

Correlation of the Simultaneous Maintenance of Debt, Equity, and Corporate Tax Avoidance

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Abstract

Objectives: The main goal of this research is to explore the relationship between simultaneously maintaining debt and equity and corporate tax avoidance. The study focuses solely on this objective.

Design/methodology/approach: Tax avoidance plays a crucial role in reducing a firm's payments to the government. Shareholders are incentivized to engage in tax avoidance practices, while financiers face the negative consequences of increased risks. However, when both debt and equity holders are present, financiers are less concerned about risk shifting as the risk is transferred between sectors. This can lead to a reduction in tax avoidance. Due to the lack of empirical studies in this area, this study examines the relationship between maintaining debt and equity simultaneously and corporate tax avoidance. A sample of 102 firms listed on the Tehran Stock Exchange from 2013 to 2014 was collected and analyzed using multiple regression.

Results: The test of research hypotheses revealed a significant negative relationship between maintaining debt and equity simultaneously and a firm's tax avoidance. This relationship was found to be significant across all three measures of tax avoidance (effective cash tax rate, the difference between accounting profit and taxable profit, and the final effective tax rate).

Innovation: This research is innovative as it explores the impact of maintaining debt and equity simultaneously on tax avoidance in Iran, a topic that has not been previously studied. Conducting such a study will help fill the existing research gap.

Keywords: tax avoidance, financing, the simultaneity of debt maintenance, and equity.

1. Introduction

Tax avoidance is the act of exploiting legal loopholes to minimize taxes. Since no organization is pleased with paying taxes, some organizations opt to avoid paying taxes altogether or reduce the amount they owe. This can be achieved through manipulating financial records, providing false financial information, or withholding information (Khani et al., 2013). While tax avoidance may benefit shareholders by shifting wealth from the government to the firm, it poses various risks for investors (Arena et al., 2019). Consequently, the interests of shareholders and investors diverge significantly when it comes to tax avoidance practices. However, when both debt and equity holders are present, investors' concerns about risk shifting are alleviated, as debt and equity holders simply transfer risk between segments. Additionally, debt and equity holders can reap the benefits of tax avoidance like other shareholders, giving them incentives to endorse tax avoidance.

1.1. Problem statement

Tax avoidance, as defined by Hanlon and Heitzman (2010) as the reduction of explicit taxes, has garnered significant attention in recent decades due to its important implications for corporate decision-making and public policy. The literature demonstrates substantial cross-sectional variation in the extent to which firms utilize tax avoidance strategies (e.g., Derang et al., 2008). Building on Slamrod's (2004) assertion that corporate tax compliance should be examined within the framework of agency theory, recent studies have delved into investigating the role of shareholder-manager conflict of interest in corporate tax strategies. Beyond the issue of shareholder-manager representation, a question emerges regarding whether the conflict of interest between financiers and shareholders impacts the firm's tax avoidance practices. This study aims to address this question by focusing on financial institutions that hold both debt claims and shares in the same firm (simultaneous holders of debt and equity).

Since Jensen and Meckling's seminal work in 1976, the literature on conflicts of interest between shareholders and creditors has been a primary source of various issues in corporate finance (Chu, 2018; Yang, 2021). One of the primary methods of transferring shareholder wealth from financial providers is through asset substitution, where firms undertake risky projects to enhance shareholder wealth at the expense of financial providers. While tax avoidance can create value for shareholders by shifting wealth from the government to corporations, it is also associated with risks for financiers (Hanlon and Heitzman, 2010; Hoopes et al., 2012; Arena et al., 2019). Consequently, the interests of shareholders and financiers diverge significantly in firms' tax avoidance strategies. Shareholders, as residual claimants in the firm, have incentives to engage in excessive tax avoidance practices to reap the unlimited benefits while shifting risks to financiers (Jensen and Meckling, 1976). Conversely, financial providers, as fixed claimants in the firm, bear the negative consequences of high risks without fully sharing in the rewards. Anticipating shareholders' risk-shifting motivations, financiers demand high debt costs to account for the effects of tax avoidance value (Barnia et al., 1981; Isin, 2018). Conversely, shareholders may avoid tax avoidance practices to evade incurring high debt costs. In situations where both debt and equity holders are present, financiers' concerns about risk shifting are mitigated as risk is transferred between equity and debt holders (Jiang et al., 2010; Anton and Lin, 2020). Additionally, holders of both debt and equity can leverage their tax planning expertise from the creditor side to identify sustainable tax avoidance opportunities (Galmore et al., 2019). Therefore, it is expected that simultaneous holders of debt and equity will increase tax avoidance practices.

