 units. Finally, for the variable PFTY, a one-unit increase is expected to increase the dependent variable by 10.83 units.

Table 4
Hausman test results

Hypothesis	Test statistic	p-value
Null Hypothesis	40.09	0.0000
Alternative Hypothesis (Fixed effects model is consistent)		

As the Hausman test helps to decide about the model selection based on the trade-off between efficiency and consistency that is if the individual specific variables are correlated with the independent variables, the REM is preferred however in our study, as depicted in the results, FEM is consistent.

The random effects model was assumed to be consistent by the Hausman test's null hypothesis, while the fixed effects model's consistency was the alternate hypothesis. The test yielded a test statistic of 40.09 with a p-value of 0.000. This result indicates that the fixed effects model was chosen over the random effects model, and the null hypothesis was rejected. Consequently, the fixed effects model was used to examine how the independent factors affected the results. CS, FS, PFTY, and lag variable, on the TA.

Conclusion

Our findings disagree with the existing literature. The result shows capital structure is inversely related to tax avoidance; hence we reject the null hypothesis. companies use debt financing to minimize their tax expenditures because the interest payment results in low income before taxes. Our results support this, especially in the oil and gas industry. Secondly, the average debt financing is 60% which shows that said industry does not rely on heavy debts.

Based on an empirical analysis, firm size and profitability have a direct association with tax avoidance. As the corporate income tax is applied to the income, hence profitable and large firms try to minimize their tax expenditure by efficient application of legal benefits. The high profits lead to tax avoidance by the companies.

Our study contributes to the existing literature as it provides results contrary to the existing literature. It opens new avenues for future studies. It explained the relationship between dependent and independent variables of the oil and gas sector of Pakistan. This means the relationship may be varied in different industries. The firm-specific factors are important and must be considered while enactment of laws and rules by the legislatures and the federal Board of Revenue.

The value of R-squared is 0.35, which explains that The independent factors under consideration account for just 35% of the variation in the dependent variable. So there is room to add other relevant variables. Future research can be conducted by adding more explanatory variables and also considering external factors. The internal audit policies and compliance with international accounting principles can be added for future

research. The research can also be conducted by analyzing board composition, nature of company i.e., private or public, etc.

Recommendations

For legislatures this is recommended that they shall consider the firm specific factors as well as the external factors, while enactment of tax laws. This is an important area as the government machinery expenditures are borne by the tax revenue. The severe punishments may be awarded along with the civil liability. The economic factor also plays an important role so, the legislatures must consider the tradeoff between the tax expenditures and the industrial growth.

For department, federal board of revenue, it is suggested that tight regulation shall be adapted. The financial accounting standards must be ensured and the departmental soft image shall be portrayed. While enforcement of policies, the company's size, board structure, company nature and profitability etc. must be considered.

For researchers, the comprehensive research can be conducted by including the other form specific as well as external variables. The impact of board structure on tax evasion behavior can be analyzed.

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