National Accounting Review

NAR, 7(3): 428–456.
DOI: 10.3934/NAR.2025018
Received: 13 February 2025
Revised: 31 July 2025
Accepted: 02 September 2025
Published: 08 September 2025

https://www.aimspress.com/journal/NAR

Research article

The moderating effect of donation expenditure in the value relevance of tax avoidance: Evidence from Korean stock market

Gee-Jung Kwon*

Department of Accounting and Taxation, Hanbat National University, Daejeon, Republic of Korea

* **Correspondence:** Email: geejung@hanbat.ac.kr.

Abstract: This study investigated how donation expenditures—as a proxy for corporate social responsibility (CSR) activities—moderate the relationship between tax avoidance and corporate value among companies listed on the Korean stock market from 2000 to 2021. Unlike previous studies that relied on third-party CSR evaluations, this research utilizes the actual donation amounts disclosed in financial statements to measure CSR engagement, thereby enhancing the objectivity and relevance of the analysis in the Korean context, where donation-related corporate tax deductions are capped by law. The empirical analysis modified Ohlson's (1995) corporate valuation model, employing the discretionary difference between book and taxable income (DDBTD) as the principal indicator of tax avoidance. Control variables included donations, the largest shareholder's equity ratio, sales growth rate, and firm age. By estimating interaction effects through hierarchical regression and robustness checks with alternative donation measures, this study addressed both endogeneity and scale effects. The results indicate that donation expenditures have a significant positive moderating effect on the relationship between tax avoidance and corporate value. Notably, this moderating impact was statistically significant only among firms in the highest quartile of donation intensity, suggesting that the value relevance of tax avoidance increases above a certain donation threshold. This finding remains robust across different measurement approaches and subsample analyses. This research contributes new evidence showing that, within the unique regulatory and disclosure environment of Korea, firms may leverage donations both as a CSR strategy and as part of tax planning. It clarifies that donations strengthen the positive association between tax avoidance and firm value, principally when donation activities are large enough to be salient. These results highlight the importance of considering both regulatory context and the scale of social contribution in assessing the value implications of tax avoidance strategies in capital markets.

Keywords: donation; tax avoidance; value relevance; moderating effect; Korean stock market

JEL Codes: M40, M41, H24

1. Introduction

In order to maximize corporate value, companies are consistently striving to foster innovation in production through research and development, as well as to boost sales through advertising and promotional activities. Beyond these conventional strategies, firms are also focused on managing external cash outflows through tax planning, including various forms of tax avoidance.

Tax avoidance encompasses not only the reduction of tax liabilities through illegal activities but also the implementation of legal strategies aimed at minimizing tax obligations (Miller and Oats, 2014). These tax avoidance measures, whether lawful or unlawful, have been shown to enhance corporate value by decreasing cash outflows that would otherwise exit the company (Koh et al., 2007; Choi et al., 2015; Shin et al., 2019; Park, 2020).

Conversely, other studies suggest that tax evasion through illegal practices may actually diminish corporate value due to potential damage to the company's reputation or increased costs associated with detection when such practices are uncovered (Desai and Dharmapala, 2006; Hanlon and Slemrod, 2009; Ki, 2012; Son et al., 2012).

Among various tax-related strategies, corporate donations—often categorized under corporate social responsibility (CSR) activities—present a particularly complex case. Donations can be viewed as an accounting value that indirectly reflects the level of CSR. Numerous studies have indicated a negative correlation between CSR levels and tax evasion (Lanis and Richardson, 2012; Ki, 2012; Hoi et al., 2013; Park et al., 2014; Choi, 2015).

However, in the Korean context, the tax treatment of donations diverges significantly from that in other countries. Under Korea's corporate tax law, donation expenditures are recognized as deductible only up to a fixed limit, as they are regarded as non-operating expenses. This regulatory stance stems from the assumption that donations are not directly tied to a company's core business activities and should therefore have a limited impact on firm value.