Conversely, since managers have a fiduciary duty to act in the interests of shareholders, firms without simultaneous debt and equity holders may engage in excessive tax avoidance to boost equity value at the expense of creditors. When shareholders are also creditors, they consider creditors' risk preferences and

can avoid excessive tax avoidance. Furthermore, the dual ownership of debt and equity concentrates capital allocation for both types of holders and reduces portfolio diversification (Fama and Jensen, 1983; Garcia-Koehler et al., 2015). Consequently, simultaneous holders of debt and equity may face increased risks stemming from tax avoidance. Therefore, the presence of dual owners may lead to fewer tax avoidance practices.

Considering the two opposing predictions, the relationship between dual ownership of debt and equity and tax avoidance becomes an empirical question: what effect does holding debt and equity have on tax avoidance?

Investigating this issue in Iran is crucial because banks and credit institutions also own a significant portion of firm shares. It is necessary to conduct such a study because, firstly, examining the important role of simultaneous holders of debt and equity in reducing agency conflicts related to tax avoidance contributes to the tax avoidance literature. The results of this study have significant implications for academic researchers, policymakers, and provide a clear understanding of the fundamental risks of tax avoidance to all firm stakeholders. Secondly, this study adds to the growing literature on the simultaneous holding of debt and equity.

By conducting this study, investors' comprehension of the reasons for tax avoidance can be enhanced, thereby reducing the possibility of risk. Since the role of holding debt and equity and its impact on tax avoidance has not been previously investigated in Iran, conducting such a study would fill the existing research gap and enable researchers to conduct more studies in this field, building upon the present study.

2. Literature Review and Hypotheses

2.1. Hypothesis development

The literature on conflicts of interest between shareholders and creditors has been a major source of problems in corporate finance (Chu, 2018; Chava et al., 2019; Anton and Lin, 2020; Chen et al., 2020;

Yang, 2021). The presence of co-holders of debt and equity reduces financiers' concerns about risk shifting, as they simply transfer risk from one sector (equity) to another (debt) (Jiang et al., 2010; Anton and Lin, 2020). Additionally, co-holders of debt and equity can benefit from tax avoidance like other shareholders, leading to incentives to support tax avoidance. Moreover, they can utilize their tax planning expertise from the creditor side to identify sustainable tax avoidance opportunities (Galmore et al., 2019). Therefore, it is expected that co-holders of debt and equity will increase tax avoidance simultaneously.

However, as managers have a fiduciary duty to act in the interests of shareholders, firms without concurrent debt and equity holders may engage in excessive tax avoidance practices to boost equity value at the expense of creditors. When shareholders are also creditors, they consider creditors' risk preferences and can prevent excessive tax avoidance. Furthermore, dual ownership of debt and equity concentrates capital allocation among holders and reduces portfolio diversification (Fama and Jensen, 1983; Garcia-Koehler et al., 2015). Consequently, holders of both debt and equity simultaneously may face increased risk from tax avoidance. Therefore, the presence of dual owners can result in fewer tax avoidance methods.

Jiang et al. (2010) discovered that simultaneous holders of debt and equity limit borrowing costs, thereby reducing the conflict of interest between shareholders and creditors. Anton and Lin (2020) found that holding debt and equity simultaneously enhances firms' investment efficiency. Yang (2021) demonstrated that holding debt and equity simultaneously leads to fewer patents but increases the market value of patents. Chava et al. (2019) observed that simultaneous holders of debt and equity decrease debt usage, which limits capital expenditures. Chu (2018) noted that firms with simultaneous debt and equity holders pay lower dividends to benefit creditors' profits. Tang et al. (2022) determined that dual ownership boosts corporate tax avoidance, explaining how simultaneous holders of debt and equity improve

corporate tax planning, and exploring how dual holders impact corporate tax strategies.

