

Examining the Relationship Between Financial Risk and Tax Avoidance: Focusing on the Moderating Role of Ownership Structure and Political Connections

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Abstract: The present study examined and analyzed the relationship between financial risk and tax avoidance, with a focus on the moderating role of ownership structure and political connections. For this purpose, data from 100 companies listed on the Tehran Stock Exchange were extracted for a ten-year period, from March 2015 to March 2025; the research variables were calculated, and the required statistical tests were conducted. The present study employed a descriptive-correlational research method, with an empirical design based on an ex post facto approach. Multiple linear regression was used to test the research hypotheses. The findings indicated that there was a positive and significant relationship between financial risk and tax avoidance; ownership structure did not have a significant effect on the relationship between financial risk and tax avoidance; and political connections had a significant effect on the relationship between financial risk and tax avoidance.

Keywords: financial risk, tax avoidance, ownership structure, political connections.

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1. Introduction

Tax avoidance has become an increasingly important issue in corporate finance, accounting, and strategic management because tax-related decisions influence not only the amount of cash retained by firms but also their overall risk profile, financing capacity, reputation, governance quality, and relationships with stakeholders. Although tax avoidance generally refers to the lawful reduction of tax liabilities through the use of deductions, exemptions, timing strategies, transaction structuring, and other provisions available within the tax system, aggressive tax planning may expose firms to substantial economic and organizational consequences. From a management perspective, tax avoidance is therefore not merely a technical accounting decision; rather, it represents a strategic choice involving trade-offs

among liquidity preservation, regulatory exposure, financing costs, information asymmetry, managerial incentives, and risk. Consequently, understanding the factors that motivate or constrain tax avoidance has become important for managers, shareholders, creditors, regulators, and policymakers seeking to evaluate firms' financial behavior and long-term sustainability [1].

One of the central factors potentially associated with corporate tax avoidance is financial risk. Financial risk generally reflects the possibility that a firm's financing structure, debt obligations, liquidity conditions, financial commitments, or market exposures will produce adverse financial outcomes. A financially risky firm may encounter greater difficulties in fulfilling contractual obligations, maintaining stable cash flows, accessing external financing, or absorbing unexpected shocks. Financial health is therefore an important dimension of corporate resilience, and financial assessment frameworks commonly emphasize leverage, liquidity, profitability, and other indicators that capture a firm's ability to withstand financial pressure [2]. In conditions of elevated financial risk, managers may become particularly sensitive to cash outflows and may seek strategies capable of preserving internal financial resources. Because taxation constitutes a significant cash expense for many corporations, tax avoidance may emerge as one mechanism through which financially constrained or risk-exposed firms attempt to retain liquidity and reduce immediate financial pressure.

The relationship between financial risk and tax avoidance, however, is theoretically complex. From one perspective, firms facing greater financial risk may have stronger incentives to reduce tax payments because the resulting tax savings can improve short-term liquidity, strengthen internal financing, and reduce dependence on costly external capital. Under this view, financial risk can increase managerial incentives to pursue tax avoidance. From another perspective, firms already facing substantial financial risk may be less willing to engage in complex or aggressive tax strategies because such strategies can generate additional uncertainty, scrutiny, penalties, reputational consequences, and future tax liabilities. Tax avoidance may therefore function simultaneously as a mechanism for conserving financial resources and as a source of additional risk. Recent research has explicitly examined the mechanisms through which financial risk affects tax avoidance and has highlighted the importance of organizational and governance conditions that may strengthen or weaken this relationship [3]. This perspective suggests that the financial risk–tax avoidance relationship should not be interpreted as uniform across firms.

The literature on tax risk further reinforces this argument. Tax avoidance decisions may create uncertainty regarding the amount and timing of future tax payments, especially when tax authorities subsequently challenge the firm's interpretations or arrangements. In this respect, tax avoidance and tax risk are conceptually related but distinct. Tax avoidance reflects managerial efforts to reduce tax burdens, whereas tax risk concerns uncertainty surrounding tax outcomes. Research conducted in the context of firms listed on the Tehran Stock Exchange has specifically investigated the effect of tax avoidance on tax risk and has considered corporate governance as a moderating mechanism [4]. Similarly, evidence from Iranian firms has addressed the joint implications of tax risk and tax avoidance for future corporate risk, indicating that contemporary research increasingly treats tax behavior as an integral component of overall enterprise risk rather than as an isolated fiscal decision [5]. These studies support the need to examine tax avoidance within a broader financial-risk framework.

The possible risk consequences of tax-related strategies are also reflected in research linking tax avoidance and firm risk. Empirical evidence has suggested that both tax avoidance and tax risk may affect the overall risk faced by corporations [1]. In the Iranian capital market, related studies have examined the effect of tax avoidance on corporate risk-taking and financial risk, further demonstrating that tax behavior may be associated with the risk characteristics of firms [6]. Such findings raise an important question regarding the direction of causality and managerial motivation. If tax avoidance can affect future firm risk, financial risk may also influence managers' willingness to engage in tax avoidance. Accordingly, the relationship is potentially reciprocal and embedded in a broader system of financial decisions, governance mechanisms, and organizational responses to uncertainty.

Tax avoidance can also influence market-based forms of corporate risk. Managers who engage in complex tax strategies may create opaque organizational structures or reduce the transparency of financial information, potentially affecting investors' ability to evaluate firm value and risk. Research in the Iranian stock market has examined the effect of managerial ability on the relationship between tax avoidance and stock price crash risk, underscoring the importance of managerial characteristics in determining how tax strategies are translated into market consequences [7]. Other studies have explored how tax risk moderates the relationship between tax avoidance and stock price reactions, suggesting that investors may evaluate tax avoidance differently depending on the uncertainty surrounding a firm's tax position [8]. These findings indicate that the financial consequences of tax avoidance extend beyond direct tax savings and may affect market perceptions, volatility, and the distribution of future financial outcomes.