From a theoretical perspective, donations differ from advertising and promotional expenses, which are closely tied to business activities. Donations are classified as non-operating expenses that arise from the company's goodwill; therefore, in principle, they should not be associated with the company's value and should not be used as a means of tax evasion.

Nonetheless, practical realities suggest a more nuanced interpretation. For example, a company may donate a substantial sum to a foundation with which its controlling shareholder is affiliated, thereby benefiting indirectly through reputation or relational gains. Alternatively, a firm might increase donations during tax audit seasons to project a favorable CSR image. These practices reveal that, in reality, donations may have strategic implications for both corporate value and tax positioning.

At the same time, this paper seeks to clarify two key concepts—value link and moderating effect—which are essential for understanding the mechanism at play. The value link refers to the extent to which tax avoidance contributes to firm value, while the moderating effect indicates how donation expenditures strengthen or weaken this link. It is important to distinguish this moderating effect from

a mediating one, as donations are not the channel through which tax avoidance affects value, but rather a contextual factor that conditions this relationship.

This study analyzes the relationship between corporate social responsibility (CSR) activities, specifically donation expenditures and tax avoidance, and the subsequent impact on corporate value. The analysis focuses on companies listed on the Korean stock market and the KOSDAQ market from 2000 to 2021. Specifically, the study aims to assess how the relevance of tax avoidance to corporate value varies based on corporate donation expenditures.

While previous research has utilized the evaluation level of a specific organization as a proxy for social responsibility activities, this study employs the actual size of donations made by companies as a direct measure of social responsibility. This approach helps overcome limitations related to subjective third-party ESG scores and allows for greater granularity in the analysis. The empirical analysis reveals that both donation expenditures and tax avoidance have a statistically significant positive effect on corporate value within the Korean capital market. Furthermore, corporate donation expenditures demonstrate a statistically significant positive relationship with the relevance of tax avoidance to corporate value, indicating that donations serve as a positive moderating factor in this relationship.

The additional analysis that categorized corporate groups into lower and upper tiers based on their donation expenditures revealed a more pronounced positive moderating effect in the upper corporate group compared to the lower group. Furthermore, when the corporate groups were divided into four quartiles according to their donation expenditures, a significant positive moderating effect was observed exclusively in the top quartile. These findings suggest that donation expenditures do not influence the corporate value relevance of tax avoidance below a certain threshold; however, as donation expenditures exceed this threshold, the corporate value relevance of tax avoidance also increases.

The structure of this study is organized as follows: Chapter 1 introduces the necessity and objectives of the research, while Chapter 2 reviews relevant studies on tax avoidance to establish a theoretical background. Chapter 3 formulates hypotheses and presents a research model to test these hypotheses. Chapter 4 conducts an empirical analysis using the research model and interprets the results. Finally, Chapter 5 summarizes the study and discusses its implications and directions for future research.

2. Theoretical background

2.1. Donation and corporate value

Donations are voluntary transfers of resources made without expectation of direct economic return. Unlike advertising or entertainment expenditures, which are explicitly tied to profit generation, donations are typically motivated by altruistic or reputational objectives and are considered part of a firm's broader social responsibility efforts. They are also distinct from mandatory tax payments, as they are discretionary and not legally required.

Previous research has sought to establish the relationship between donations and corporate value, yielding mixed findings. Jensen et al. (2002) reported a positive association among donations, corporate performance, and firm value, suggesting that companies engage in philanthropic activities as a differentiation strategy in competitive markets. Their argument posits that donations enhance corporate image, which in turn improves customer perceptions of the firm and its products, leading to price premiums and loyalty.

Similar conclusions were drawn by Graff Zivin and Small (2005), Lev et al. (2010), and Heinkel et al. (2001), who asserted that philanthropic behavior can enhance customer satisfaction and thus indirectly raise profitability and corporate value. These studies emphasize the reputational capital generated through charitable giving as a driver of market-based performance.