In light of the above, simultaneous holders of debt and equity may either increase or decrease tax avoidance. Therefore, the research hypothesis is proposed as follows:

Hypothesis: the simultaneous maintenance of debt and equity has a significant effect on the firm's tax avoidance.

2.2. Literature review

Tang et al. (2022), in a study titled "Simultaneous Holding of Debt and Equity and Corporate Tax Avoidance," investigated the role of financial institutions that act as both financiers and shareholders of a firm in tax avoidance. The study analyzed data from 98,175 firms between 1997 and 2017 using a difference-in-difference regression. The results indicated that financial institutions acting as both financiers and shareholders increased tax avoidance in firms. This effect was more prominent in firms with risk-taking managers and ownership by short-term investors. Additionally, tax avoidance was associated with lower debt costs when financial institutions were both financiers and shareholders.

Rahman and Leki (2021), in their study "Corporate Social Responsibility with an Emphasis on Tax Avoidance and Analysis of Financial Ratios," explored the impact of social responsibility and financial ratios on tax avoidance. The research examined a sample of 365 firms listed on the Shanghai and Shenzhen Stock Exchanges from 2005 to 2017 using multivariate regression. The findings revealed that engaging in social responsibility activities reduced tax avoidance, especially in firms actively participating in such activities. Moreover, firms with higher profitability, cash flow, and sales growth were more likely to engage in tax avoidance, while those with high liquidity were less likely to do so.

Li (2021), in a study titled "The Effect of Simultaneous Holding of Equity and Debt on Financial Obligations in Debt Contracts," investigated the impact of non-commercial banking institutions

simultaneously holding debt and equity in the same firm on financial obligations in debt contracts. The research spanned from 2001 to 2018 and found that the presence of financial institutions acting as both financiers and shareholders of a firm was generally linked to the number of financial contracts. The study also highlighted that the use of financial contracts decreased when the interests of shareholders and creditors were aligned. Furthermore, the study showed that the effect of dual ownership on financial contracts was more pronounced when financial institutions held a significant portion of shares and loan claims in a borrower firm.

Colombo and Tera (2021), in their study "Interest Rate-Dividend Ratio: The Role of Shareholder Identity in Corporate Tax Avoidance," discussed the influence of majority shareholders on the payment policy of Brazilian public firms. The study analyzed a sample of 404 Brazilian firms over 12 years and found that the identity of the controlling shareholder affected profit distribution and the interest rate to dividend ratio. Institutional investors and firms listed in the special corporate governance section of the Novo Mercado stock exchange were associated with increased cash payments in the form of the interest rate to dividends ratio and reduced overall tax payments.

Chu et al. (2019), in their research titled "Simultaneous Holding of Debt and Equity and Solving Problems of Financial Distress," explored the impact of simultaneous holding of debt and equity on financial distress. The study examined a dataset of financially troubled firms that repaid debts from 2000 to 2014 and found that financial institutions acting as both financiers and shareholders were more likely to avoid bankruptcy through restructuring and court interventions, especially when loans were overcollateralized and expected bankruptcy costs were high.

Satish and Ebrahimi (1400), in their study "Substitution Relationship Between the Use of Financial Leverage in Capital Structure and Tax Avoidance," investigated the relationship between financial leverage in the capital structure and tax

avoidance in firms listed on the Tehran Stock Exchange. The study analyzed 1026 observations and found a significant negative relationship between financial leverage and tax avoidance, indicating a substitution effect of financial leverage. The study also highlighted the significant impact of the cost of financial leverage on this relationship.

Asadian Oghani et al. (2019), in their study "Effect of Ownership Structure on the Relationship Between Tax Avoidance and Cost of Debt," examined the impact of ownership structure on the relationship between tax avoidance and cost of debt. The study used a sample of 111 active firms on the Tehran Stock Exchange from 2010 to 2016 and employed multivariate linear regression. The results revealed a significant direct relationship between tax avoidance and the cost of debt, while the effect of ownership concentration and institutional ownership on this relationship was not statistically confirmed.