The financing consequences of tax avoidance are equally important. Creditors may interpret aggressive tax strategies as indicators of managerial risk-taking, opacity, or potential future liabilities. Accordingly, tax risk may alter the relationship between tax avoidance and the cost of debt [9]. From this perspective, financially risky firms face a difficult strategic balance. Reducing taxes may preserve cash and improve short-term financial flexibility, but aggressive tax planning may simultaneously increase creditor concerns and potentially raise financing costs. These competing effects make financial risk a particularly relevant determinant of tax behavior because managers must simultaneously consider liquidity needs, borrowing conditions, regulatory exposure, and stakeholder expectations when choosing tax strategies.

Beyond financial outcomes, tax avoidance may also have reputational implications. Firms increasingly operate in environments in which investors, regulators, customers, employees, and other stakeholders evaluate not only legal compliance but also broader standards of corporate responsibility. Tax avoidance may therefore be viewed differently depending on its magnitude, transparency, and alignment with stakeholder expectations. Evidence examining tax avoidance alongside environmental uncertainty has identified corporate reputation risk as an important organizational consequence associated with tax behavior [10]. This connection is especially relevant for financially risky firms because reputational damage can further restrict access to capital, weaken stakeholder confidence, and amplify existing financial vulnerability. Managers facing elevated financial risk may therefore need to consider whether tax savings compensate for the potential reputational and regulatory costs associated with tax avoidance.

These complexities highlight the relevance of enterprise risk management (ERM) in understanding corporate tax behavior. ERM represents an integrated approach through which firms identify, assess, prioritize, and manage multiple categories of risk in relation to organizational objectives. The ERM literature suggests that the effectiveness of risk management depends on organizational context rather than on the mechanical implementation of standardized practices. A contingency perspective, for example, emphasizes that the relationship between ERM and firm performance varies according to the extent to which risk management systems fit the firm's organizational and environmental conditions [11]. Evidence from listed companies has similarly examined the relationship between ERM, corporate risk, and performance, supporting the proposition that risk management architecture can meaningfully affect organizational outcomes [12]. These insights are directly relevant to tax avoidance because tax decisions form part of the broader portfolio of risks that firms must coordinate.

More recent work has emphasized the dynamic nature of ERM. Risk management is not a static organizational procedure; its structures and priorities evolve as firms encounter changing economic conditions, regulatory pressures, managerial objectives, and strategic challenges [13]. This temporal perspective is important when

examining financial risk and tax avoidance because both financial conditions and tax strategies vary over time. A firm that adopts conservative tax policies under stable financial conditions may become more aggressive when liquidity deteriorates or financing pressure increases. Conversely, a firm may reduce aggressive tax avoidance if regulatory scrutiny or tax uncertainty rises. Thus, longitudinal examination is particularly valuable for capturing changes in the interaction between financial risk and tax behavior.

The organizational capacity to manage such trade-offs also depends on risk-management competencies. Research on ERM competencies has highlighted the importance of developing knowledge and capabilities related to identifying, assessing, and responding to organizational risks [14]. Although such research has also been examined in educational and work-readiness contexts, its broader implication is that risk management requires analytical competence and decision-making capacity rather than merely formal structures. At the corporate level, managers must integrate tax planning with financing, investment, governance, and stakeholder considerations. Similarly, contemporary management research increasingly employs optimization and multi-objective approaches when organizations must simultaneously satisfy competing objectives and constraints [15]. In corporate financial management, the simultaneous pursuit of tax efficiency, financial stability, regulatory compliance, and stakeholder legitimacy similarly represents a multi-objective decision problem.

Within this framework, ownership structure is likely to be a particularly important moderating factor. Ownership structure determines the distribution of control rights, monitoring power, incentives, and access to corporate information among shareholders. Different forms of ownership can influence managers' willingness to undertake risky financial or tax strategies. Concentrated owners may have stronger incentives and greater capacity to monitor managerial decisions, whereas dispersed ownership can increase managerial discretion. Institutional investors may impose sophisticated monitoring, while governmental ownership may introduce objectives that extend beyond short-term profitability. The broader institutional investment literature demonstrates that institutional investors differ in investment performance and persistence, implying that sophisticated ownership can materially shape monitoring and corporate decision-making environments [16]. Therefore, ownership structure may influence whether financially risky firms respond to financial pressure by increasing or reducing tax avoidance.

In particular, government ownership may alter the financial risk–tax avoidance relationship through regulatory proximity, political objectives, access to resources, or differences in managerial accountability. Firms with substantial government ownership may face stronger expectations of regulatory compliance or greater public scrutiny, potentially discouraging aggressive tax behavior. Conversely, governmental support or privileged access to financing may reduce the financial necessity of tax avoidance. Corporate governance research in the tax domain supports the broader proposition that governance mechanisms can condition the consequences and determinants of tax avoidance [4]. Accordingly, ownership structure should not merely be regarded as a direct predictor of tax behavior; it may operate as a boundary condition that determines how financial risk is translated into tax-related managerial choices.

Corporate social responsibility and governance perspectives further suggest that firms' tax behavior is embedded within broader organizational control systems. Research has investigated the moderating role of ERM in the relationship between corporate social responsibility and tax avoidance, showing the relevance of risk-management systems to the way firms reconcile economic and stakeholder-oriented objectives [17]. Related international evidence has examined the intersections among corporate social responsibility, ERM, managerial confidence, and real earnings management [18]. Although earnings management and tax avoidance are distinct

phenomena, both involve managerial discretion over financial outcomes and may be influenced by governance quality and managerial incentives. These findings support an integrated view in which ownership, governance, risk management, and managerial characteristics collectively shape corporate financial behavior.