However, some scholars challenge this view. Wright and Ferris (1997) and Teoh et al. (1999) argued that donations can also act as agency costs, representing managerial discretion that does not contribute meaningfully to shareholder value. These studies caution that philanthropic expenditures, when not aligned with core business objectives, may yield diminishing or even negative returns on firm value.

In the Korean context, several studies have analyzed the role of donations in corporate strategy. Kwon (2012), for example, characterizes donations as investments in intangible assets that enhance corporate image. His empirical analysis reveals that donations contribute more significantly to firm value in large corporations than in small and medium-sized enterprises (SMEs). Moreover, donations are found to be more effective than advertising expenditures in both high-tech and low-tech industries, underscoring their role as strategic tools beyond conventional CSR.

Kwon's findings are particularly relevant given Korea's regulatory setting, where donation expenditures are only partially tax-deductible and are classified as non-operating expenses under tax law. This legal treatment distinguishes Korean firms from those in jurisdictions where donations are more freely deductible, thus framing donation decisions within a unique incentive structure. Accordingly, understanding the dual nature of donations—as socially responsible activities and potential strategic tools—requires further investigation within this institutional context.

2.2. Donation and tax avoidance

In recent years, a growing body of literature has examined the link between CSR activities, including donations, and tax avoidance, highlighting complex interactions between ethical conduct and financial strategy.

Desai et al. (2007) explored tax avoidance practices through the lens of agency theory. They argued that managers may increase organizational complexity—often via opaque financial arrangements—to facilitate both tax minimization and the extraction of private benefits. This study implies that tax avoidance is not always in the best interest of shareholders and may reflect deeper governance problems.

Hoi et al. (2013) empirically investigated the relationship between CSR and tax avoidance, finding that firms exhibiting irresponsible CSR behavior tend to engage more in tax avoidance. Their results suggest that a lax ethical culture within firms may simultaneously promote tax avoidance and deviant CSR practices, indicating that tax behavior may reflect broader organizational norms.

Watson (2015) examined how a firm's pre-tax profitability influences the relationship between CSR and tax avoidance. He found that firms with weaker financial performance are more likely to engage in both CSR and tax avoidance, suggesting a strategic use of CSR activities, including donations, to lower taxable income when financial pressure is high. This conditional relationship indicates that CSR can serve as a tool for tax planning in contexts of constrained profitability.

Davis et al. (2016) compared two competing perspectives on donations and taxation. The first posits that donations reflect social contributions that increase tax liabilities, while the second suggests that donations can be used strategically to reduce the corporate tax burden. Their findings support the

latter, revealing that higher donation levels are associated with a lower cash effective tax rate, thus reinforcing the notion that firms may use donations as part of a deliberate tax avoidance strategy.

Sikoski (2020) investigated tax incentives for art donations in the U.S., revealing that firms and individuals often exploit valuation rules for tax deductions, donating high-market-value assets to reduce liabilities. The U.S. tax code's generous treatment of in-kind donations—especially artworks—demonstrates how philanthropy may be financially motivated rather than altruistically driven.

Kolodziej and Niesiobędzka (2022) offered further evidence through an experimental study, demonstrating that individuals knowingly use donations to reduce tax liabilities. Participants in their study preferred charitable contributions over paying equivalent taxes, suggesting that donations provide not only financial benefits but also personal satisfaction by allowing donors to control the destination of their money.

Taken together, these studies indicate that donations—although socially framed—can serve dual purposes: enhancing firm reputation and reducing tax obligations. However, most of this literature focuses on Western economies with liberal tax deduction systems. In contrast, the Korean regulatory environment imposes strict limits on donation deductibility, raising the question of whether—and to what extent—donations can function as tax avoidance tools within such a constrained institutional setting. This distinction underscores the need for country-specific analysis and sets the foundation for the present study.