Kaviani and Shaisteh (2018), in their study "Investigating the Effect of Debt Cost and Institutional Ownership on Tax Avoidance in Firms Listed on the Tehran Stock Exchange," explored the correlation between debt cost, institutional ownership, and tax avoidance from 2011 to 2015. The study used generalized least squares regression to test hypotheses and found a negative relationship between debt cost, institutional ownership, and tax avoidance. This negative relationship suggested that tax avoidance could serve as a liability for the firm.

3. Methodology

3.1. Sample and data

The statistical population for the current research consists of all firms listed on the Tehran Stock Exchange. Therefore, firms within this statistical community that meet favorable conditions are chosen as statistical samples.

- Throughout the research period, these firms must have traded their shares at least once every three months.

- Excluded from this selection are investment firms, financial intermediaries, holding firms, and similar entities.
- The financial year should remain consistent throughout the review period.
- Audited financial statements and acfirming notes must be published and readily accessible.

Based on the aforementioned conditions and limitations, 102 firms were selected from those listed on the Tehran Stock Exchange for a total of 8 years (816 firm-years) as the statistical sample for the research.

3.2. Models

Based on the studies of Tang colleagues (2022), the hypothesis test model is as follows:

$$TA_{it} = \beta_0 + \beta_1 Dual_{i,t} + \beta_i Controls_{i,t} + \beta_j IndustryFE_{i,t} + \beta_k YearFE_{i,t} + \varepsilon_{it}$$

In the above relation, TA refers to tax avoidance, while DUAL refers to the simultaneous maintenance of debt and equity in the firm. Controls represent control variables, with Industry and Year serving as control variables for different industries and years. In the above relationship, if the coefficient $\beta-1$ is significant, then the research hypothesis is confirmed.

3.3. Research variables

3.3.1. The dependent variable

In the above relationship, TA represents tax avoidance, while DUAL refers to the simultaneous maintenance of debt and equity in the firm. Controls are variables used for control purposes, with Industry and Year serving as control variables for different years and industries. If the coefficient $\beta-1$ is significant, the research hypothesis regarding tax avoidance is confirmed.

To measure tax avoidance, three common measures are utilized. The first measure is the cash effective tax rate (CETR), calculated by dividing cash tax paid by profit before tax deduction (Hosni al-Qar

and Shahri Anaghiz, 2015). A higher CETR indicates lower tax avoidance, so the calculated effective tax rates are multiplied by -1.

The second measure is the difference between accounting profit and taxable profit (BTD). This is calculated by subtracting taxable profit from accounting profit and then dividing the result by total assets (Goh et al., 2016; Tang et al., 2022).

Additionally, the effective tax rate (ETR) is used to calculate tax avoidance, determined by the ratio of income tax to pre-tax profit and loss (Hanlon and Heitzman, 2010; Tang et al., 2022). This measure is also multiplied by -1.

3.3.2. Independent variables

The concept of holding both debt and equity simultaneously (Dual) is represented by a two-valued variable. If a firm has at least one financing institution that is also a shareholder in that firm, the variable is equal to one; otherwise, it is equal to zero.

3.3.3. control variables

Profitability (ROA): is equal to the ratio of earnings before interest and taxes to total assets.

Firm size (Size): is equal to the natural logarithm of total assets.

Financial leverage (Lev): is the ratio of debt to total assets.

Institutional shareholders (Inst): is equal to the percentage of shares held by institutional shareholders (those with more than 5% of shares in the firm).

Loan percentage (Loan Percent): is equal to the ratio of the total loan received by the firm to the total debt of the firm.

Market-to-book value (MTB): is the ratio of the market value of equity to its book value.

Loss: If a firm has a loss in a year, it will be equal to one; otherwise, it will be zero.

Research and development cost (RD): If a firm has research and development cost in the financial year, it will be equal to one; otherwise, it will be zero.

Beta risk (Beta): is equal to the size of coordinated changes in stock return and market return (covariance

of stock and market return) divided by the variance of market return.

Industry & Year: are control variables used to account for different years and industries in the model.

