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An Empirical Study on the Determinants of Tax Avoidance Behavior Among Listed Companies on the Vietnamese Stock Market

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Abstract
This study aims to analyze and quantify the impact of firm-specific characteristics on the tax avoidance behavior of listed companies in Vietnam during the period 2019–2023. The dataset includes 400 non-financial firms, collected from audited financial statements. The research employs the Feasible Generalized Least Squares (FGLS) regression model to address heteroskedasticity and autocorrelation issues in panel data. Independent variables include firm size, financial leverage, profitability, firm age, and capital intensity. The findings show that firm size, leverage, and capital intensity are negatively and significantly associated with the effective tax rate, indicating that firms with these characteristics are more likely to engage in tax avoidance. The study proposes several recommendations to improve tax administration and promote better tax compliance among businesses.

Keywords: Tax Avoidance, Firm Size, Financial Leverage, Capital Intensity, Firm Age, Profitability

1. Introduction

Taxation represents a vital financial instrument of the State, playing a central role in generating budgetary revenue, regulating the macroeconomy, redistributing income, and promoting social equity. In the context of increasingly integrated market economies and globalization, the tax systems of individual countries are facing emerging challenges, particularly in ensuring accurate and sufficient tax collection while minimizing revenue loss from the corporate sector. One of the most prominent and complex issues in contemporary tax administration is tax avoidance. This refers to actions taken by enterprises to reduce their tax liabilities through legal means within the boundaries of existing regulations. Although fundamentally distinct from tax evasion-a clearly illegal act-tax avoidance still carries numerous negative implications, including reduced fiscal revenue, distortion of fair competition, and diminished effectiveness of tax policy.

In practice, tax avoidance behavior may be influenced by a wide array of internal and external factors. Prior international studies have demonstrated that firm-specific characteristics such as size, age, financial structure, profitability, and capital intensity can significantly shape both the motivation and the capacity for tax avoidance. However, in Vietnam, empirical investigations into this phenomenon remain limited, especially with respect to publicly listed enterprises. Through this study, the authors aim to shed light on the nature of tax avoidance behavior in the Vietnamese context, while offering policy-relevant recommendations to strengthen tax governance and foster a more transparent, equitable, and sustainable business environment.

2. Theoretical Foundation and Research Hypotheses

2.1 Overview of Previous Studies

Tax avoidance has attracted the attention of numerous researchers both domestically and internationally. International studies such as Armstrong *et al*. (2012), Dyreng *et al*. (2008), and Rego & Wilson (2012) have demonstrated that internal firm characteristics—such as size, profitability, financial leverage, and ownership structure—are significantly associated with tax avoidance behavior. Specifically, large firms with high profitability and extensive use of debt are more likely to engage in tax avoidance, as they possess more resources and incentives to optimize tax burdens.

In Vietnam, several notable studies—such as Ha & Phan (2017), Nguyen Hoang Anh & Vu Hoang Phuc (2021), Nguyen *et al*. (2020), and Truong Thuy Van (2022)—have provided preliminary empirical evidence on the relationship between firm characteristics and tax avoidance behavior. However, these studies suffer from certain limitations, such as narrow sample scopes, limited tax avoidance metrics (primarily relying on ETR), or insufficient control for factors such as industry

classification and state ownership level.

A synthesis of previous literature indicates that firm size, operational efficiency, financial leverage, audit quality, and ownership structure can significantly affect tax avoidance behavior. Some studies also emphasize the monitoring role of state ownership and major shareholders in curbing aggressive tax strategies. Nevertheless, discrepancies in findings-largely attributable to differences in measurement methods, research periods, and model specifications-suggest that further research is warranted, particularly within the Vietnamese context.

Hence, this study seeks to contribute additional empirical evidence using a broader sample (400 non-financial firms listed on HOSE and HNX from 2019–2023) and applying the Feasible Generalized Least Squares (FGLS) method to address tax avoidance behavior more reliably, thereby improving the robustness and generalizability of policy-relevant conclusions.