3. Hypothesis and research model

3.1. Hypothesis development

Prior studies present mixed evidence regarding the effect of tax avoidance on firm value. Some studies (Desai & Dharmapala, 2006) suggest that tax avoidance can enhance firm value by reducing tax liabilities and increasing after-tax cash flows. Others argue that aggressive tax strategies may increase agency costs, diminish transparency, and damage reputation, ultimately reducing firm value (Lanis & Richardson, 2012; Hoi et al., 2013). These divergent perspectives imply that the effect of tax avoidance on firm value is context-dependent and may be influenced by other organizational or strategic factors.

This paper examines the moderating role of donation expenditures—used as a proxy for corporate social responsibility (CSR)—in the relationship between tax avoidance and firm value. In the Korean institutional environment, where donations are partially tax-deductible and subject to regulatory scrutiny, such expenditures may serve both ethical and strategic purposes. Some firms may engage in donations to genuinely fulfill CSR obligations, while others may exploit them to justify or mask aggressive tax behavior. As a result, donations could moderate how investors perceive the value relevance of tax avoidance, either enhancing or mitigating its impact on firm value.

The moderating (rather than mediating) role of donations is theoretically grounded in agency theory and signaling theory. Donation activities may serve as signals of managerial intent or governance quality, thereby altering stakeholder responses to tax behavior. Moderation is considered more appropriate in this context because donations are not a consequence of tax avoidance but a strategic tool that may condition the relationship between tax strategies and firm value.

Based on these considerations, the following hypotheses are proposed:

H1: Tax avoidance significantly affects corporate value.

H2: Donation expenditure, as a proxy for CSR activities, significantly moderates the relationship between tax avoidance and corporate value.

In Figure 1, the research model and hypotheses are presented, illustrating the relationships between tax avoidance, corporate value, and donations as a proxy for corporate social responsibility activities. The research model provides a framework to empirically test these hypotheses and assess the impact of CSR activities on the link between tax avoidance and corporate value.

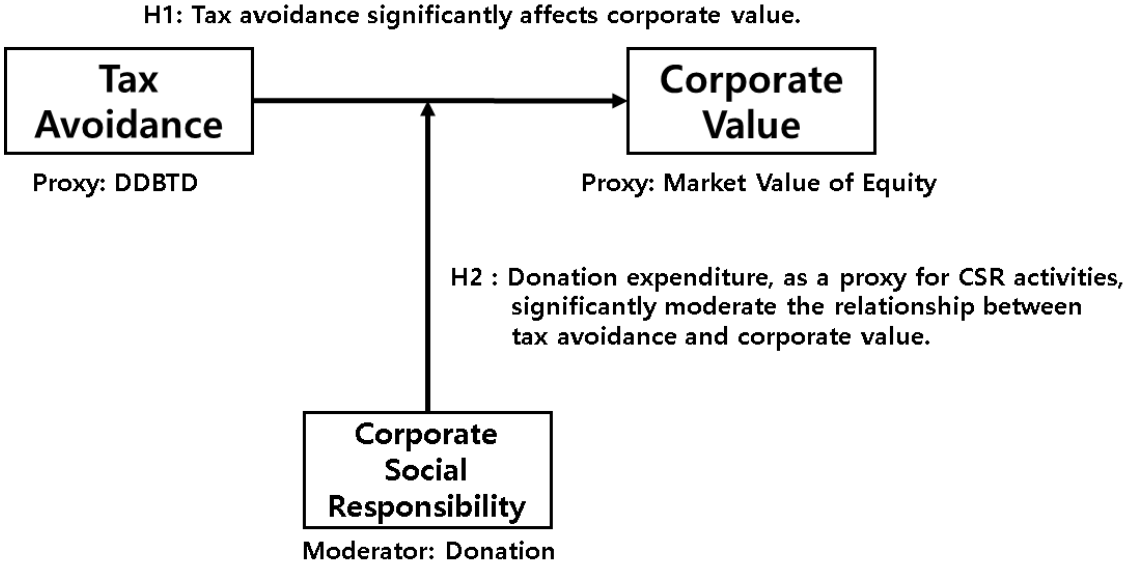

Figure 1. Research model and hypothesis.

