Firm size as a moderator in the relationship between tax compliance and business performance: a study of Vietnamese enterprises

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Abstract: This study aims to assess the impact of tax compliance on firm performance and examine the moderating role of firm size in this relationship. Data were collected from 322 non-financial companies listed on the HOSE during the period 2016–2023. The feasible generalised least squares (FGLS) regression method with interaction variables was used to test the model. The results show that tax compliance positively impacts financial performance, especially in small-sized enterprises. In addition, firm size is moderating, as the positive impact of tax compliance decreases in large enterprises. The study contributes to institutional theory and stakeholder theory and provides empirical evidence to help formulate appropriate tax policies according to firm size in the context of an emerging market like Vietnam.

Keywords: firm size; firm performance; moderating factor; tax compliance; Vietnam.

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1 Introduction

The study of Tarmidi and Murwaningsari (2024) shows that tax compliance has the role to determine the financial performance of business. Tax compliance costs including administrative expenses, time spent on tax-related processes, and indirect costs affect business efficiency. The relationship between tax compliance and firm performance is supported by Matarirano et al. (2019) for small businesses in South Africa's construction sector and by the study of Tarmidi and Murwaningsari (2024). High compliance costs could reduce overall profitability and productivity due to distracting the company's resources from the course activities. Especially, in cases of small and medium-sized enterprises (SMEs), long-term growth and competitiveness could be affected by huge compliance costs because of resource limitations. Therefore, reasonably balanced tax policies are required to ensure business sustainability as well as compliance enforcement (Matarirano et al., 2019).

Tax compliance is defined as the full performance of tax obligations by enterprises according to the law, including timely registration, declaration, and payment of taxes (James and Alley, 2002; McBarnet, 2001). According to McKerchar and Evans (2009), tax compliance is not only related to the time of filing tax returns but also includes accuracy and honesty in reporting tax obligations according to current regulations. Tax compliance is divided into two primary forms: voluntary and compulsory. Voluntary compliance reflects the proactive fulfilment of tax obligations by enterprises without the intervention of management agencies (Baer and Silvani, 1997), while compulsory compliance comes from legal pressure and mandatory sanctions from the state.

Empirical studies have established that tax compliance positively impacts firm performance. In particular, Chude and Chude (2015) and Matarirano et al. (2019), businesses that pay taxes properly will receive certain benefits, including reducing legal risk, increasing market reputation, and easy access to are more profitable. Similarly, capital; by so doing, they Yadav et al. (2021) also emphasise that tax compliance is a legal responsibility and a core element in risk management and sustainable development strategies. This shows that, whether in the form of voluntary or compulsory compliance, tax compliance behaviour has the potential to create significant added value for businesses, especially in the context of emerging economies with gradually improving legal environments.

While previous studies have highlighted the importance of tax compliance in enhancing firm performance, particularly by reducing legal risks, improving reputational standing, and facilitating access to financial resources (Chude and Chude, 2015; Matarirano et al., 2019; Yadav et al., 2021), most of this research has focused on general or sector-specific contexts such as construction (Matarirano et al., 2019), or has examined tax compliance primarily from a legal or cost-related perspective (Tarmidi and Murwaningsari, 2024). However, there remains a significant gap in understanding how different forms of tax compliance (i.e., voluntary versus compulsory) influence business performance, particularly in emerging economies like Vietnam where institutional and regulatory frameworks are still developing. Furthermore, existing literature has not sufficiently explored the potential moderating or mediating factors, such as firm size, internal resource capacity, or digital readiness, that may shape the relationship between tax compliance and firm performance.

To address this gap, the present study develops a comprehensive research model that examines the impact of tax compliance on firm performance, with a specific focus on the moderating role of firm size. By incorporating secondary financial data from Vietnamese listed firms and accounting for structural differences across enterprises, this study seeks to offer a more nuanced understanding of how tax compliance practices influence performance outcomes in emerging markets. The findings are expected to provide more effective policy recommendations, particularly in promoting financial transparency and optimising tax frameworks to support sustainable business growth. Accordingly, the central research question posed is: "How does tax compliance affect firm performance, considering the moderating role of firm size in Vietnamese listed firms?".