Political connections constitute another potentially important moderating factor. Political connections arise when senior managers, board members, controlling shareholders, or other influential individuals within a firm maintain formal or informal relationships with government officials, political institutions, or other components of the political system. Such connections may affect access to credit, regulatory treatment, public contracts, information, subsidies, and enforcement intensity. Consequently, politically connected firms may experience different incentives and constraints regarding both financial risk and tax avoidance. A financially risky firm with political connections may possess greater access to external resources or may anticipate favorable treatment, reducing the need to preserve cash through tax avoidance. Alternatively, political access may decrease perceived enforcement risk and thereby increase managers' willingness to pursue tax-saving strategies.

Political connections may be especially consequential in markets in which government institutions exert substantial influence over financing, regulation, and the allocation of economic resources. In such environments, formal financial indicators may not fully capture the effective constraints facing firms because political capital can substitute for or complement financial capital. Accordingly, two firms with comparable financial risk may adopt very different tax strategies depending on their political access. This possibility is consistent with the broader argument that risk-management and tax-planning decisions are shaped by institutional and organizational context. Recent Iranian research has directly examined the relationship between ERM and tax planning among companies listed on the Tehran Stock Exchange, reinforcing the relevance of integrated risk and tax management within this institutional setting [19].

The Tehran Stock Exchange provides an appropriate context in which to examine these relationships because listed companies differ considerably in financing structures, ownership configurations, exposure to government influence, and access to political and institutional resources. Previous Iranian studies have separately addressed tax avoidance in relation to reputation risk [10], stock price crash risk [7], tax risk [5], corporate governance [4], stock price reactions [8], cost of debt [9], corporate risk-taking and financial risk [6], and enterprise risk management [19]. Collectively, this body of research demonstrates growing scholarly attention to the risk implications of corporate tax decisions. Nevertheless, examining financial risk as an antecedent of tax avoidance while simultaneously considering ownership structure and political connections as moderating mechanisms remains important for developing a more integrated understanding of corporate behavior.

The need for such an integrated analysis is further strengthened by recent international evidence emphasizing that the effect of financial risk on tax avoidance can operate through multiple mechanisms and can vary across organizational circumstances [3]. Research showing associations among tax avoidance, tax risk, and firm risk similarly confirms that tax behavior cannot be evaluated independently of firms' broader risk profiles [1]. At the same time, ERM research demonstrates that corporate risk decisions depend upon organizational fit, managerial systems, competencies, and temporal dynamics [11] [12] [13] [14]. Ownership and political relationships can therefore be viewed as organizational and institutional mechanisms that potentially alter managerial responses to financial pressure.

From a managerial standpoint, determining whether financial risk encourages tax avoidance and identifying the conditions under which this effect becomes stronger or weaker have practical implications for boards of directors, financial managers, investors, auditors, tax authorities, and regulators. If financially risky firms systematically

pursue greater tax avoidance, tax behavior may function as an indicator of underlying financial pressure. If ownership structure moderates this relationship, monitoring and control arrangements may need to be incorporated into assessments of tax risk. Likewise, if political connections significantly change the relationship between financial risk and tax avoidance, conventional financial models that omit political and institutional factors may provide an incomplete explanation of corporate tax behavior. Such evidence could improve risk assessment, corporate governance design, tax monitoring, and investment analysis while contributing to a more context-sensitive understanding of financial decision-making.

Accordingly, the aim of the present study is to examine the relationship between financial risk and tax avoidance among companies listed on the Tehran Stock Exchange, with particular emphasis on the moderating roles of ownership structure and political connections.

2. Methodology

The present study is applied in terms of purpose, descriptive-correlational in terms of the method of investigation, and ex post facto in terms of its temporal dimension.

Initially, the literature required for developing the theoretical foundations and reviewing previous research was collected by consulting information sources such as theses, articles, and similar studies.

Subsequently, information pertaining to the companies selected as the statistical sample was collected from databases available on compact discs and supervised and reviewed by the relevant authorities, through examination of audited financial statements and the Rahavard Novin software.

The library research method was used for data collection. The information and data required to test the research hypotheses were collected by examining the financial statements of companies included in the statistical population and were extracted from financial statements available in databases and on the website of the Tehran Stock Exchange. SPSS version 22 and EVIEWS version 8 were used for data analysis.

To conduct the study, data from 266 companies covering the period from 2015 to 2019 were collected. Excel and EVIEWS software and multiple linear regression were used to analyze the data and test the hypotheses. The findings showed that tax avoidance had a negative and significant effect on firm performance and that the risk committee could also affect the relationship between tax avoidance and firm performance.

Research Hypotheses

There is a significant relationship between financial risk and tax avoidance.

Ownership structure has a significant effect on the relationship between financial risk and tax avoidance.

Political connections have a significant effect on the relationship between financial risk and tax avoidance.

Analytical Model and Research Variables

The formulated hypotheses are tested using the following regression models.

In the next step, the operational measurement of the research variables is presented as follows.

Independent Variable

Financial Risk

Conceptual definition: Financial risk refers to the probability of loss or variability in returns arising from a firm's financing decisions (debt-to-equity ratio), asset liquidity, or market fluctuations (Chen et al., 2025).

Operational definition: This variable is calculated using the following equation (Chen et al., 2025).

$$FRISK = \frac{\text{Financial Expenses}}{\text{Total Assets}}$$

Dependent Variable

Tax Avoidance

Conceptual definition: Tax avoidance refers to the intentional and legal reduction of taxes payable through the exploitation of legal loopholes, exemptions, or changes in transaction structures, such as transfer pricing or increasing deductible expenses (Chen et al., 2025).

Operational definition: This variable is calculated using the following equation (Chen et al., 2025).

$$TAX = \frac{\text{Assessed Tax} - \text{Declared Tax}}{\text{Profit (Loss) Before Tax}}$$

Control Variables

Loss Reporting

Operational definition: This variable is defined as a dichotomous variable. If a company reports a net loss in a given year, it is assigned a value of 1; otherwise, it is assigned a value of 0 (Chen et al., 2025).

