

**Impact of Product Market Competition on Corporate Tax Avoidance
- Evidence from Pakistan**

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Abstract

The aim of this study is to investigate the impact of product market competition on corporate tax avoidance. In order to achieve this objective, we collected data from 70 non-financial companies from Pakistan stock markets and used a least square method. It has been shown that greater extents of competition demonstrate a negative correlation with profitability, which leads to a decline in tax rates for corporations, particularly within the context of a progressive corporate income tax framework. Furthermore, it was observed that the companies that experienced intense competition tended to exhibit comparatively lower effective tax rates, as determined in accordance with the Generally Accepted Accounting Principles (GAAP). This work holds significant theoretical and practical consequences for regulators, politicians, and managers. The results highlight the essential requirement for adaptability and consideration of significant variables during the creation of tax laws. It is suggested corporations enhance their internal audit systems and conduct routine examinations of their internal controls and policies in order to ensure the accuracy and integrity of financial reports.

Keywords: Tax Avoidance; Product Market Competition; Effective Tax Rate.

1. Introduction

Taxation is the primary source of government revenue and has become a significant cost concern for every company (Kalbuana *et al.*,

2023). Taxation represents an obligatory payment made by corporations to government entities in compliance with established rules and regulations. It is not a direct form of compensation but is totally dedicated to advancing the interests of the country (Ernawati *et al.*, 2021). Tax avoidance is a deliberate but legal attempt to minimize tax payments. Consequently, tax avoiders forfeit billions of dollars annually, depriving governments of additional income that could be used for projects, bolstering tax budgets, infrastructure development, and social services (Kim *et al.*, 2023).

The economy of Pakistan faces substantial economic challenges compared to other Asian economies. The low revenue productivity of the tax system can be attributed to factors such as generous tax exemptions, low compliance rates, and tax avoidance resulting from poor tax administration and high tax rates. This study reveals that corporate tax avoidance costs Pakistan approximately \$10.4 billion in lost revenue each year. This financial loss hampers Pakistan's ability to address poverty-related issues and provide essential social services to the disadvantaged. Hence, it is imperative for Pakistan to enhance its revenue collection performance through various tax collection mechanisms. While there is still limited research on the effects of tax avoidance, especially in developing economies, previous studies on corporate governance and its impact on tax avoidance either had broader objectives or did not directly address corporate tax avoidance (Choi and Park, 2022; Zhang *et al.*, 2022).

The connection between corporate tax avoidance and corporate social responsibility, corporate governance, and firm value has been extensively explored in existing literature. Nevertheless, there has been insufficient research into the direct influence of product market competition on corporate tax avoidance at the firm level. This study aims to bridge this knowledge gap by investigating the influence of product market competition on a corporate tax system. The objective of this study is to provide valuable insights into the implications of disclosed tax and corporate governance information for shareholders, benefiting authorities, practitioners, and academics. It offers an in-depth analysis of tax avoidance practices in Pakistan, catering to accounting practitioners and authorities. This study assists regulators in analyzing existing regulatory gaps associated with tax avoidance activities, evaluating them, and addressing these gaps to make informed decisions regarding rules and regulations.

By incorporating theories of corporate tax avoidance, tax planning, stakeholder engagement, and agency theory, this research contributes

to the theoretical literature. These theories help elucidate the pre- and post-impact of product market competition on corporate tax avoidance in Pakistan economy. Controlling for firm-specific characteristics that are size, property, plant and equipment, profitability, leverage, and intangible assets, this study examines the various factors that influence corporate tax avoidance. The primary aim of this study is to examine corporate tax avoidance behavior influenced by product market competition.

The remaining sections of the paper are outlined as follows: Section 2 discusses the relevant literature, Section 3 explains the data and methodology employed in this study, Section 4 presents empirical results and discusses the findings, and finally, Section 5 concludes the study and provides recommendations for future research.

2. Literature Review

Wang (2019) studied the association of businesses' efforts to avoid paying taxes and product market competition. The research main hypothesis, which was grounded on economic theory, was that strong competition in the industry would reduce managerial inefficiency and improve corporate performance, including higher tax efficiency. The results showed that corporations in highly competitive industries have lower GAAP and cash effective tax rates. Thus improved tax efficiency of companies exhibits due to the highly competitive environment.

The study examined under the complexities of this relationship further, taking into account aspects such as the volatility of cash flow and the opportunities for investment in the sector. It was found that companies having cash flow least stable and a lower potential for investment within their industry are more susceptible to the negative effects of tax avoidance by competitors. This means that while companies in competitive industries emphasise proper tax planning, their capacity for doing so is influenced by things like the consistency of their cash flows and the availability of investment opportunities within their industry (Wang, 2019).