International literature on corporate tax avoidance typically revolves around two main theoretical perspectives to explain the motivations and consequences of such behavior. The first, a financial perspective, views tax avoidance as a legitimate strategy to optimize tax obligations and enhance corporate financial efficiency (Desai & Dharmapala, 2009). Under this view, managers undertake tax avoidance to reduce tax burdens, thereby increasing firm value and attracting investors. In some cases, managers may even be encouraged and rewarded for achieving such results (Kim *et al*., 2011). For instance, Graham & Tucker (2006) found that large and profitable firms tend to avoid taxes more frequently by utilizing deductible expenses such as interest payments. Similarly, Philips & John (2003) [7] argued that managerial incentive schemes may further incentivize such behavior.

In contrast, the second perspective—rooted in agency theory—posits that tax avoidance stems from conflicts of interest between shareholders and managers (Slemrod, 2004; Jensen & Meckling, 1976). While cooperative motives aim to maximize firm value, agency-driven motives suggest that managers may exploit tax avoidance for personal gain. In the absence of effective oversight, tax avoidance may reduce actual firm value and compromise shareholder interests. Desai & Dharmapala (2006, 2009) categorized tax avoidance behavior according to these two perspectives, underscoring the importance of corporate governance in determining the nature of tax behavior. Hanlon & Heitzman (2010) further noted that poorly managed tax avoidance may reduce financial transparency, increase legal risks, and escalate audit costs.

Empirically, while Graham & Tucker (2006) confirmed that tax avoidance may bring short-term benefits, they also warned of its potential to increase financial risk. Armstrong *et al*. (2015) emphasized the pivotal role of corporate governance, especially the board of directors and internal control systems, in curbing tax avoidance. Recent studies have adopted multi-dimensional approaches, integrating financial, governance, and personnel factors alongside complex measurement techniques such as Book-Tax Differences (BTD), Unrecognized Tax Benefits (UTB), and indices derived from the Desai-Dharmapala model to more comprehensively assess tax avoidance behavior.

In summary, tax avoidance is a multifaceted phenomenon with dual implications: it may create value if undertaken prudently, yet pose significant risks if abused. The key distinction between the two theoretical perspectives lies not only in the interpretation of tax avoidance itself but also in the role of governance mechanisms in regulating it. Therefore, objective evaluation of tax avoidance behavior must account for monitoring systems, governance quality, incentive structures, and the specific legal environment of each country.

2.2 Research Gap

Despite numerous domestic and international studies on tax avoidance behavior, several research gaps remain that this study seeks to address:

First, while factors affecting tax avoidance have long been studied in developed markets such as the United Kingdom, the United States, and France, in Vietnam, existing research has been relatively limited in scope, often focusing on select types of enterprises. Few studies have applied large-scale samples. To overcome this limitation, this study targets all non-financial firms listed on Vietnam's stock exchanges, regardless of industry, size, or legal structure.

Second, regarding research methodology, previous studies mostly applied static panel data regression using OLS, random effects, or fixed effects models, followed by statistical tests to select the appropriate model. However, these methods often suffer from heteroskedasticity issues that are not easily corrected. Moreover, existing studies have limited temporal and spatial coverage. Therefore, this study adopts the Feasible Generalized Least Squares (FGLS) method to better address heteroskedasticity and autocorrelation issues.

2.3 Theoretical Framework and Hypotheses

Stakeholder Theory: Developed by Edward Freeman in 1984, this theory posits that enterprises exist and operate within a network of interactions with various stakeholder groups, including shareholders, employees, customers, suppliers, regulators (including tax authorities), and the broader community. Firms are obligated to balance the interests of these stakeholders to ensure sustainable development.

From this perspective, tax compliance is not merely a legal obligation but also a manifestation of business ethics and corporate social responsibility. Fulfillment of tax obligations helps build investor trust, market credibility, and public legitimacy. Conversely, even legally permissible tax avoidance may generate skepticism about a firm's transparency and diminish brand reputation.

Signal Theory: Proposed by Michael Spence in 1973, signal theory explains how firms convey positive information to the market under asymmetric information conditions. Tax compliance may be interpreted as a signal of transparency and ethical governance.

According to Herma *et al*. (2023), firms that comply with tax obligations send a positive signal to investors and regulators. Conversely, tax avoidance—even if legal—may raise investor concerns regarding legal risks or corporate ethics. Accordingly, tax compliance becomes part of a signaling strategy to enhance corporate image and market value.