4. Results

4.1. Descriptive Statistics

Descriptive statistics encompass a set of methods used to collect, summarize, classify, and describe numerical data. This type of statistic helps to explain research findings and information, providing an overall framework or pattern of data for easier and more effective utilization. In essence, descriptive statistics allow for the expression of characteristics of a data set. Central and dispersion parameters are utilized for this purpose. These parameters enable the essential features of a data set to be summarized numerically, aiding in the comprehension of test results and facilitating comparisons with other tests and observations. Therefore, prior to testing research hypotheses, the research variables are briefly outlined in Tables 1-4. These tables include indicators for describing the research variables. It is important to note that descriptive statistics provided for discrete variables include frequency and percentage frequencies based on their nature.

As shown in Tables 1-4, the average tax avoidance, measured by effective cash tax rate, is -0.140. This indicates that 14% of firms' profits before tax deductions were paid as cash tax. The mean for this variable is -0.069, meaning half of the observations had an effective cash tax rate greater than -6.9%, and the other half had a lower rate. The highest effective tax rate observed was 0.011, while the lowest was -0.826. The standard deviation, which measures the dispersion of data around the average, is 0.202. It's important to note that the negative sign in the calculation of this variable indicates tax avoidance, as with the other indicators.

Furthermore, the average tax avoidance through the difference between accounting profit and taxable profit is 0.051, and the average tax avoidance using the effective tax rate, calculated as income tax divided by

profit and loss before tax, is -0.105. This means firms paid income tax equal to 10% of their pre-tax profits. Additionally, the average simultaneity of holding debt and equity is 0.094, indicating that approximately 9.5% of observations had at least one financial institution that was also a shareholder in the firm.

In the descriptive statistics table that follows, firms have an average profitability of 0.184, representing 18% of assets, profit before interest and tax. The

average financial leverage is 0.544, meaning about 54% of their financial resources are financed through debt. Institutional shareholders hold 65% of the firm's shares, with a percentage of shares exceeding 5%. The market value to book value ratio of shares is 4.680, 9% of firms reported losses, 16% had research and development costs, and the beta risk, or systematic risk, is 68%.

Table 4.1. Descriptive statistics of research variables

Deviation Criterion	the least	the most	Middle	Average	Variable	symbol
0.202	-0.826	0.011	-0.069	-0.140	CETR	The effective cash tax rate
0.078	-0.048	0.269	0.024	0.051	BTD	Differences in accounting profit and Taxable profit
0.086	-0.245	0.000	-0.110	-0.105	ETR	Effective tax rate
0.293	0.000	1.000	0.000	0.094	DUAL	Debt maintenance, simultaneity, and Equity
0.137	-0.008	0.476	0.147	0.184	ROA	profitability
1.286	12.524	17.437	14.667	14.791	SIZE	size of the firm
0.200	0.174	0.870	0.547	0.544	LEV	Financial Leverage
0.205	0.176	0.917	0.709	0.655	INST	Institutional shareholders
0.216	0.000	0.685	0.309	0.318	LOANPERCENT	Loan Percentage
4.438	0.813	17.905	2.916	4.680	MTB	Market value to book value
0.291	0.000	1.000	0.000	0.093	LOSS	loss
0.373	0.000	1.000	0.000	0.167	RD	Research and development costs
0.787	-0.682	2.408	0.596	0.681	BETA	Beta risk

4.2. Hypothesis test

The current research aims to investigate the following hypothesis:

Research Hypothesis: The simultaneous maintenance of debt and equity has a significant relationship with the firm's tax avoidance. Since the dependent variable is measured using three criteria, the design of the model for the hypothesis test is presented below.

4.2.1. Criteria for an ineffective cash tax rate

The results of the hypothesis test show that there is a significant relationship between the simultaneous maintenance of debt and equity and the firm's tax avoidance. This relationship was measured using the effective cash tax rate and is presented in Tables 2-4.

As shown in Tables 2-4, the F statistic is 15.540, with a significance level of 0.05. Since this value is less than 0.05, we reject the null hypothesis at a 95% confidence level, indicating that the model is statistically significant. The adjusted coefficient of determination reveals that 33% of the variance in the dependent variable can be explained by the independent and control variables in the model. This suggests that each variable in the model plays a significant role.