Kubick *et al.*, (2015) investigate the efficiency of company activities by assessing competitive advantage, which is represented as the industry-adjusted, firm-specific price-cost margin. This study attempts to figure out how operational efficiency is impacted by the business environment and the degree of competition in product markets. In particular, the authors examine product market competition at the industry level as an important indicator of company operations efficiency through tax avoidance activities.

Ferri (2014) performed a study on Italian manufacturing companies to investigate the relationship between increased competition from emerging markets, the challenges of the local tax law, and the use of informal practises by firms. The results indicated that enterprises frequently relied more on informal practises, such as using employees without documentation and utilising tax avoidance strategies, when faced with both increased competition and an onerous tax policy.

Higgins *et al.*, (2011) explain that to investigate the relationship between innovation, the competitive environment, and tax avoidance in corporations. The findings indicated that corporations that place a high priority on innovation and transformation frequently engage in more tax avoidance. This indicates that corporations may put more of their attention on discovering innovative solutions in both their core operations and tax planning in a competitive business environment where innovation is highly valued.

Hibbs and Piculescu (2010) argue that ensuring a level playing field for competition is dependent on the payment of taxes by all shareholders. On the other hand, a competitive environment arises from firms operating in the informal sector and avoiding tax liabilities. When the actual cost of taxes, including the tax rates and filing requirements, is high, this becomes extremely challenging. In turn, this widens the tax gap between formal firms' obligations and informal firms' tax flexibility. Since of the differences between tax burdens, formal firms are at a disadvantage since they face higher variable costs, whereas informal firms benefit from lower-cost benefits. Formal firms may feel annoyed by this unfair competition and seek for measures to lessen its effects. To compensate for the competitive advantage gained by informal firms, they may choose to understate their taxable earnings as one strategy.

Giroud and Mueller (2011) show empirical evidence in support of the idea that competition improves company performance by cutting down on management slack. Their investigation indicates that the implementation of business combination (BC) legislation causes a significant drop in operating performance in sectors with low levels of competition. Contrarily, businesses engaged in competitive industries do not show a comparable decline in performance after the adoption of BC rules which leads to firms with higher tax avoidance.

Knott and Posen (2009) defined the significant impact of taxation as a corporate cost. The overall statutory tax rate for federal, state, and municipal taxes in the United States now can be as high as 40%. Income tax is frequently listed as the second-largest expense on

the financial statements of U.S. companies. Additionally, investors see corporations with lower tax liabilities as being more effective in cost control than their higher-tax competitors. In order to expand and retain profitability in an extremely competitive industry, companies need to decrease their income tax expenses through efficient tax planning approaches. Additionally, managers that operate under unfavourable environments are under greater pressure to establish new strategies for running a company, including the use of unusual tax schemes.

Kacperczyk *et al.*, (2005) examine how industry concentration impacts the performance of mutual funds. Their findings reveal that mutual funds operating in highly concentrated industries typically demonstrate greater performance, which can be attributed to the informational advantages fund managers have in such environments and mitigate tax avoidance activities. Raith (2003) shows empirical evidence to support up the hypothesis that greater competition, driven by factors like greater product substitutability or a larger market, benefits in higher firm-level output and improves the value of cost reductions. As a result, in a more competitive environment, firms are incentivized to put cost-cutting and overall efficiency-improving plans into action. The results of this study shows how important competition is in shaping managerial behaviour and encouraging firms to seek for ways to reduce costs in order to stay highly competitive.

DeFond and Park (1999) empirical evidence showing the impact of industry competitiveness on CEO turnover. According to their research, highly competitive industries are more likely than less competitive ones to eliminate a poor performing CEO from their position. Furthermore, even accounting for industry-specific characteristics, in highly competitive industries, CEO change has a more significant effect on a company's financial performance. These findings imply that the board's decision to keep the CEO or replace him or her based on performance factors is significantly influenced by the degree of industry competition.

Additionally, DeFond and Park (1999) emphasise particularly on the impact of executive salary contracts and product market competition on tax avoidance. However, little study has focused on how product market competition impacts the firms performance in lower tax avoidance.