Research Hypotheses:

Firm size reflects the operational scale, capacity, and resources of a business. According to the political cost theory (Watts & Zimmerman, 1978), larger firms face greater scrutiny from regulators and society, which may

incentivize them to engage in tax avoidance to minimize political costs. However, large firms may also have stronger internal controls and higher transparency, which could reduce tax avoidance. This suggests a potentially non-linear, inverted-U relationship between size and tax avoidance.

H1: Firm size has a non-linear relationship with tax avoidance.

Firm age captures the duration of a company's existence in the market. Older firms tend to accumulate more experience, policy familiarity, and tax planning capabilities (Chen *et al*., 2010; Desai & Dharmapala, 2006). However, from a stakeholder theory perspective, older firms also face heightened expectations for compliance and reputation maintenance.

H2: Firm age has a positive effect on tax avoidance.

ROA measures a firm's efficiency in utilizing its assets to generate profit. Firms with high ROA may rely less on tax strategies to improve performance and may be motivated to maintain transparency (Hanlon & Heitzman, 2010). Hence, strong financial performance may reduce tax avoidance incentives.

H3: ROA negatively affects tax avoidance behavior.

Capital intensity reflects the proportion of fixed assets in total assets. Firms with high capital intensity often operate in asset-heavy industries, characterized by more transparent governance and limited opportunities for aggressive tax strategies (Stickney & McGee, 1982; Rego, 2003). High CAPINT may also reflect a signaling strategy of long-term compliance.

H4: Capital intensity negatively affects tax avoidance behavior.

Leverage indicates the extent of debt financing in the firm's capital structure. Heavily leveraged firms can reduce taxable income through interest deductions, potentially increasing tax avoidance (Jensen & Meckling, 1976). However, leverage may also serve as a positive signal of growth potential (Wolk *et al*., 2001), indicating that its relationship with tax avoidance may be strategic rather than uniform.

H5: Financial leverage weakens the negative effect on tax avoidance behavior.

2.4 Factors Influencing Corporate Tax Avoidance Behavior

Table 1 presents a summary of the explanatory variables employed in the empirical model to analyze the determinants of tax avoidance behavior among Vietnamese listed firms.

Table 1: Summary of Variables and Measurement

S. No	Variable Name	Symbol	Measurement Formula	References
1	Firm Size	SIZE	Natural logarithm of total assets	Nguyễn Văn Công & cộng sự (2020)
2	Financial Leverage	LEV	Ratio of total liabilities to total assets	Modigliani & Miller (1958), Jensen & Meckling (1976)
3	Return on Assets	ROA	Net income after tax divided by total assets	Nguyễn Minh Kiều (2021)
4	Firm Age	AGE	Natural logarithm of the number of operating years since establishment	Evans (1987), Dewinta & Setiawan (2016)
5	Capital Intensity	CAPINT	Ratio of fixed assets to total assets	Rego (2003), Chen *et al*. (2010)

3. Research Methodology

3.1 Measurement

In line with prior studies, tax avoidance behavior is primarily measured using the **Effective Tax Rate (ETR)**, which is widely recognized in the accounting literature as a standard indicator for identifying abnormal tax behavior. ETR captures the effectiveness of a firm's tax management strategies and serves as a proxy for tax avoidance in empirical research (Armstrong *et al*., 2012; Chen *et al*., 2010; Mills *et al*., 1998; Phillips, 2003).

This study adopts ETR as the dependent variable, defined as:

$$ETR = \frac{Chi\ phí\ thuế\ thu\ nhập\ doanh\ nghiệp}{Lợi\ nhuận\ kế\ toán\ trước\ thuế} x100\%$$

The ETR value is calculated based on audited annual financial statements of the firms under study. A lower ETR indicates a higher level of tax avoidance. This measurement is consistent with Nguyen Hoang Anh & Vu Hoang Phuc (2021), published in the Journal of Banking Science and Training.

3.2 Sample

This research focuses on analyzing the determinants of tax avoidance behavior among non-financial firms listed on Vietnam's HOSE and HNX stock exchanges during the period from 2019 to 2023. A total of 400 listed non-financial firms were selected using a purposive sampling strategy, with financial institutions excluded to ensure objectivity and consistency, given their distinct tax treatment and financial reporting practices.