In the following section, the authors present the literature review and hypothesis development, focusing on the hypothesis that tax compliance affects business performance and the moderating role of firm size. The subsequent section outlines the research model and methodology used to achieve the study's objectives. Based on these methods, the authors present the research findings and corresponding discussions in Section 4 of the paper. The final section provides the overall conclusion, policy implications, and several limitations of the study.

2 Literature review and hypothesis development

2.1 Literature review

2.1.1 Stakeholder theory

The stakeholder theory (Freeman, 1984) emphasises that businesses are not only responsible for maximising shareholder value but must also balance the interests of various stakeholders, including investors, regulators, customers, and society. In this context, the quality of financial statements plays a crucial role in providing transparent and reliable information, thereby reducing information asymmetry and enhancing stakeholder trust (Healy and Palepu, 2001). Accurate financial reporting improves investors' decision-making ability, strengthens capital-raising efficiency, and enhances corporate reputation in the market (Donaldson and Preston, 1995).

Furthermore, tax compliance is a key aspect of corporate responsibility toward stakeholders, particularly the government and the broader community (Gribnau, 2024; Scarpa and Signori, 2023). Fulfilling tax obligations not only reflects business ethics but also helps companies mitigate legal risks and maintain a positive public image (Slemrod, 2004). In contrast, tax evasion or aggressive tax avoidance can lead to severe sanctions, undermine stakeholder confidence, and negatively impact corporate performance (Hanlon and Heitzman, 2010). Hence, Stakeholder Theory offers a normative justification for the positive relationship between tax compliance and firm performance, thereby serving as the theoretical foundation for Hypothesis 1.

2.1.2 Economic theory of tax compliance

Allingham and Sandmo (1972) và Kirchler (2007) stated that tax compliance is the duty of taxpayers. Therefore, according to this view, taxpayers must fully comply with tax laws. Compulsory tax compliance requires taxpayers to fully perform their statutory obligations, including fully and timely declaring the amount of tax payable, and paying tax on time in accordance with legal regulations and court decisions.

Similarly, OECD (2004) defined "tax compliance as the extent to which taxpayers must fulfill their three basic tax obligations: tax declaration, tax reporting and tax payment". Accordingly, tax authorities require taxpayers to fully and correctly comply with regulations such as tax registration, tax declaration, tax calculation, tax payment and tax reporting. Any violation in these stages leads to tax non-compliance at different levels. Thus, tax compliance is a concept that encompasses both legal and practical meanings.

However, unlike mandatory tax compliance, voluntary tax compliance is understood as the taxpayer's willingness to declare tax information accurately, submit tax returns on time and fully perform tax obligations according to regulations even when there are no sanctions or low sanctions for violations. James and Alley (2002) argue that taxpayers demonstrate voluntary tax compliance through cooperation, accurately declaring taxable income, paying tax payable on time without depending on the urging or reminders of tax authorities or without the need for enforcement from tax authorities.

Recent study by Appiah et al. (2024) further supports this view, showing that tax knowledge and trust in government significantly influence taxpayers' willingness to comply voluntarily. This highlights the psychological and informational dimensions of tax compliance, especially in contexts where formal enforcement is weak or trust in public institutions plays a central role. This theory complements stakeholder theory by providing an individual and psychological rationale for compliance behaviour. It helps to explain the mechanisms through which tax compliance can improve operational efficiency and financial outcomes. Furthermore, the theory suggests that the effectiveness of compliance may vary depending on a firm's internal characteristics and external constraints.

2.1.3 Institutional theory

Institutional theory is an important foundation for explaining the tax compliance behaviour of enterprises in the context of being influenced by formal rules and social pressures (DiMaggio and Powell, 1983; Saad, 2014; Scott, 2013). According to DiMaggio and Powell (1983), enterprises not only operate based on economic efficiency but also have to meet the expectations of the institutional environment to achieve legitimacy. In a developing environment like Vietnam, where the legal system and tax policies are constantly adjusted, enterprises, especially large enterprises, face strong institutional pressures from the state, industry, and society, forcing them to comply with taxes as a manifestation of responsibility and legitimacy (Suchman, 1995). In addition, recent studies have also confirmed that institutions play an important role in shaping tax compliance norms in emerging economies (Saad, 2014). Hence, the theory argues that tax compliance is an instrumental behaviour individuals and is part of enterprises' adaptation to environmental of pressures to remain competitive and efficient in their operations. Specifically, the size of the enterprise is the larger of the institutional pressures that explain the moderation effect of the enterprise size on relationship between tax compliance and financial performance.