Schmidt (1997) argued that company environmental competition increases a company's risk of bankruptcy. Managers are

forced to make significant efforts to mitigate the risk of bankruptcy in order to protect their jobs. Because of this, managers work under constant pressure to improve performance and reduce costs, which includes minimising tax expenses. This dynamic emphasises the necessity of companies to adapt and outperform their competitors in competitive markets as well as the influence of competition on managerial decision-making.

H_1 : *Corporate tax avoidance has been negatively influenced by product market competition.*

3. Methodology

This section explains the research instruments, sample of the study, list of variables, data collection method, and research methods used in this study.

3.1 Sample

The sample of the study consists of non-financial companies from Pakistan Stock Exchange (100-Index). The study provides a broad view of the variables by including companies operating in economy of Pakistan.

3.2 Measurement of Variables

This study examines a number of elements as part of its measurement of variables. The primary focus is on the dependent variable, i.e., corporate tax avoidance, which is affected by a number of independent variables, product market competition. To account for any potential effects on the research findings, control variables such as firm size, return on assets, property, plant and equipment, intangible assets, and leverage are included. The research methodology provides a detailed examination of all variables influencing corporate tax avoidance and a better understanding of its causes.

3.3 Dependent Variable: Corporate Tax Avoidance

The development of an accurate and complete proxy for tax avoidance is a prevalent challenge in the existing literature. This challenge arises due to the tax returns of companies being confidential, which limits direct access to the disclosed income reported to tax authorities. As a result, academics have turned to using the accounting data that is currently readily available and implementing various estimation methodologies proposed by Manzon and Plesko (2002) and put into study by Desai and Dharmapala (2006). This study uses two distinct indicators of tax avoidance in recognition of the absence of a generally more appropriate proxy in earlier studies. The approach used to establish these proxies is described in the next section, ensuring a more accurate and thorough assessment of tax avoidance in the study.

Effective Tax Rate (ETR)

Effective Tax Rate (ETR) is the most suitable proxy used to examine corporate tax avoidance activities that have an immediate effect on a company's net income. The effective tax rate (ETR) simplicity when compared to other tax avoidance proxies is its significant advantage. Furthermore, the ETR is frequently used in the literature since it indicates the possibility that a company is participating in tax avoidance activities. The ETR is still a widely used method for measurement of corporate tax avoidance activities (Hong *et al.*, 2022). Following is an explanation of the composition of the effective tax rate (ratio):

$$\text{ETR}_{i,t} = \frac{\text{TTE}_{i,t}}{\text{PI}_{i,t}} \dots\dots\dots (1)$$

where,

ETR , Effective Tax Rate, firm *i* in year *t*

TTE_{*i,t*} Total Tax Expense, firm *i* in year *t*

PI_{*i,t*} Pretax Income, firm *i* in year *t*.

Independent Variable:

Competition is a fundamental trait that includes conflict between individuals or organisations striving to prove control in a specific context. In this study, the level of competition among publicly traded non- financial companies in Pakistan is measured and examined. The research specifically tries to evaluate the company's ability to increase its market share within its own industry, showing its competitive strength and positioning.

The Herfindahl-Hirschman Index, used to determine the degree of competition, is the main measurement tool used in this study. The HHI is accurate predictor of market competition and is well-known as an industry organisation theory, which has been extensively examined in literature (Robinson *et al.*, 2010). When the HHI is high, there is less competition in a given industry. The squared market shares of all companies involved in a specific industry are summed up to calculate the HHI:

$$\text{HHI}_{j,t} = \sum_{i=1}^n S_{ijt}^2 \dots\dots\dots (2)$$

Control Variables

The study uses control variables found in prior literature (Richardson *et al.*, 2013; Richardson *et al.*, 2016). The following are the control variables:

Size_{*it*}: The natural logarithm of the total assets of company '*i*' in year '*t*'.

Profitability (ROA_{it}): the ratio of profit before tax to total asset for firm 'i' in year 't'.

Property, Plant and Equipment (PPE_{it}): this ratio measures how well you generate income from fixed assets such as buildings, vehicles, and machinery. The greater the PPE Turnover, the more effectively we use our capital assets.

Intangible Assets (INT_AST_{it}): The intangible assets divided by total assets for firm 'i' in year 't' (INT_AST_{it}) to reflect how intangibles are treated differently in books verses taxes, and consolidated net income is estimated employing the equity approach.

Leverage (Lev_{i,t}): The leverage ratio is calculated by dividing total liabilities by total assets for firm 'i' in year 't'. Companies having a high debt-to-asset ratio can utilize tax avoidance measures and are reluctant to switch to non-debt tax shields.