In Table 6-4, the results of the research hypothesis show that the coefficient for the simultaneous maintenance of debt and equity is -0.032, indicating a negative impact on the effective cash tax rate. The t-statistic probability value for the coefficient of debt and equity maintenance (0.003) is significant at a 95% confidence level. Therefore, the research hypothesis that simultaneous maintenance of debt and equity

affects the firm's tax avoidance is supported by the debt and equity simultaneously leads to a decrease in effective cash tax rate. This implies that maintaining tax avoidance through the effective cash tax rate.

Table 4.2. Hypothesis test with the criterion of effective rate of cash taxes

$$TA_{it} = \beta_0 + \beta_1 Dual_{it} + \beta_2 Controls_{it} + \beta_3 IndustryFE_{it} + \beta_4 YearFE_{it} + \varepsilon_{it}$$

t statistic	t statistic	standard error	Coefficient	Variable
0.003	-2.999	0.011	-0.032	Simultaneous maintenance of debt and equity
0.000	6.634	0.046	0.308	profitability
0.005	2.802	0.003	0.009	size of the firm
0.043	-2.027	0.018	-0.037	Financial Leverage
0.649	0.456	0.015	0.007	Institutional shareholders
0.001	-3.478	0.014	-0.050	Loan Percentage
0.060	-1.883	0.001	-0.001	Market value to book value
0.000	10.133	0.022	0.218	loss
0.006	-2.761	0.008	-0.023	Research and development costs
0.776	0.284	0.004	0.001	Beta risk
0.000	-5.630	0.051	-0.285	Constant
.It was controlled				Year - industry
The probability of the statisticf		f statistic		Adjusted coefficient of determination
0.000		15.540		0.333

4.2.2. difference between accounting profit and taxable profit

The results of the hypothesis test show that the simultaneous maintenance of debt and equity has a significant effect on the firm's tax avoidance. This is measured by the difference between accounting profit and taxable profit, and the results are presented in Table 3-4.

As shown in Table 7-4, the F-statistic is 25.331 with a significance level of 0.000. Since this value is less than 0.05, the null hypothesis at a 95% confidence level is rejected, indicating that the model is statistically significant. The adjusted coefficient of determination reveals that 45% of the variation in the dependent variable can be explained by the independent variables and controls in the model. This suggests that the model is overall meaningful, allowing for further analysis of the importance of each variable.

The results from Tables 3-4 support the research hypothesis, showing that the coefficient for debt and equity holding is -0.017, indicating a negative impact

on the difference between accounting profit and taxable profit. The t-statistic probability for the coefficient of simultaneous debt and equity holding is 0.000, signifying significance at a 95% confidence level. This confirms the hypothesis that maintaining debt and equity simultaneously has a substantial effect on a firm's tax avoidance, as evidenced by the difference between accounting profit and taxable profit. Therefore, holding debt and equity together leads to reduced tax avoidance based on the criterion of the difference between accounting profit and taxable profit.

Table 4-4: Hypothesis test with the criterion of difference between accounting profit and taxable profit

$TA_{it} = \beta_0 + \beta_1 Dual_{i,t} + \beta_2 Controls_{i,t} + \beta_3 IndustryFE_{i,t} + \beta_4 YearFE_{i,t} + \varepsilon_{it}$				
t statistic	t statistic	standard error	Coefficient	Variable
0.000	-5.358	0.003	-0.017	Simultaneous maintenance of debt and equity
0.000	14.336	0.020	0.286	profitability
0.000	4.996	0.002	0.009	size of the firm
0.000	-4.542	0.015	-0.066	Financial Leverage
0.338	-0.958	0.013	-0.013	Institutional shareholders
0.002	-3.098	0.013	-0.040	Loan Percentage
0.176	1.355	0.000	0.001	Market value to book value
0.000	-5.455	0.004	-0.024	loss
0.000	-3.573	0.006	-0.020	Research and development costs
0.525	-0.636	0.002	-0.001	Beta risk
0.000	-4.071	0.015	-0.060	Constant
.It was controlled				Year - industry
The probability of the statistic f		f statistic		Adjusted coefficient of determination
0.000		25.331		0.455

4.2.3. Hypothesis test with effective tax rate criterion

The results of the hypothesis test, which examined the simultaneous maintenance of debt and equity and its significant effect on the firm's tax avoidance, are

presented in Table 4-4. The criterion used was the difference between accounting profit and taxable profit.