3.2. Research model

To test the hypotheses, this study develops an extended valuation model based on Ohlson (1995), incorporating theoretical insights from Myers (1977), Griliches (1984), Lev and Sougiannis (1996), and Aboody and Lev (2001). These studies emphasize that corporate value comprises both tangible (measured) and intangible (unmeasured) components, with the latter including factors such as tax strategy and CSR engagement.

Myers (1977) and Griliches (1984) conceptualized firm value as a combination of the value of disclosed net assets and the value of undisclosed assets or future growth opportunities. The extended valuation identity is as follows:

$$FV = MV + UMV \tag{1}$$

Here, FV: enterprise value, MV: measured net asset value, and UMV: unmeasured net asset value.

Griliches (1984) argued that the value of a company is composed of two components: the value of assets disclosed in the financial statements and the value of undisclosed assets. According to this framework, the total value of a company can be calculated by adding the values of the disclosed and undisclosed assets, with a reaction coefficient applied to each of these values.

This approach suggests that both the disclosed assets (which are publicly visible, such as those found in financial statements) and the undisclosed assets (which may include intangible assets like brand reputation or intellectual capital) contribute to the overall value of the company. The impact of each asset

on the company's total value depends on the magnitude of the reaction coefficient applied to each, reflecting the relative importance of the disclosed and undisclosed assets in the company's valuation.

$$FV = \theta(K + \lambda IK) \tag{2}$$

Here, FV: Ccorporate value, K: Value of disclosed assets, IK: Value of undisclosed assets, λ: Shadow price of IK, and θ: Reaction coefficient of market value to book value of assets.

Ohlson (1995) stated that corporate value can be expressed as a function of the book value of net assets and earnings. According to his model, these two variables—book value of net assets and earnings—are the primary factors in determining a company's value. However, he also suggested that there may be other variables that can influence corporate value, beyond the two mentioned. These additional variables, which are not directly captured by the book value and earnings, are accounted for as error terms in the model.

The error terms represent the unexplained variation in corporate value, capturing the influence of other factors that affect the company's value but are not explicitly included in the model. This allows for a more comprehensive understanding of the factors that contribute to a company's overall value, while acknowledging the limitations of the available data. In the context of this study, variables such as tax avoidance and CSR activities (like donation) might be considered as additional factors influencing corporate value, and they could be included in the error term to capture their indirect or less measurable effects.

$$MV_{i,t} = \beta_0 + \beta_1 BV_{i,t-1} + \beta_2 NI_{i,t} + \varepsilon_{i,t} \tag{3}$$

Here, $MV_{i,t}$: stock price at the end of March of year t+1, $BV_{i,t-1}$: book value of net assets at the end of year t-1, $NI_{i,t}$: net income for year t, and $\varepsilon_{i,t}$: error term (variable that affects corporate value but is not confirmed).

The purpose of this study is to analyze the relationship between tax avoidance and corporate value, as well as to examine the effect of CSR activities on the relevance of tax avoidance to corporate value. To achieve this, the research model in this study is developed by applying the research concepts of Myers (1977), Griliches (1984), Sougiannis (1994), Lev and Sougiannis (1996), and Aboody and Lev (2001) to Ohlson's (1995) corporate value evaluation model.