3.6 Model Specification

The empirical econometric model used in this study adopts dynamic panel estimation techniques to examine the relationship between corporate tax avoidance and product market competition. Equation 3 provides the framework for dealing with the research objectives and including the control variable.

$$ETR_{i,t} = \beta_0 + \beta_1 ETR_{i,t-1} + \beta_2 PMC_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 ROA_{i,t} + \beta_5 PPE_{i,t} + \beta_6 INT_AST_{i,t} + \beta_7 LEV_{i,t} + \epsilon_{i,t} \dots \dots \dots (3)$$

Results and Discussion

Table-1 Descriptive Statistics

Variables	N	Mean	SD	Max	Min
ETR	700	18.39%	5.02%	30.22%	0.60%
PMC	700	-1.240	0.624	-0.171	-4.000
SIZE	700	17.37	1.299	20.574	13.270
ROA	700	11.45%	7.670%	23.90%	-15.98%
PPE	700	39.48%	21.15%	89.35%	1.47%
INT_AST	700	5.05%	6.54%	30.18%	0.001%
LEV	700	48.53%	18.66%	81.93%	8.77%

Table 1 illustrates the descriptive statistics of variables. ETR average value is 18.39%. It means that, on average, for every \$1 of taxable income, corporations pay around 18.39 cents in taxes. It indicates that, on average, corporations have lower taxable income than their pretax accounting income, reflecting potential tax deductions or strategies used to reduce tax liabilities. The PMC has an average value of -1.240, GAAP effective tax rates are shown to be lower for companies operating in highly competitive industry. This aligns with the theory

that strong competition minimises prices, resulting in improved tax efficiency. These findings are similar with previous studies conducted by Liu (2022), Aqeel (2020), Wang (2019), Aman et al. (2019), Shin et al. (2019), and Illowsky et al. (2017), presenting the comparability and validity of the results.

Firms in the dataset have an average size of 17.37, indicating a typical company size. The average value of ROA is 11.45%, suggesting a moderate level of profitability. The PPE mean value is 39.48%, signifying the proportion of physical assets in the asset composition. The INT_AST has an average value of 5.05%, indicating their presence in the asset mix. Lastly, the average value of LEV is 48.53%, suggesting that firms have substantial financial leverage.

Correlation Matrix

Table 2 presents the correlation among variables. It shows that PMC has a negative correlation of -23.36% with ETR. The correlation coefficients lie within an acceptable range, suggesting no multicollinearity exists among the variables.

Table 2: Correlation Matrix

Variables	1.	2.	3.	4.	5.	6.	7.
1. ETR	1						
2. PMC	-23.36%	1					
3. SIZE	-4.44%	18.41%	1				
4. ROA	11.07%	-13.08%	-23.67%	1			
5. PPE	-10.32%	2.04%	-9.27%	-5.72%	1		
6. INT_AST	-1.04%	-27.35%	1.46%	11.7%	-6.65%	1	
7. LEV	4.52%	-4.21%	4.19%	-0.13%	-14.26%	-11.64%	1

Firm Size has a negative correlation of -4.44% with ETR. Similarly, ROA (profitability) has a significant positive correlation of 11.07% with ETR, while, PPE (tangibility) has a negative correlation of -10.32% with ETR whereas, INT_AST has a negative correlation of -1.04% with ETR. Moreover, LEV has positive correlation of 4.52% with ETR.

Table 3: Main Results

Dependent Variable: ETR		Pooled OLS		Fixed Effect		Random Effect	
Variables	Predicted	β	Sig	β	Sig	β	Sig
Independent	Sign						

Slope		0.155	0.000	-0.109	0.002	-0.056	0.092
PMC	-ive	-0.020	0.000	-0.014	0.002	-0.017	0.000
SIZE		0.001	0.718	0.016	0.000	0.013	0.000
ROA		0.057	0.022	0.044	0.023	0.043	0.022
INT_AST		-0.072	0.015	0.001	0.984	-0.015	0.722
PPE		-0.023	0.009	0.007	0.409	0.004	0.599
LEV		0.003	0.799	-0.026	0.001	-0.02	0.001
Adjusted R-square			0.070		0.766		0.094
F-value			9.818		31.541		13.07
Prob(F-statistic)			0.000		0.000		0.000
Durbin-Watson			0.279		1.167		1.029
stat							
N (firms)			700		700		700
		Hausman Specification Test					
Chi 2					19.56		
Prob>chi2					0.0033		