Tangible Assets Ratio

Operational definition: This variable is calculated using the following equation (Chen et al., 2025).

$$TANG = \frac{\text{Tangible Assets}}{\text{Total Assets}}$$

Fixed Assets Ratio

Operational definition: This variable is calculated using the following equation (Chen et al., 2025).

$$FAS = \frac{\text{Fixed Assets}}{\text{Total Assets}}$$

Debt Maturity Ratio

Operational definition: This variable is calculated using the following equation (Chen et al., 2025).

$$DEPT = \frac{\text{Long-Term Debt}}{\text{Short-Term Debt}}$$

Stock Return Rate

Operational definition: This variable is calculated using the following equation (Chen et al., 2025).

$$RET = \frac{\text{Share Price at the Beginning of the Fiscal Period} - \text{Share Price at the End of the Fiscal Period} + \text{Effect of Cash Dividends}}{\text{Total Assets}}$$

Moderating Variables

Ownership Structure

Conceptual definition: Ownership structure refers to the composition and distribution of shares among different groups of shareholders, including institutional, managerial, family, and governmental ownership, as well as the concentration or dispersion of share ownership (Chen et al., 2025).

Operational definition: This variable is defined as a dichotomous variable. If more than 51% of a company's shares are owned by the government, it is assigned a value of 1; otherwise, it is assigned a value of 0.

Political Connections

Conceptual definition: Political connections refer to the existence of formal or informal ties between a company's senior executives or major shareholders and politicians, political parties, or governmental institutions through mechanisms such as membership, advisory roles, or campaign financing (Chen et al., 2025).

Operational definition: In the present study, consistent with Jamei and Azizi (2020), two criteria were used: long-term debt and the presence of government-affiliated individuals and representatives of other components of the political system on companies' boards of directors. If both the ratio of long-term debt to a company's total debt and the ratio of government-affiliated board members to the total number of board members are higher than the median values for other companies, the company is assigned a value of 1 and classified as a politically connected firm; otherwise, it is assigned a value of 0 (Chen et al., 2025).

The statistical population of this study consisted of companies listed on the Tehran Stock Exchange over a ten-year period from March 2015 to March 2025. To obtain reliable results, companies that were listed after the beginning of the study period or were delisted during the study period were excluded from the statistical population.

A screening method was employed to obtain the desired statistical sample. Accordingly, the statistical population was adjusted based on the following conditions and restrictions:

Table 1. Statistical Sample Selection Procedure

Sample Selection Criterion	Number
Total companies listed on the Tehran Stock Exchange up to March 2025	443
Companies whose fiscal year does not end around March 20	(61)
Companies delisted during the study period	(51)
Companies listed during the study period	(65)
Companies with insufficient data for conducting this study	(59)
Companies that changed their fiscal year during the study period	(40)
Companies classified as banks and credit institutions, financial intermediaries, insurance companies, and holding companies	(67)
Total companies examined after applying the screening method	100

3. Findings and Results

The descriptive statistics of the research variables are presented in Table 2.

Table 2. Descriptive Statistics of the Research Variables During the Study Period

Variable	Symbol	Mean	Median	Maximum	Minimum	Standard Deviation	Observations
Tax avoidance	TAX	0.204	0.226	0.584	0.126	1.286	1000
Financial risk	FRISK	0.263	0.343	0.711	0.103	2.259	1000
Ownership structure	OWN	0.549	1.000	1.000	0.000	1.586	1000
Political connections	POLC	0.309	0.000	1.000	0.000	3.257	1000
Loss reporting	LOSS	0.318	0.000	1.000	0.000	2.256	1000

Tangible assets	TANG	0.638	0.675	0.878	0.410	0.241	1000
Fixed assets	FA	0.533	0.567	0.833	0.167	2.431	1000
Debt maturity	DEPT	0.157	0.186	0.753	0.116	2.585	1000
Stock return	RET	0.130	0.122	1.103	-0.176	2.090	1000

This table presents descriptive statistics for nine key variables related to taxation, risk, ownership structure, and firm performance. The sample consists of 1,000 observations, which represents an adequate sample size for statistical analyses and facilitates the generalization of the results. The four variables of ownership structure, political connections, loss reporting, and tangible assets are, in fact, binary variables. For these variables, the mean represents the proportion of firms possessing the respective characteristic. A mean of approximately 55% indicates that about 55% of the firms have a particular ownership structure, most likely institutional or concentrated ownership. The mean value of political connections is approximately 0.309, indicating that only 31% of the firms have political connections. Furthermore, approximately 32% of the firms reported losses during the study period. The mean value of tangible assets is approximately 0.638, indicating a relatively high level of tangible assets in 64% of the firms. The high standard deviations of these variables indicate substantial variability across firms; however, for binary variables, a high standard deviation is considered natural and should not be compared directly with that of continuous variables. The mean and median of the tax avoidance variable are very close, indicating a relatively symmetric distribution. The standard deviation of 1.286 is very high compared with the mean of 0.204, indicating considerable dispersion among firms in terms of tax avoidance. The minimum value of 0.126 and maximum value of 0.584 indicate that some firms engage in tax avoidance to a degree more than four times that of others. Financial risk also exhibits a negatively skewed distribution; in other words, most firms have relatively high financial risk, whereas a limited number of firms with very low financial risk pull the mean downward. The very high standard deviation of 2.259 indicates substantial heterogeneity among firms in terms of financial risk.

For statistical tests to produce valid results, it is necessary to ensure that the error terms associated with the research hypotheses follow a normal distribution. Accordingly, the Jarque–Bera test was performed in EViews to examine the normality of the statistical distribution of the error terms. The hypotheses of this test are specified as follows:

H₀: The error terms of the research hypotheses follow a normal distribution.

H₁: The error terms of the research hypotheses do not follow a normal distribution.

The results of this test are presented in Table 3.