2.2 Hypothesis development

Based on the above theories, the authors develop research hypotheses regarding the impact of tax compliance on the business performance of firms listed on the HOSE. This approach aims to provide a theoretical foundation for examining how tax obligations, when properly fulfilled, can contribute to financial efficiency and long-term growth. By focusing on listed firms, the study emphasises the importance of transparency and regulatory compliance in Vietnam's capital market.

2.2.1 Tax compliance affects firm performance

Corporate tax compliance is considered as a strategic tool and a legal obligation for financial risks management. By investing in infrastructure and public service, tax compliance guarantees that businesses fulfil their responsibility to assist national development, thereby promoting business sustainability. Compliance is promoted by governments through a variety of mechanisms, such as tax incentives and digital services that make the taxing process easier (Tarmidi et al., 2020). Despite its significance, ongoing discussion in academic research continues regarding the relationship between tax compliance and firm performance.

Taxation's impact on financial performance is a controversial topic. According to De Schoenmaker et al. (2014) and Thanjunpong and Awirothananon (2019), taxation has a negative effect on corporate financial performance by lowering net profit and may encourage non-compliance as businesses try to reduce their tax burdens. Other researchers, however, indicate that following tax regulations improves firm performance by reducing the possibility of compliance-related costs such as penalties, interest charges, and other costs associated with compliance, thereby enhancing financial stability (Chude and Chude, 2015; Matarirano et al., 2019).

Numerous factors impact tax compliance, such as labour market dynamics, corporate governance, economic conditions, regulatory enforcement, and ethical considerations (Boateng et al., 2022; Musimenta et al., 2019; Young et al., 2016). Furthermore, as liquidity issues may cause firms to engage in tax avoidance or evasion, financial constraints and the evaluation of tax risk are essential factors in establishing compliance levels (Seidu et al., 2021).

According to Boateng et al. (2022), effective management of tax risks helps businesses maintain financial stability and liquidity buffers, thus ensuring continuous operations free from legal consequences. Additionally, it has been demonstrated that fiscal incentives, such as tax relief and exemptions, significantly enhance firm performance, particularly in industrial clusters where firms benefit from targeted government policies (Nwokoye et al., 2023).

Accuracy and promptness in fulfilling tax responsibilities are commonly used to evaluate tax compliance (Salaudeen and Abdulwahab, 2022). It is dependent upon external regulatory enforcement as well as internal governance measures (Alabede et al., 2011). In order to maintain financial performance, firms must balance tax efficiency with regulatory compliance as tax authorities step up their surveillance and enforcement activities.

Most research on tax compliance relies on primary data, collected through surveys and interviews (Güzel et al., 2019; Sadress et al., 2019). However, there is limited research using secondary data to measure corporate tax compliance. This study addresses that gap by utilising secondary data to examine tax compliance trends and their impact on firm performance, thereby offering a more comprehensive understanding of compliance behaviour across different industries.

In this paper, the tax compliance is measured by the amount of corporate tax declared and paid on time (James and Alley, 2002). Based on discussions, the following hypothesis is proposed.

Hypothesis 1 Tax compliance positive affects firms' performance listed on HSX.