Table 3 presents the beta value of -0.020, -0.014 and -0.017 shows Pooled regression, Fixed Effect and Random Effect results respectively, which indicates significant and negative relationship between corporate tax avoidance and product market competition that is firms tend to have lower effective tax rates as product market competition increases. Corporations operating in more competitive contexts typically experience lower tax rates, reflects this inverse link. The results of the study are supported by both industry organisation theory by Tirole (1988) and its widespread use as a competition measure in the accounting and finance literature, as demonstrated by Robinson et al. (2010). Kubick et al. (2015) finding demonstrates that companies with greater product market competition typically maintain more consistent and long-term profitability. Particularly among their followers, market leaders exhibit a higher propensity to use riskier tax avoidance techniques. Product market competition reduces the gap between information asymmetry and agency problem Tax avoidance activities are negatively correlated with product market competition because managers are less inclined to engage in these actions for personal gain when competition is high. The study shows consistent results with findings from numerous other studies, highlighting the significance of product market competition in determining corporate profitability and propensity for tax avoidance (Shin et al., 2014).

In terms of control variables, firm size is positively associated with corporate tax avoidance. The firm size coefficient value is positive (0.001), (0.016) and (0.013) shows Pooled regression, Fixed Effect and Random Effect results respectively, it is statistically significant at 1% for Fixed Effect and Random Effect results respectively. The finding is consistent with prior studies by Ha and Quyen (2017) and Phuong (2018), which suggests that larger companies engage in more tax avoidance activities due to their increased access to tax incentives and political influence. Return on Assets (ROA) is an economic indicator that displays diverse behaviour in various settings. The ROA coefficient is positive (0.057), (0.044) and (0.043) in Pooled regression, Fixed Effect and Random Effect results respectively and statistically significant at 5%, demonstrating that greater ROA is correlated with higher levels of corporate tax avoidance. Property, plant, and equipment (PPE) has no statistically significant influence on corporate tax avoidance, which is consistent with prior research by Richardson et al. (2016), Ha and Quyen (2017), and Phuong (2018). Conversely, Intangible Assets (INT_AST) show negative beta coefficients (-0.072, and -0.015) has no statistically significant influence on corporate tax avoidance. This is similar with results from Gupta and Newberry (1997), Richardson and Lanis (2007), Nam (2017), and Phuong (2018) and indicates that companies with more intangible assets likely to have lower levels of tax avoidance. Finally, leverage (LEV) has shown negative beta coefficients -0.026, and -0.02) has statistically significant at 1% influence on corporate tax avoidance. This suggests that corporations may decide to use other, more beneficial tax avoidance approaches instead of to just relying on leverage to lower income tax rates. The results are consistent with the findings of McGuire et al. (2012). The Hausman Specification Test reveals the p-value is 0.0033, which is within the 5% significance level. Hence, it is suggested that the fixed effect regression estimation provides outcomes that are better and reliable than random effect regression model.

Conclusion

In recent years, there has been a notable boom in media attention towards the tax avoidance practices used by large international corporations, resulting in significant effects on their reputation. The main objective of this study is to examine the relationship between corporate tax avoidance and product market competition. To achieve this objective, modern statistical techniques have been used to carry out a comprehensive empirical analysis over the period from 2011 to

2020. The study found a considerable negative relationship between corporate tax avoidance and product market competition. The observed negative relationship suggests that increased levels of competition are related to lower profitability, therefore that results in decreasing tax rates for firms, particularly within the framework of a progressive corporate income tax structure. Moreover, the findings of this study indicate that companies that endured strong competition generally had lower effective tax rates, as measured by GAAP accounting standards. It is anticipated that the outcomes of increased tax avoidance will arise as a direct consequence of intense competition, leading to a reduction in prices.

The study further highlights that enterprises characterized by lower cash flow uncertainty and restricted investment possibilities within their respective industries exhibit a stronger correlation between tax avoidance and industry competition. The attempt of efficient tax management is a key focus of corporations operating in a competitive environment. However, the effectiveness of their tax planning efforts may be constrained by the unpredictable nature of cash flows and the varying availability of investment possibilities within their respective sectors. The findings of this study provide empirical evidence for a hypothesis, which suggests that the level of company tax avoidance is negatively influenced by the extent of product market competition. The study contributes to the existing body of knowledge related to corporate tax avoidance. Besides, it serves to broaden existing academic literature on this area of proactive tax transparency reporting in public disclosures. The results of this study could potentially provide useful information for studies. This study might be expanded to include a cross-country sample for more understanding of industrial competition and tax avoidance behavior.

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