Table 3. Results of the Normality Test for the Distribution of the Error Terms of the Research Hypotheses

Variable	Symbol	Jarque–Bera Statistic	Jarque–Bera Probability
Error terms of all research hypotheses	RESIDUAL	397.220	0.070

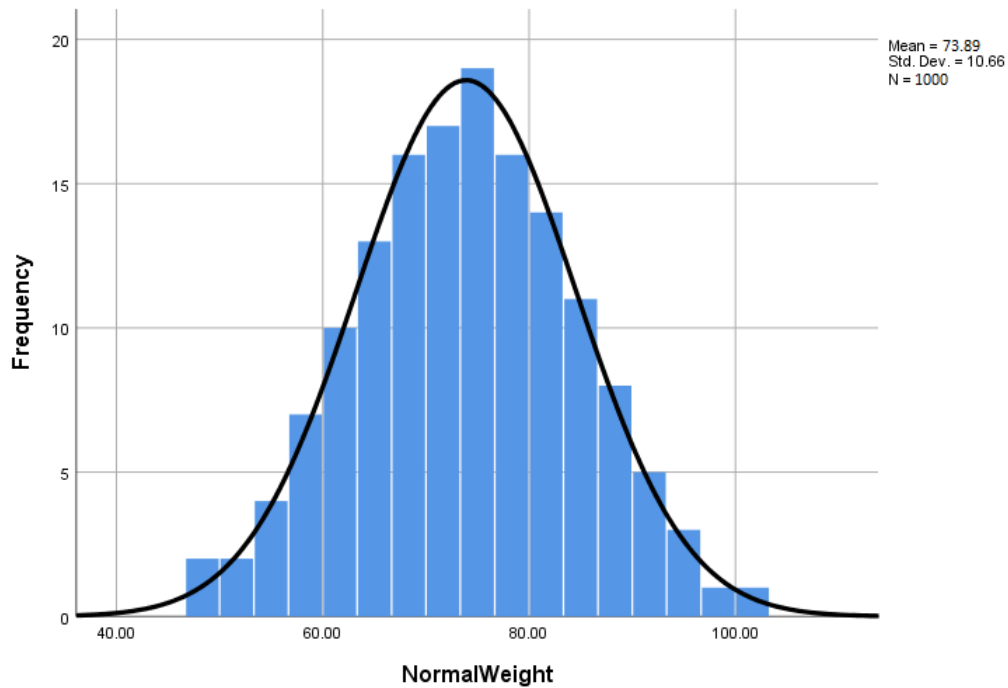


Figure 1. Normality Plot of the Statistical Distribution of the Error Terms of the Research Hypotheses

Since the probability value associated with the Jarque–Bera statistic for the error terms of the research hypotheses is greater than the 5% significance level, H_0 is supported, confirming the normality of their statistical distribution.

For this purpose, the Levin–Lin–Chu test was employed, and the results are presented in Table 4. The statistical hypotheses of this test are defined as follows:

H_0 : The variable data are non-stationary.

H_1 : The variable data are stationary.

Table 4. Stationarity Test of the Research Variables

Variable	Symbol	Levin–Lin–Chu Test Statistic	Probability
Tax avoidance	TAX	–31.225	0.0000
Financial risk	FRISK	–25.659	0.0000
Ownership structure	OWN	–55.136	0.0000
Political connections	POLC	–37.111	0.0000
Interaction between financial risk and ownership structure	FRISKOWN	–25.361	0.0000
Interaction between financial risk and political connections	FRISKPOLC	–56.936	0.0000
Loss reporting	LOSS	–95.468	0.0000
Tangible assets	TANG	–80.132	0.0000
Fixed assets	FA	–12.256	0.0000
Debt maturity	DEPT	–33.251	0.0000
Stock return	RET	–50.241	0.0000

Based on the obtained results, it was concluded that the research variables were stationary during the study period because the probability values associated with the Levin–Lin–Chu test statistics were below the 5% significance level for all variables.

The results of the multicollinearity assessment among the research variables are presented in Table 5.

Table 5. Results of the Multicollinearity Assessment Among the Research Variables

Independent and Control Variables	Symbol	Tolerance	Variance Inflation Factor (VIF)
Financial risk	FRISK	0.406	2.463
Ownership structure	OWN	0.411	2.433
Political connections	POLC	0.437	2.288
Interaction between financial risk and ownership structure	FRISKOWN	0.483	2.070
Interaction between financial risk and political connections	FRISKPOLC	0.441	2.267
Loss reporting	LOSS	0.462	2.164
Tangible assets	TANG	0.466	2.145
Fixed assets	FA	0.414	2.415
Debt maturity	DEPT	0.422	2.369
Stock return	RET	0.407	2.457

Given that the tolerance value for all variables is greater than 0.20 and the variance inflation factor is less than 5, it can be concluded that there is no multicollinearity among the research variables.

In the present study, the White test was used to detect heteroskedasticity, and the results are reported in Table 6. The statistical hypotheses of this test are specified as follows:

H₀: Homoskedasticity

H₁: Heteroskedasticity

Table 6. Examination of Heteroskedasticity of the Research Variables

Test	Hypotheses	Test Statistic	Degrees of Freedom	Probability
White test	All hypotheses	4.008	(3, 425)	0.0563

The results indicate that the probability value of the test is greater than the 5% significance level. Therefore, the null hypothesis of homoskedasticity is supported, indicating that there is no heteroskedasticity problem.

In the first stage, the F-Limer test was used to select between the pooled-data model and the panel-data model. The hypotheses associated with this test are specified as follows:

H₀: The pooled-data model is appropriate.

H₁: The panel-data model is appropriate.

The results of this test are presented in Table 7.

Table 7. Results of the F-Limer Test

Test	Hypotheses	Test Statistic	Degrees of Freedom	Probability
F-Limer test	All hypotheses	12.424	(122, 485)	0.0000

According to the data presented in the table above, the probability value associated with the F-Limer test statistic is below the 5% significance level. Therefore, to select between the fixed-effects model and the random-effects model for panel-data regression, the Hausman test was employed. The hypotheses associated with this test are specified as follows:

H₀: The random-effects method should be used.