2.2.2 Moderating role of firm size

Firm size is an important structural characteristic that reflects organisational capacity regarding resources, control, and operational complexity (Chow, 1982; Donaldson, 2001; Hanson et al., 2016). Many studies show that firm size significantly impacts governance behaviour, financial structure, legal compliance, and business performance (Dang et al., 2018; Rajan and Zingales, 1995). Large-scale enterprises often possess abundant financial and human resources and developed internal control systems, improving coordination, transparency of information, and compliance with legal regulations, including tax obligations (Bachas et al., 2019; Geroski, 1995; Iregui-Bohórquez et al., 2022). In addition, according to transaction cost theory, large enterprises build effective governance mechanisms to mitigate risks from the legal and tax environment (Williamson, 2007). At the same time, large firms also face higher levels of scrutiny from tax authorities and the public, increasing the incentive to comply with taxes to protect their image, maintain legitimacy, and attract investor confidence (Hanlon and Heitzman, 2010).

Hypothesis 2 Firm size moderates the effect of tax compliance on firm performance in Vietnam.

2.2.3 Control factors

- *Liquidity:* According to Masood et al. (2015). Liquidity is the capacity of an organisation to convert its financial assets into cash as soon as possible or in a short amount of time, or the availability of the funds to satisfy all of its financial obligations as they become due. In other words, a business entity's liquidity is its capacity to pay short-term debts as they become due. Since most investors are able to assess an entity's liquidity, both current (short-term) and non-current (long-term) assets and liabilities are considered to be its main concern (Hoggett et al., 2018). Other studies, however, look into how liquidity affects company performance negatively (Alarussi and Gao, 2023; Hossain, 2020; Nanda and Panda, 2018; Pervan et al., 2019; Škuflić et al., 2016). A significant quantity of capital contained in current assets that cannot be used to create revenue will come from the high level of liquidity preserved. The company's earnings declined as a result of the opportunity to utilise the costly capital being lost. Based on the above arguments, the hypothesis is proposed as follows.

Hypothesis 3 Liquidity negatively affects the listed firms' performance in HSX.

- *Leverage:* Financial leverage is one of the core financial factors that significantly affects firms' performance. Leverage allows enterprises to use borrowed capital to finance investment activities and business expansion, thereby expecting to increase returns on equity (Berger and Di Patti, 2006; Margaritis and Psillaki, 2010; Modigliani and Miller, 1963).

  According to the traditional capital structure theory (trade-off theory), enterprises will achieve optimal financial performance when they have a reasonable balance between debt and equity to take advantage of tax shield benefits (Kraus and Litzenberger, 1973; Modigliani and Miller, 1963). Many empirical studies have shown a positive relationship between moderate leverage and business performance, especially in enterprises with stable cash flows and low capital costs (Margaritis and Psillaki, 2010; Zeitun and Tian, 2007) gets higher than the control threshold, increased. When leverage financial risk might erode the solvency and profit of the firms, notably under an unstable market.

Hypothesis 4 Leverage negatively affects the listed firms' performance in HSX.

- *Cost to income ratio:* Cost to income ratio (CIR) is one of the most important financial parameters that measures an enterprise's ability to manage costs and its operational efficiencies. A large CIR ratio would mean that more cost is needed for a company to produce a unit of revenue, implying lower profit margins and inefficiency in the business. Recent papers indicate that CIR negatively in the banking and financial affects performance measures, particularly services industry (Sarpong-Kumankoma et al., 2018). When CIR increases, profit margins decrease due to inflated operating costs or inefficient management processes. On the contrary, companies that maintain a low CIR often have an optimal cost structure, manage resources well, and are more competitive in the long run (Athanasoglou et al., 2008; Dietrich and Wanzenried, 2010). Therefore, CIR is a measure of financial performance and a strategic indicator of a business's operational health in an increasingly competitive environment.

Hypothesis 5 CIR negatively affects the listed firms' performance in HSX.

- *Gross domestic product (GDP):* Gross domestic product (GDP) – a root macroeconomic variable market landscape. As a leading indicator of economic affecting the financial sectors. Also, multiple growth, GDP impacts business performance across various growth and studies have shown a closely positive correlation between GDP corporate performance. As reported by Li (2024), the growth of GDP levels is an important factor for revenue growth among leading corporations in China. Likewise, data from Berg and Stein (2024) revealed that a 2.8% rise in real GDP during the third quarter was associated with higher corporate profits. Furthermore, the works of Ghazavi and Bayraktar (2018), Ghosh (2016), Ho et al. (2019), Lee and Lee (2019), Park (2012), Toader et al. (2018) indicate that it has been used as a prime indicator of economic growth that affects corporate performance in every segment.