The data were extracted from publicly disclosed audited annual reports. The empirical analysis applies panel data regression models to test the relationship between firm-level financial indicators and tax avoidance behavior. All estimations were conducted using Stata statistical software. The analysis included standard diagnostics such as the Hausman test, Breusch-Pagan LM test, variance inflation factors (VIF) for multicollinearity, and checks for heteroskedasticity and autocorrelation to ensure model robustness.

Given that the dataset violated key assumptions of ordinary least squares (OLS)-specifically, the presence of heteroskedasticity and serial correlation-the research employed the Feasible Generalized Least Squares (FGLS) estimator. FGLS is more efficient than OLS in the presence of such violations, producing unbiased and consistent coefficient estimates and reflecting the underlying heterogeneity among firms in the sample.

With respect to sample design, firms lacking complete financial data were excluded to ensure data completeness and reliability of the analysis. However, newly listed firms were retained to assess the effect of firm age—an essential variable in the study. Excluding these firms would eliminate the representation of early-stage enterprises, thereby reducing the model's generalizability and analytical value.

Table 2: Fixed Effects Regression Results

Biến	Hệ số (Coefficient)	Sai số chuẩn (Std. Err.)	t	P>|t|	[95% Conf. Interval]
roa	-0.0000331	0.0000634	-0.52	0.603	[-0.0001577, 0.0000916]
lev	0.000865	0.000337	2.57	0.011	[0.0002025, 0.0015275]
age	-3.085603	1.130716	-2.73	0.007	[-5.308476, -0.8627311]
size	1.278441	0.5279081	2.42	0.016	[0.2406279, 2.316254]
capint	-0.0039903	0.00272	-1.47	0.143	[-0.0093376, 0.0013569]
m	0.0748688	0.0305574	2.45	0.015	[0.014796, 0.1349416]
_cons	20.39009	2.883167	7.07	0.000	[14.72208, 26.0581]

4. Empirical Results

The regression was conducted using fixed-effects panel data estimation (See Table 2), with cluster-robust standard errors at the firm level (vce(cluster mck_num)). The dependent variable is the Effective Tax Rate (ETR), which serves as a proxy for tax avoidance behavior.

Interpretation of Findings

The results indicate that several firm-specific characteristics significantly influence tax avoidance behavior, as measured by the effective tax rate:

Financial Leverage (LEV): The coefficient is positive and statistically significant at the 5% level (β = 0.000865; p = 0.011), suggesting that firms with higher debt ratios are more likely to engage in tax avoidance. This aligns with the notion that interest expenses from debt financing can serve as a legitimate means of reducing taxable income.

Firm Age (AGE): The coefficient is negative and significant at the 1% level (β = -3.085603; p = 0.007), indicating that older firms are less likely to engage in tax avoidance. This may be attributed to increased regulatory scrutiny and reputational concerns that come with longevity.

Firm Size (SIZE): The coefficient is positive and statistically significant at the 5% level (β = 1.278441; p = 0.016), implying that larger firms, with more financial and human capital resources, are more capable of implementing effective tax optimization strategies.

Capital Intensity (CAPINT) and Return on Assets (ROA) do not exhibit statistically significant effects (p > 0.1), indicating no robust evidence of their relationship with tax avoidance behavior in this sample.Control Variable – Intangible Investment (M): This variable, which reflects investments in innovation, R&D, or intangible assets, has a positive and significant effect (p = 0.015), suggesting that firms engaged in long-term investment projects may leverage accounting flexibility to manage tax liabilities.Given the relatively low R-squared value (1.36%), and the theoretical basis suggesting that some relationships may not be linear, the model is extended in the following section to include quadratic terms to test for potential nonlinear relationships.

To enhance the robustness of the analysis and account for possible nonlinear relationships, the regression model was extended by including squared terms for selected independent variables: LEV^2, AGE^2, and $SIZE^2$. This adjustment is theoretically motivated by previous studies (Hanlon & Heitzman, 2010; Chen *et al*., 2019), which suggest that the effects of firm characteristics on tax avoidance are not always linear.