H₁: The fixed-effects method should be used.

The results of this test are presented in Table 8.

Table 8. Results of the Hausman Test

Test	Hypotheses	Test Statistic	Degrees of Freedom	Probability
Hausman test	All hypotheses	37.024	7	0.0000

As shown, the probability value associated with the Hausman test statistic is below the 5% significance level. Therefore, the use of the fixed-effects model rather than the random-effects model is supported for testing the research hypotheses.

The fixed-effects regression model used to test the research hypotheses is presented in Table 9.

Table 9. Fixed-Effects Regression Model for Testing the Research Hypotheses

Variable	Symbol	Regression Coefficient	t-Statistic	p-Value
Constant	C	-2.843	-4.364	0.0000
Financial risk	FRISK	8.047	2.524	0.0119
Ownership structure	OWN	-9.890	-0.372	0.7094
Political connections	POLC	9.078	1.332	0.1833
Interaction between financial risk and ownership structure	FRISKOWN	-10.661	-1.173	0.2412
Interaction between financial risk and political connections	FRISKPOLC	10.689	4.274	0.0000
Loss reporting	LOSS	5.451	19.758	0.0000
Tangible assets	TANG	5.855	0.754	0.4511
Fixed assets	FA	3.134	7.724	0.0000
Debt maturity	DEPT	2.199	0.927	0.3543
Stock return	RET	-10.145	-3.127	0.0118
R ²	Adjusted R ²	Durbin–Watson Statistic	F-Statistic	Probability of F-Statistic
0.869	0.851	1.985	21.005	0.0000

The results presented in the table above indicate the following:

There is a positive and significant relationship between financial risk and tax avoidance. First, the sign of the regression coefficient for the relevant variable (8.047) is positive, and second, its t-statistic probability value (0.0119) is below the 5% significance level. Therefore, the first research hypothesis is supported at the 95% confidence level.

Debt maturity does not moderate the relationship between stock liquidity and financial leverage. First, the regression coefficient of the relevant variable is -10.661, and second, its t-statistic probability value (0.2412) is greater than the 5% significance level. Therefore, the second research hypothesis is rejected at the 95% confidence level.

Political connections have a significant effect on the relationship between financial risk and tax avoidance. First, the regression coefficient of the relevant variable (10.689) is positive, and second, its t-statistic probability value (0.0000) is below the 5% significance level. Therefore, the third research hypothesis is supported at the 95% confidence level.

Based on the adjusted coefficient of determination of the model, approximately 85% of the variation in the dependent variable can be explained by changes in the explanatory variables included in the model.

The Durbin–Watson test was used to examine autocorrelation. Because the obtained value (1.985) falls within the optimal range of 1.5–2.5, it indicates that correlations among the error terms do not exert a serious effect, the error terms are independent, and the hypothesis of autocorrelation is rejected.

The F-test was used to assess the overall significance of the model. Because the probability value associated with the test statistic (0.0000) is below the 5% significance level, the fitted regression model is statistically significant. In other words, the overall linear regression model can be considered statistically reliable.

4. Discussion and Conclusion

The present study investigated the relationship between financial risk and tax avoidance among companies listed on the Tehran Stock Exchange, with particular attention to the moderating roles of ownership structure and political connections. The findings revealed three principal results. First, financial risk had a positive and statistically significant relationship with tax avoidance, indicating that firms experiencing higher levels of financial risk tended to exhibit greater tax avoidance. Second, the interaction between financial risk and ownership structure was not statistically significant, suggesting that ownership structure did not significantly alter the relationship between financial risk and tax avoidance in the sample examined. Third, the interaction between financial risk and political connections was positive and statistically significant, demonstrating that political connections significantly moderated the relationship between financial risk and tax avoidance. The regression model also exhibited strong explanatory power, with an adjusted coefficient of determination of approximately 0.851, indicating that about 85% of the variation in tax avoidance was explained by the independent, moderating, and control variables incorporated into the model. The overall regression model was statistically significant, while the Durbin–Watson statistic indicated no serious autocorrelation problem. Collectively, these findings indicate that corporate tax behavior is shaped not only by firms' financial conditions but also by institutional characteristics, particularly political connections.

The first finding showed that financial risk was positively and significantly associated with tax avoidance. This result suggests that as firms become more exposed to financial pressure, financing uncertainty, or the possibility of financial distress, managers may have stronger incentives to reduce tax-related cash outflows. Tax payments constitute an important component of corporate cash expenditure, and firms operating under higher financial risk may therefore seek to preserve liquidity through lawful tax-planning strategies. The finding is consistent with the central argument advanced in recent research investigating the effects of financial risk on tax avoidance and the mechanisms through which financial conditions influence corporate tax behavior [3]. It is also broadly consistent with previous research examining the relationship among tax avoidance, tax risk, and overall firm risk, which indicates that taxation decisions and corporate risk are closely interconnected rather than independent dimensions of managerial decision-making [1]. Thus, the positive relationship obtained in the present study can be interpreted as evidence that tax avoidance may serve as a financial-response mechanism when firms encounter heightened financial pressure.

From a financial management perspective, increased financial risk may intensify managerial concern regarding cash-flow adequacy, debt servicing capacity, and access to external financing. Firms facing higher financing costs or greater uncertainty regarding future cash flows may assign greater value to internally generated funds. Tax avoidance can increase the amount of cash retained within the firm and may therefore be perceived as an instrument for enhancing short-term financial flexibility. The financial-health perspective advanced by Morningstar emphasizes the importance of firms' ability to maintain financial stability and withstand adverse financial conditions [2]. Under conditions in which financial resources are constrained, management may become more attentive to tax-saving opportunities as part of broader efforts to maintain liquidity and improve financial resilience. In this regard, the present finding also corresponds with Iranian evidence examining the association

between tax avoidance and corporate risk-taking and financial risk [6]. Although the direction and mechanisms investigated across studies may differ, the accumulated evidence indicates that financial risk and tax avoidance are interdependent aspects of corporate financial policy.