Hypothesis 6 Gross domestic product positively affects the listed firms' performance in HSX.

- *Inflation:* In addition to GDP, inflation is another critical macroeconomic factor that significantly influences corporate performance. The inflation rate, typically expressed as the annual percentage increase in widely recognised price indices, is most measured by changes in the consumer price index (Ministry of Planning and Investment, 2020). This rate reflects the overall price level growth within an economy. Research by Matar et al. (2018) highlights a negative correlation between inflation and firm performance. Conversely, studies conducted by Abreu and Mendes (2001), Cetin (2019), Guru et al. (2002), Jiang et al. (2003), Pervan et al. (2015), Saif-Alyousfi (2022) and Tan and Floros (2012) indicate that inflation exerts a positive and statistically significant impact on corporate outcomes.

Hypothesis 7 Inflation affects the listed firms' performance in HSX.

3 Research model and methodology

3.1 Research model

Model 1 is built on three fundamental theories: stakeholder theory, economic theory of tax compliance, and institutional theory. These theories help explain enterprises' financial behaviour and legal compliance from the perspective of interests, obligations, and institutional pressures. This combination creates a solid foundation for analysing the relationship between tax compliance, enterprise characteristics, and financial performance in modern governance.

$$\begin{aligned} Performance_{i,t} &= \alpha_0 + \alpha_1 Tax\ compliance_{i,t} + \alpha_2 Firm\ size_{i,t} \\ &\quad + \sum\nolimits_3^n \alpha_j Control\ \ factors_{i,t} + \varepsilon \end{aligned} \tag{1}$$

Model 2 is an adjustment and extension of Model 1 to examine the moderating role of firm size in the relationship between tax compliance and performance. Adding this moderating variable allows for a deeper analysis of the impact of tax compliance in the presence of firm size. Thereby, Model 2 helps clarify how organisational characteristics – represented by size – influence financial strategies, compliance behaviour, and relationships with stakeholders in the process of operating a business:

$$\begin{aligned} Performance_{i,t} &= \alpha_0 + \alpha_1 Tax\ compliance_{i,t} + \alpha_2 Firm\ size_{i,t} \\ &\quad + \alpha_3 Tax\ compliance_{i,t} \times Firm\ size_{i,t} \\ &\quad + \sum\nolimits_4^n \alpha_j Control\ \ factors_{i,t} + \varepsilon \end{aligned} \tag{2}$$

3.2 Data collection and sampling

The dataset comprises 322 non-financial companies listed on HOSE that published audited financial statements between 2016 and 2023. As a result, 2,576 firm-year observations (322 firms over 8 years). However, after excluding cases with missing or unavailable data, the final sample includes 2,549 valid observations. Macroeconomic variables, such as GDP and inflation rate, were obtained from global statistical websites, while firm-specific data were sourced from audited financial statements, annual reports, and the FiinPro database.

3.3 Methodology

The study uses quantitative methods with regression techniques including Pooled ordinary least squares (OLS), fixed effects model (FEM), random effects model (REM), and feasible generalised least squares (FGLS) regression to estimate the impact of financial reporting quality and tax compliance on business performance, under the moderating role of interaction variables. To select the appropriate model, the study conducts an F-test to compare Pooled OLS and FEM; if the probability value (Prob > F) is less than the 5% significance level, the FEM model will be selected. Then, the

Hausman test is used to choose between FEM and REM; if the Prob value (Chi-square) is less than 5%, the FEM continues to be prioritised. After identifying the optimal model, the following defective model issues are tested: multicollinearity, autocorrelation, and heteroscedasticity. If they still exist, the authors apply the FGLS method to ensure the estimate's reliability.

4 Research results and discussions

4.1 Descriptive statistics

Table 1 presents descriptive statistics of 8 variables with 2,549 observations. The ROE variable has a mean value of 0.076 and a standard deviation of 1.055, ranging from –40.886 to 10.164, indicating significant differences in profitability among enterprises. The tax variable has a mean of 22.616 and a standard deviation of 5.175, reflecting significant differences in tax rates. The size variable has a mean of 28.365, ranging from 23.950 to 34.135.