Table 4.4. Hypothesis test with the effective rate of finance

$TA_{it} = \beta_0 + \beta_1 Dual_{i,t} + \beta_2 Controls_{i,t} + \beta_3 IndustryFE_{i,t} + \beta_4 YearFE_{i,t} + \varepsilon_{it}$				
t statistic	t statistic	standard error	Coefficient	Variable
0.027	-2.212	0.005	-0.011	Simultaneous maintenance of debt and equity
0.014	-2.474	0.026	-0.065	profitability
0.000	4.789	0.002	0.009	size of the firm
0.000	-3.712	0.013	-0.050	Financial Leverage
0.006	-2.778	0.011	-0.029	Institutional shareholders
0.403	0.836	0.010	0.009	Loan Percentage
0.762	0.302	0.001	0.000	Market value to book value
0.000	13.860	0.008	0.109	loss
0.000	-6.710	0.005	-0.032	Research and development costs
0.688	0.402	0.002	0.001	Beta risk
0.000	-6.008	0.026	-0.158	Constant
.It was controlled				Year - industry
The probability of the statistic f		f statistic		Adjusted coefficient of determination
0.000		21.633		0.415

As shown in Table 8-4, the F-statistic is equal to 21.633 and its probability value (significance level) is 0.000. Since this value is less than 0.05, the null hypothesis at the 95% confidence level is rejected, indicating that the model is statistically significant. The results pertaining to the adjusted coefficient of determination reveal that 41% of the changes in the dependent variable can be explained by the independent variables and model controls. This suggests that the model is overall meaningful, allowing for an analysis of the importance of each variable.

The results of the research hypothesis in Table 4-4 indicate that the coefficient for the simultaneous maintenance of debt and equity is -0.011, suggesting a negative impact on the effective tax rate. With a t-statistic probability of 0.027, the coefficient for debt and equity maintenance is statistically significant at the 95% confidence level. The research hypothesis that simultaneous maintenance of debt and equity significantly affects a firm's tax avoidance is supported by the effective tax rate criterion. This implies that maintaining both debt and equity simultaneously leads to a decrease in tax avoidance based on the effective tax rate.

5. Discussion

The results of the research hypothesis showed that the variable coefficient of debt and equity maintenance for all three tax avoidance criteria (cash effective tax rate, the difference between accounting profit and taxable profit, and effective tax rate) is equal to -0.032, -0.017, and -0.011, respectively. This indicates a negative effect of this variable on all types of tax avoidance criteria. According to the t-statistics probability, the variable coefficient of debt and equity maintenance is significant at the 95% probability level for all three criteria. Therefore, the hypothesis that simultaneous maintenance of debt and equity has a significant effect on the firm's tax avoidance was confirmed.

It can be inferred that since managers have a fiduciary duty to act in the interests of shareholders, firms without simultaneous ownership of debt and equity

may use methods to avoid excessive taxes in order to increase the value of equity. Firm creditors bear the cost in this scenario. When shareholders are also creditors, they consider the risk preferences of creditors and may avoid excessive tax avoidance. Additionally, dual ownership of debt and equity increases the concentration of capital allocation for debt and equity holders, reducing portfolio diversification (Fama and Jensen, 1983; Garcia-Koehler et al., 2015). Consequently, holders of both debt and equity may face increased risk due to tax avoidance, leading to fewer tax avoidance methods. Jiang et al. (2010) found that simultaneous ownership of debt and equity limits borrowing costs, reducing conflicts of interest between shareholders and creditors. Anton and Lin (2020) discovered that holding debt and equity simultaneously enhances firms' investment efficiency. Yang (2021) demonstrated that holding debt and equity simultaneously results in fewer patents but improves the market value of patents. Chava et al. (2019) observed that simultaneous ownership of debt and equity reduces the use of debt that restricts capital expenditures. Chu (2018) concluded that firms with simultaneous debt and equity holders pay lower dividends to increase creditors' profits.

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