The positive relationship may also be explained by the risk–return trade-off associated with tax planning. Although tax avoidance can generate immediate cash-flow benefits, it may simultaneously create tax uncertainty, enforcement exposure, and potential future liabilities. Previous Iranian research has examined the effect of tax avoidance on tax risk while emphasizing the moderating importance of corporate governance [4]. Likewise, research on companies listed on the Tehran Stock Exchange has investigated the influence of tax risk and tax avoidance on firms' future risk [5]. These studies support the broader proposition that tax avoidance and financial risk can reinforce one another through multiple channels. Managers of financially risky firms may pursue tax savings because of immediate liquidity needs, even when those strategies introduce additional uncertainty into future tax outcomes. Such behavior may be particularly pronounced when the perceived short-term benefits of conserving cash exceed the perceived probability or cost of subsequent regulatory challenges.

The result is also understandable in light of market and financing consequences associated with tax behavior. Tax avoidance may affect how investors and creditors assess the firm's future risk because complex tax strategies can contribute to information opacity and uncertainty. Research examining managerial ability, tax avoidance, and stock price crash risk in the Iranian capital market illustrates the connection between tax policy and market-based risk outcomes [7]. Similarly, the relationship between tax avoidance and stock price reactions has been examined under varying levels of tax risk [8]. Research has also considered the role of tax risk in the relationship between tax avoidance and the cost of debt [9]. Taken together, these studies indicate that firms' tax decisions are embedded in a broader network of financial consequences. The present result extends this perspective by suggesting that financial risk itself may act as an antecedent of tax avoidance, with financially exposed firms potentially using tax planning as one means of managing financial resource constraints.

The first finding can further be interpreted through the lens of enterprise risk management. ERM emphasizes the coordinated management of financial, operational, regulatory, strategic, and other risks rather than the isolated treatment of individual risk categories. Previous research has demonstrated that the effectiveness of ERM depends on organizational and contextual conditions [11]. Studies of listed companies have similarly shown that ERM is closely related to corporate risk and performance [12]. In addition, the temporal dynamics of ERM indicate that firms continuously adjust their risk-management practices in response to changing organizational and environmental conditions [13]. Accordingly, when financial risk increases, tax planning may become integrated into the firm's broader response to risk. The relationship identified in the present study therefore suggests that tax management should be treated as part of enterprise-wide financial and risk management rather than merely as an accounting or compliance function.

The second major finding showed that ownership structure did not significantly moderate the relationship between financial risk and tax avoidance. Although ownership structure can theoretically influence monitoring intensity, managerial discretion, and the alignment of interests between shareholders and managers, the findings suggest that differences in the ownership configuration measured in the present study were insufficient to significantly alter the effect of financial risk on tax avoidance. One possible explanation concerns the operational definition of ownership structure used in the study. Ownership was classified according to whether more than 51% of a firm's shares were held by the government. Such a dichotomous classification captures an important dimension of ownership but may not reflect the full complexity of institutional ownership, managerial ownership, family

ownership, foreign ownership, ownership concentration, or the identity of controlling shareholders. Consequently, substantial variation in governance incentives may remain within each ownership category.

This result should not be interpreted as indicating that ownership or governance is irrelevant to corporate tax decisions. Rather, it indicates that the specific ownership measure used in this study did not significantly change the financial risk–tax avoidance relationship. The institutional investment literature emphasizes that institutional investors differ substantially in their behavior, performance, and persistence, suggesting considerable heterogeneity among owners and their monitoring capabilities [16]. Similarly, studies examining corporate governance in the context of tax avoidance indicate that governance mechanisms can alter the relationship between tax behavior and risk [4]. Research considering enterprise risk management as a moderator of the relationship between corporate social responsibility and tax avoidance also demonstrates that internal governance and risk-management arrangements may affect corporate tax decisions [17]. Therefore, the absence of a significant moderating effect in the present study may reflect the particular measure of ownership employed rather than an absence of any governance effect.

Another explanation may be that financial pressure creates sufficiently strong incentives for tax avoidance that these incentives operate relatively independently of government versus nongovernment ownership. When firms encounter financing constraints, debt pressure, or deteriorating financial conditions, managers in different ownership environments may face similar incentives to preserve cash. Under such circumstances, financial considerations may dominate ownership-related differences in managerial behavior. Moreover, the effects of ownership may operate indirectly through board composition, managerial incentives, internal control systems, or risk-management practices rather than directly moderating the relationship examined here. Research on corporate social responsibility, enterprise risk management, managerial confidence, and earnings-management behavior supports the broader idea that managerial decisions result from interactions among several governance and behavioral mechanisms rather than from ownership characteristics alone [18]. In addition, the development of ERM competencies may affect how decision-makers perceive and respond to organizational risks [14]. Accordingly, more refined governance measures may be necessary to identify the conditions under which ownership affects tax decisions.

The third finding demonstrated that political connections had a positive and significant moderating effect on the relationship between financial risk and tax avoidance. This finding means that the relationship between financial risk and tax avoidance varied according to firms' political connections and became stronger in the presence of the political-connection characteristic measured in the study. This result is particularly important because it indicates that institutional relationships may alter how firms translate financial pressure into tax behavior. Political connections can potentially influence firms' access to financing, regulatory information, government resources, enforcement expectations, and perceptions of institutional protection. Consequently, politically connected firms facing financial risk may perceive tax-planning opportunities and associated risks differently from firms lacking comparable connections.

The moderating role of political connections can be interpreted within a broader institutional risk-management framework. Tax planning does not occur in an institutional vacuum. Firms make decisions in environments characterized by regulatory structures, governmental influence, enforcement systems, capital-market constraints, and relationships with public institutions. Research examining ERM and tax planning among firms listed on the Tehran Stock Exchange emphasizes that tax planning is related to firms' broader approaches to risk management [19]. Similarly, recent research on the effects of financial risk on tax avoidance emphasizes that moderating

conditions can materially influence this relationship [3]. The present findings add to this perspective by identifying political connections as a contextual factor capable of changing the strength of the financial risk–tax avoidance association in the Iranian corporate environment.