Table 1 Descriptive statistics

Variable	*Obs*	*Mean*	*Std. dev.*	*Min*	*Max*
roe	2,549	0.076	1.055	–40.886	10.164
tax	2,549	22.616	5.175	0.000	30.055
size	2,549	28.365	1.448	23.950	34.135
lev	2,549	1.523	5.411	–59.608	162.308
cir	2,549	26.045	1.738	18.688	31.328
liq	2,549	2.689	4.324	0.008	73.754
gdp	2,549	0.059	0.020	0.026	0.081
inf	2,549	0.030	0.005	0.006	0.035

Source: Results from Stata

The Lev variable has a high level of variation with a mean of 1.523 and a standard deviation of 5.411, with a maximum value of 162.308, indicating considerable differences in debt use. CIR (cost-to-income ratio) ranges from 18.688 to 31.328, with a mean of 26.045, which is relatively stable. In addition, the standard deviation of firm-level Liq (liquidity) is high (4.324), which show that there is a large difference (Table 1). Macro indicators, like GDP and inflation, with standard low levels of approximately 0.020 and 0.005, respectively, show deviations at general, there is extensive stability across the survey period. In cross-sectional variation across firms concerning profitability and financial leverage.

In regression model analysis, the high correlation between independent variables can lead to multicollinearity, reducing the accuracy and reliability of estimated coefficients (Nguyen Kim, 2024). Therefore, to ensure the validity of the results, it is necessary to check and handle multicollinearity before interpreting the regression model.

Table 2 VIF

Variable	*VIF*	*1/VIF*
Cir	2.17	0.4602
Size	2.07	0.4842
Gdp	1.34	0.7458
Inf	1.33	0.7495
Tax	1.22	0.8168
Liq	1.08	0.9293
Lev	1.02	0.9800
Mean VIF	1.46	

Source: Results from Stata

According to Montgomery et al. (2021), multicollinearity becomes a concern when the VIF exceeds the threshold of 10. In this analysis, all VIF values are less than 10, indicating that multicollinearity does not exist. Therefore, the regression estimates are considered reliable and stable, as shown in Table 2.

Table 3 Test for autocorrelation in panel data

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
F(1,318) = 0.004
Prob > F = 0.9484

Source: Results from Stata

The p-value of the autocorrelation test is 0.9484, which is greater than the 5% significance threshold, indicating that the residuals do not exhibit autocorrelation over time. This strengthens the reliability of the regression estimates (Table 3).

Table 4 Test for heteroskedasticity

Breusch-Pagan/Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of roe
chi2(1) = 472317.55
Prob > chi2 = 0.0000

Source: Results from Stata

The Breusch-Pagan/Cook-Weisberg test results in Table 4 show that the chi-square statistic (chi2) is 472,317.55 with p-value = 0.0000. With the p-value is less than the 5% significance threshold, this indicates that there is heteroskedasticity in the regression model.

4.2 Research results and discussions

The authors will perform regression methods sequentially pooled OLS, FEM, and REM, and corresponding tests such as the F-test, Hausman test, and Breusch and Pagan Test to choose between pairs of models pooled OLS-FEM; FEM-REM; pooled OLS-REM.

Table 5 Regression results (pooled_OLS, FEM, REM) (Model 1)

Test	*F*	*Hausman test*	*Breusch and Pagan test*
Selection	*OLS & FEM*	*FEM & REM*	*OLS & REM*
Hypothesis	Null hypothesis: OLS model: $y_{it} = a + b'X_{it} + \varepsilon_{it}$ and alternative the FE model: $y_{it} = a + b\,'X_{it} + \alpha_i + \varepsilon_t$	Hausman test: the null hypothesis is that the preferred model is random effects.	The null hypothesis in the L.M. test is that variances across entities is zero.
p-value	Prob > F = 0.0000	Prob>chi2 = 0.0000	Prob > chibar2 = 0.9822
A	5%	5%	5%
Action	Reject H0	Reject H0	Accept H0
Selection	FEM	FEM	REM
Conclusion	FEM is chosen.		