In this adapted model, in addition to the book value of capital and net income for the period, variables such as tax avoidance, donations (as a proxy for CSR activities), the largest shareholder equity ratio, sales growth rate, and corporate age are incorporated as additional factors influencing corporate value. By integrating these variables, the study aims to provide a more comprehensive model for evaluating corporate value, which considers both financial and non-financial factors, as shown below in the research model.

$$\begin{aligned} MV_{i,t} &= \beta_0 + \beta_0 BV_{i,t-1} + \beta_2 NI_{i,t} + \beta_3 DDBTD_{i,t} + \beta_4 DON_{i,t} \\ &+\beta_5 TOP_{i,t} + \beta_6 GRW_{i,t} + \beta_7 AGE_{i,t} + \beta_8 \sum ID + \beta_9 \sum YD + \varepsilon_{i,t} \end{aligned} \tag{4}$$

$$\begin{aligned} MV_{i,t} &= \beta_0 + \beta_0 BV_{i,t-1} + \beta_2 NI_{i,t} + \beta_3 DDBTD_{i,t} + \beta_4 DDBTD_{i,t} \times DON_{i,t} \\ &+\beta_5 DON_{i,t} + \beta_6 TOP_{i,t} + \beta_7 GRW_{i,t} + \beta_8 AGE_{i,t} + \beta_9 \sum YD + \beta_{10} \sum ID + \varepsilon_{i,t} \end{aligned} \tag{5}$$

Here, $MV_{i,t}$: stock price at the end of March of year t+1 / sales in year t, $BV_{i,t-1}$: book value of net assets at the end of year t-1 / sales in year t, $NI_{i,t}$: net income for the period of year t / sales in year

t, $DDBTD_{i,t}$: tax avoidance in year t [the part where the difference between accounting profit and taxable income (BTD) cannot be explained by the total accrual amount], $DON_{i,t}$: total amount of donations in year t / sales in year t, $DDBTD_{i,t} \times DON_{i,t}$: product of tax avoidance variable and donations (control variable), $TOP_{i,t}$: largest shareholder's stake, $GRW_{i,t}$: sales growth rate [(current sales - previous sales) ÷ previous sales], $AGE_{i,t}$: company age (natural log value of company age), $\sum YD$: year dummy, $\sum ID$: industry dummy, and $\varepsilon_{i,t}$: error term.

Equation (4) represents the research model used to analyze the effect of donations, which serve as a proxy variable for both tax avoidance and CSR activities, on corporate value. In this model, donations are considered a key variable influencing the overall value of the company, alongside other factors such as tax avoidance, net income, and capital book value. This equation helps to identify how donation and CSR activities contribute directly to corporate value.

Equation (5) represents the research model used to examine whether donation expenditures (as a proxy for CSR activities) have a moderating effect on the relationship between tax avoidance and corporate value. This model tests the hypothesis that donations may influence or alter the strength or direction of the relationship between tax avoidance and corporate value. Essentially, it seeks to understand if CSR activities (in the form of donation) moderate the impact that tax avoidance has on corporate value.

The use of hierarchical regression analysis is appropriate for testing moderation hypotheses, as it enables an assessment of whether the inclusion of an interaction term (DDBTD × DON) explains additional variance in firm value. This technique is commonly used in CSR and tax research when interaction effects are of interest (Aiken & West, 1991). In contrast, standard linear regression would not adequately capture conditional relationships between variables.

This paper further adopts Ohlson's (1995) model as the empirical foundation because it permits the integration of financial (BV, NI) and non-financial (DDBTD, DON) variables in a theoretically coherent framework. The modification aligns with empirical strategies used by Lev and Sougiannis (1996) and Aboody and Lev (2001) in incorporating intangibles and discretionary items into valuation models.

3.3. Variable description

3.3.1. Dependent variable

The dependent variable in this study is the market value (MV) of the company, which is defined as the total stock price at the end of March of year t+1, standardized by sales. The use of the stock price at the end of March of year t+1, rather than the stock price at the end of December of year t, is due to the fact that financial statements of corporations in Korea, which typically close their books at the end of December, are finalized and publicly announced only at the end of March of the following year. This delay accounts for the time needed to complete external audits and hold general shareholders' meetings. Therefore, the stock price at the end of March, when the audited financial statements are available, provides a more accurate and reliable measure of the company's market value for the analysis.