One possible explanation is that political connections may reduce managers' perceived costs of engaging in tax avoidance. If politically connected firms believe that they possess better access to information, stronger relationships with public institutions, greater negotiating capacity, or lower exposure to adverse regulatory consequences, the perceived risk associated with tax avoidance may decrease. Under heightened financial pressure, these firms may therefore respond more actively through tax-saving strategies. Alternatively, political connections may provide firms with greater organizational capacity to implement sophisticated financial strategies. The finding is consistent with the contingency view of risk management, according to which the consequences of corporate risk-management practices depend upon the organizational and environmental context in which they are implemented [11]. It is also compatible with evidence emphasizing that risk-management processes change dynamically in accordance with firms' institutional and organizational circumstances [13].

The significant role of political connections also helps explain why purely financial models may be insufficient for understanding tax behavior in capital markets where the state and public institutions play important roles in resource allocation. Corporate financial decisions may be influenced by formal financial constraints and by informal or institutional access to resources. In such settings, political relationships can constitute an organizational resource that shapes managerial expectations and strategic choices. This reasoning is compatible with a multi-objective view of organizational decision-making, in which firms seek to balance several constraints and objectives simultaneously [15]. Managers may simultaneously seek to reduce financial risk, conserve cash, maintain access to institutional resources, comply with tax regulations, and manage stakeholder expectations. Political connections can alter the relative weight attached to these objectives and therefore change the relationship between financial risk and tax avoidance.

The findings should also be interpreted in light of reputational considerations. Tax avoidance may generate benefits through reduced cash outflows, but it can expose firms to reputational consequences if stakeholders perceive tax behavior as excessively aggressive or socially irresponsible. Previous research has linked tax avoidance and environmental uncertainty to corporate reputation risk [10]. Political connections may further complicate this relationship because politically connected firms may face heightened public scrutiny while simultaneously possessing stronger institutional access. Thus, the significant moderating effect identified in this study may reflect a complex balance between financial incentives, perceived regulatory protection, reputational exposure, and political resources. The relationship between financial risk and tax avoidance should therefore be interpreted as an outcome of both corporate financial conditions and the institutional context surrounding the firm.

Overall, the findings contribute to an integrated understanding of financial risk and tax avoidance. Prior research has separately addressed tax avoidance in relation to firm risk [1], financial risk and risk-taking [6], future corporate risk [5], stock price crash risk [7], stock price reactions [8], debt costs [9], reputation risk [10], and enterprise risk management [19]. The present evidence brings these streams together by demonstrating that higher financial risk is associated with greater tax avoidance and that this association is contingent on political connections but not significantly contingent on the ownership structure measure employed in the study. The results consequently reinforce the need to analyze tax avoidance as a strategic financial and institutional decision rather than simply as an accounting mechanism for minimizing tax payments.

The present study is subject to several limitations that should be considered when interpreting its findings. First, the sample consisted exclusively of companies listed on the Tehran Stock Exchange, and companies operating in banking, insurance, financial intermediation, and holding industries were excluded because of their distinctive financial structures; therefore, the findings may not be directly generalizable to unlisted firms or excluded industries. Second, the measurement of ownership structure as a binary variable based primarily on majority government ownership may not capture the multidimensional nature of corporate ownership, including institutional, managerial, family, concentrated, and foreign ownership. Political connections were also operationalized using observable financial and board-related indicators, whereas informal political relationships may not be fully reflected in publicly available information. Third, the study relied on archival financial statements and secondary data, meaning that managerial motivations underlying tax decisions could not be directly observed. Finally, although several control variables were included and the regression model demonstrated strong explanatory power, other organizational, macroeconomic, industry-specific, regulatory, and managerial factors may influence tax avoidance and were not incorporated into the model.

Future studies are recommended to extend the present model by employing more detailed measures of ownership structure, such as institutional ownership, managerial ownership, family ownership, ownership concentration, foreign ownership, and the identity of controlling shareholders. Researchers could also distinguish among different forms and intensities of political connections rather than treating political connections as a single dichotomous construct. Comparative studies involving different industries, private and public companies, or firms operating in different countries could determine whether the relationships observed in the present study are specific to the institutional environment of the Tehran Stock Exchange. Future research could also examine additional moderators or mediators, including corporate governance quality, board independence, audit quality, managerial ability, financial constraints, enterprise risk management maturity, information asymmetry, and corporate social responsibility. Longitudinal models incorporating regulatory changes and macroeconomic shocks could further clarify how the financial risk–tax avoidance relationship evolves over time. Qualitative interviews with financial executives, tax managers, auditors, and board members may also provide deeper insights into the organizational processes through which financial pressure is translated into tax-planning decisions.

Managers should integrate tax planning into the firm's broader financial risk-management framework and avoid evaluating tax savings solely on the basis of their immediate cash-flow benefits. Boards of directors and audit committees should pay particular attention to tax strategies when firms experience increasing financial risk, because financial pressure may create stronger incentives for aggressive tax-saving decisions. Firms should establish internal procedures for assessing the financial, regulatory, reputational, and governance consequences of tax-planning alternatives before implementation. Investors, auditors, and creditors should consider both financial risk and political connections when evaluating the sustainability and risk implications of corporate tax behavior. Regulators and tax authorities may also benefit from incorporating indicators of financial vulnerability and political connections into risk-based monitoring systems. Finally, firms should strengthen transparency, internal controls, board oversight, and documentation of tax decisions so that tax planning contributes to sustainable financial management without exposing the organization to excessive legal, financial, or reputational risk.

Authors' Contributions

Authors equally contributed to this article.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

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Conflict of Interest

The authors report no conflict of interest.

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