Source: Results from Stata

As shown in Table 5, the FEM is selected as the most suitable for the study. However, the heteroscedasticity phenomenon still exists according to the adjusted Wald test. Therefore, the study uses the GLS method with weighted least squares to adjust the error and ensure the reliability of the estimation results.

Table 6 GLS results (Model 1)

Coefficients: Generalised least squares
Panels: homoskedastic
Correlation: no autocorrelation

Estimated covariances = 1					Number of obs. = 2,549	
Estimated autocorrelations = 0					Number of groups = 319	
Estimated coefficients = 8					Obs per group:	
roe	*Coef.*	*Std. err.*	*z*	*P>z*	*[95% conf.*	*Interval]*
tax	0.014	0.004	3.770	0.000	0.007	0.021
size	0.072	0.007	10.070	0.000	0.058	0.085
lev	–0.164	0.003	–52.490	0.000	–0.170	–0.158
cir	–0.033	0.012	–2.740	0.006	–0.056	–0.009
liq	0.014	0.004	3.550	0.000	0.006	0.022
gdp	0.921	0.241	3.820	0.000	0.448	1.394
inf	0.606	3.184	0.190	0.849	–5.635	6.848
_cons	–1.251	0.292	–4.280	0.000	–1.823	–0.679

Source: Results from Stata

The GLS regression results show that firm size (size), liquidity (liq), tax (tax), and GDP growth (gdp) all have positive and statistically significant effects on ROE, indicating that large, liquid firms operating in a favourable economic environment tend to achieve higher profitability.

The results are consistent with the hypotheses of the study. First, the finding that tax compliance positively affects firm performance confirms that adherence to tax regulations contributes to improved business outcomes. The result aligns with the conclusions of Chude and Chude (2015) and Matarirano et al. (2019). Second, the hypothesis that firm size moderates the relationship between tax compliance and firm performance is supported, indicating that larger firms tend to experience a stronger positive impact from tax compliance, in line with findings from Dang et al. (2018) and Rajan and Zingales (1995). Finally, the control variables, including leverage, capital intensity ratio, liquidity, and GDP growth, exhibit varying degrees of influence on firm performance, consistent with the proposed hypotheses. In which, financial leverage (lev) and operating expense ratio (cir) have adverse effects, indicating that excessive debt and high operating costs reduce ROE. The inflation variable (inf) is not statistically significant, indicating no evident relationship with profitability during the study period.

The GLS (Model 1) ensures the reliability of the estimates in the context of heteroskedasticity, providing more efficient and unbiased coefficient estimates compared to OLS in the presence of non-constant variance. Building on this, the paper continues to apply the GLS method in Model 2 by incorporating interaction terms between tax compliance and firm size to examine the moderating effect of firm size on the relationship between tax compliance and enterprise performance (measured by ROE). The results presented in Model 2 offer empirical evidence on whether the effect of tax compliance on firm performance varies depending on the size of the enterprise, thereby enhancing the explanatory power and robustness of the model.

Table 7 GLS results (model 2) with the moderating role

Roe	*Coef.*	*Std. Err.*	*z*	*P > z*	*[95% conf.*	*Interval]*
Tax	0.062	0.018	3.500	0.000	0.027	0.097
Size	0.105	0.009	11.720	0.000	0.088	0.123
Inter	–0.002	0.001	–2.820	0.005	–0.003	–0.001
Lev	–0.164	0.003	–52.800	0.000	–0.170	–0.158
Cir	–0.026	0.014	–1.870	0.061	–0.053	0.001
Liq	0.015	0.004	3.670	0.000	0.007	0.022
Gdp	0.209	0.283	0.740	0.459	–0.345	0.763
Inf	1.948	3.169	0.610	0.539	–4.264	8.160
_cons	–2.350	0.395	–5.960	0.000	–3.123	–1.576

Source: Results from Stata

The results show that tax compliance has a positive and statistically significant impact on ROE ($\beta = 0.062$, $p < 0.001$), indicating that enterprises that comply well with tax obligations often achieve higher financial performance thanks to minimising legal risks, strengthening reputation, and creating a transparent image before investors. This result is consistent with the research of Chude and Chude (2015) and Matarirano et al. (2019) and reinforces the argument from institutional theory (DiMaggio and Powell, 1983; Scott, 2013), according to which enterprises are under pressure to comply from the legal framework and social expectations to maintain legitimacy and competitiveness.