Table 3: Extended Fixed Effects Regression with Quadratic Terms

Biến độc lập	Hệ số ước lượng (Coefficient)	Sai số chuẩn (Std. Error)	Giá trị t (t-value)	P-value	Khoảng tin cậy 95%
ROA	-0.0001673	0.0000943	-1.77	0.077	[-0.0003527; 0.0000182]
LEV	0.0088374	0.0083998	1.05	0.293	[-0.0076757; 0.0253505]
LEV^2	-0.000000802	0.000000828	-0.97	0.333	[-0.00000243; 0.000000825]
AGE	2.817097	2.038734	1.38	0.168	[-1.190845; 6.825039]
AGE^2	-1.292947	0.590025	-2.19	0.029	[-2.452875; -0.1330199]
SIZE	5.192607	2.188343	2.37	0.018	[0.890549; 9.494666]
$SIZE^2$	-0.2792244	0.1376839	-2.03	0.043	[-0.5498968; -0.0085521]
CAPINT	-0.0038818	0.0022463	-1.73	0.085	[-0.0082977; 0.0005342]
Intercept	2.255975	7.801726	0.29	0.773	[-13.08142; 17.59337]

The inclusion of quadratic terms yields several key findings:

Firm Age (AGE^2): The squared term of AGE is negative and statistically significant at the 5% level (β = -1.292947; p = 0.029), indicating an inverted U-shaped relationship. This suggests that tax avoidance increases with firm age up to a certain point, after which it begins to decline—possibly due to greater regulatory scrutiny and reputational concerns in older firms.

Firm Size ($SIZE^2$): Similarly, $SIZE^2$ is negative and significant at the 5% level (β = -0.2792244; p = 0.043), also confirming an inverted U-shaped relationship. This implies that larger firms may initially increase tax avoidance due to available resources and expertise, but beyond a certain size threshold, institutional pressures and public accountability may curtail aggressive tax behavior.

Financial Leverage (LEV^2): The squared term of LEV is not statistically significant (p = 0.333), indicating no evidence of a nonlinear relationship between leverage and tax avoidance in this sample.

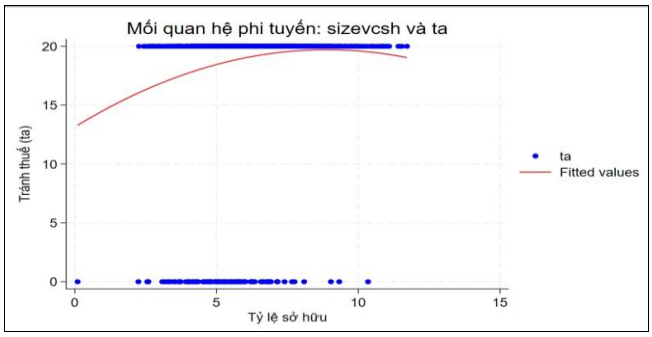

Fig 1: Nonlinear Relationship between Firm Size and Tax Avoidance

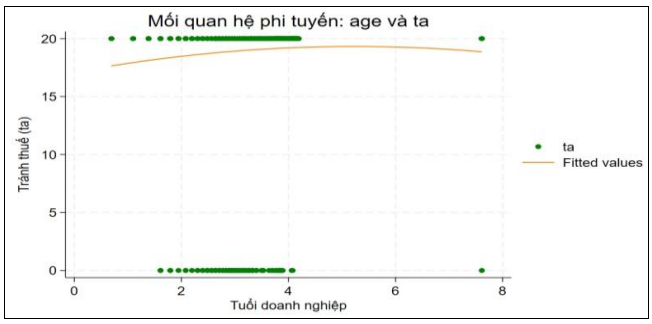

Fig 2: Nonlinear Relationship between Firm Age and Tax Avoidance

5. Conclusion and Policy Implications

This study investigates the determinants of tax avoidance among Vietnamese listed non-financial firms using panel data from 2019 to 2023. The findings reveal that financial leverage, firm size, and firm age significantly influence tax avoidance behavior. Larger and more leveraged firms tend to avoid more taxes, while older firms exhibit more conservative tax strategies. Importantly, the extended model confirms nonlinear relationships: both firm size and age follow inverted U-shaped patterns, indicating diminishing marginal effects at higher levels.

These results suggest that tax authorities should adopt risk-based audit strategies incorporating firm characteristics such as size and leverage. Policymakers are encouraged to design fair and adaptive tax regulations, while firms should view compliance not only as a legal requirement but also as a strategic dimension of long-term sustainability. Promoting transparency and ethical tax planning is essential to balancing efficiency with corporate responsibility.

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