However, the highlight of model 2 is the discovery of the moderating role of firm size, shown through the interaction term (inter) = tax × size with a negative coefficient (–0.002, $p < 0.01$). This shows that the positive impact of tax compliance on ROE tends to decrease as firm size increases. Specifically, while SMEs can use tax compliance as a signal to enhance reputation and attract investment as suggested by Bachas et al. (2019), in large enterprises, compliance is the default standard and does not create considerable marginal benefits. This finding is consistent with stakeholder theory (Freeman, 1984), which states that large enterprises often face many stakeholders and require higher transparency, so compliance is no longer a competitive advantage but becomes a mandatory obligation. Furthermore, according to Williamson (2007), large enterprises have built effective internal control and risk management mechanisms, which help maintain stability regardless of whether tax compliance increases or decreases.

In the Vietnamese context, tax compliance tends to vary significantly across firms of different sizes. SMEs often face more challenges in meeting their tax obligations than larger firms, mainly due to limited financial resources, inadequate tax-related knowledge, and weak internal control systems. These constraints can lead to higher levels of non-compliance or unintentional tax evasion (Dang and Nguyen, 2022). In contrast, larger firms often have richer accounting infrastructures, dedicated tax departments, and stronger governance mechanisms, which enhance their ability to comply with increasingly complex tax regulations. Furthermore, larger firms are subject to close inspections from tax authorities and public stakeholders, thus reinforcing their compliance incentives (Dang et al., 2018). Therefore, company size plays an important role in influencing the level of tax compliance and needs to be considered when designing tax administration policies and support programs for SMEs.

This result sheds light on an important aspect: the effectiveness of tax compliance is not uniform but depends on the structural characteristics of the enterprise, especially its size. In Vietnam, an emerging economy with a developing tax and supervision system, identifying this difference is an important basis for designing a scale-based tax policy, thereby better supporting small and medium enterprises in improving financial efficiency through appropriate tax policies.

5 Conclusions, policy implications and limitations

This study confirms that tax compliance positively impacts firm performance (ROE), which is particularly evident for small-sized firms. The results from the GLS model with interaction variables show that firm size plays a moderating role. As size increases, the positive impact of tax compliance on ROE tends to decrease. This finding is consistent with institutional theory and stakeholder theory and suggests the need for a flexible approach to tax policy for different groups of firms.

From the research results, some important policy implications can be drawn to improve the effectiveness of tax enforcement in Vietnam. First, tax departments should categorise policies based on the size of enterprises, and we make classification policies on support of tax compliance for SMEs, such should can as tax preference, instructions, and simplified procedures. Such efforts lower compliance costs and motivate firms to become more efficient in their compliance. Second, we need to increase transparency and confidence in the market by using assistance to encourage firms to create an impression that they affairs by obeying the law on paying taxes are transparent in their financial. This is especially important in emerging markets like Vietnam, where investor confidence is key in attracting capital and sustainable development. Finally, for large-scale enterprises, instead of continuing to encourage compliance at a general level, management agencies need to shift their focus to controlling tax fraud risks and improving the effectiveness of post-audit work, to ensure fairness and effectiveness of tax law enforcement throughout the enterprise system.

Although the study obtained many valuable findings, there are two significant limitations. First, the study focused only on listed companies in Vietnam, so the results may not represent the entire business sector. Second, it does not capture qualitative factors relating to management incentives, ethical considerations and even perhaps a compliance strategy which may influence tax compliance and firm performance.

Declarations

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Conflicts of interest

The authors declare that there is no conflict of interest regarding the publication of this manuscript. In addition, ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely observed by the authors.

Informed consent declaration

This study does not involve any experiments on humans or human-related subjects, as it is based on secondary data collected from the financial statements of companies listed on the Vietnamese stock exchange and data from the World Bank.

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