3.3.2. Key independent variables

1. Proxy variable for tax avoidance (DDBTD)

In this study, DDBTD (residual from the difference between accounting reported income and tax reported income) is used as a proxy for tax avoidance. Specifically, DDBTD represents the residual generated after regressing the total accrual amount on the difference between accounting reported income and tax reported income (denoted as BTD).

The difference between accounting reported income and tax reported income (BTD) is calculated by subtracting the estimated taxable income from net income before corporate tax. This method follows the approach used by Desai and Dharmapala (2006). The estimated taxable income is derived using the same calculation method as Park et al. (2006).

In this study, the difference between accounting profit and tax profit (BTD) is used as a key measure of tax avoidance. Specifically, BTD (difference between accounting profit and tax profit) is calculated as the difference between profit before tax (PBT) and estimated taxable income (ETI). The formula is as follows:

$$BTD_{i,t} = PBT - ETI \tag{6}$$

where *BTD*: difference between accounting profit and tax profit, *PBT* (profit before tax) refers to the income reported by the company before accounting for taxes, and *ETI* (estimated taxable income) is the amount of income that is estimated for tax purposes, calculated following the methodology used by Park et al. (2006).

Estimated taxable income (*ETI*) is calculated here as follows:

$$ETI = \frac{CTB}{r} \tag{7}$$

where *ETI*: estimated taxable income, *CTB*: corporate tax liability [= corporate tax expense + (increase in deferred corporate tax assets - decrease in deferred corporate tax assets) - (increase in deferred corporate tax liabilities - decrease in deferred corporate tax liabilities)], and *r*: annual corporate tax rate (1 + resident tax rate), 2000–2001: 30.8%, 2002–2004: 29.7%, 2005–2008: 27.5%, 2009–2017: 24.2%, 2018–2021: 27.5%.

The residual (DDBTD) that regresses the total accrual amount on the difference between accounting reported profit and tax reported profit (BTD) is calculated using the following regression Equation:

$$\begin{gathered} BTD_{i,t} = \beta_0 + \beta_1 TA_{i,t} + \varepsilon_{i,t} \\ DDBTD_{i,t} = \varepsilon_{i,t} \end{gathered} \tag{8}$$

where *BTD* = profit before income tax - (estimated taxable income / total assets at the end of year t-1). *TA* = total accruals / total assets at the end of year t-1. ε = error term, representing the part of the *BTD* not explained by the total accruals.

The residual (DDBTD), which represents the portion of total accruals not explained by the BTD, is considered as the proxy for tax avoidance in this study. Larger values of the residual indicate a greater degree of tax avoidance, as they suggest a larger discrepancy between accounting profit and taxable income after accounting for the expected relationship between accruals and BTD.

2. Proxy variable for corporate social responsibility (DON)

In this study, CSR activities are set as a moderating variable that can influence the corporate value relevance of tax avoidance. However, measuring the level of CSR activities across all companies listed on the Korean stock market in an objective and standardized way is challenging due to the diverse nature of CSR initiatives and reporting practices.

To address this, the study uses the total amount of donations standardized by sales as a proxy variable for CSR activities. This approach simplifies the measurement of CSR by focusing on donations, which are a common and easily identifiable form of corporate social responsibility. By standardizing the total donation amount by sales, the study adjusts for the size of the company, making the donation amount comparable across companies of different scales.

Thus, the donation amount (DON) serves as a proxy for CSR activities, where companies with higher donations relative to sales are assumed to have more significant CSR efforts. This proxy is used in the research model to assess how CSR activities (through donation) may moderate the relationship between tax avoidance and corporate value.

3.3.3. Control variables

In addition to the primary independent variables of tax avoidance and donations, this study includes several control variables in the empirical analysis, as they are considered to potentially influence corporate value. These control variables include:

1. Book value (BV) of capital

The BV of capital is a crucial variable in Ohlson's (1995) corporate valuation model. In this study, the book value of total capital at the end of the previous year (t-1), standardized by sales, is used. The reason for using the previous year's book value is that the book value at the end of year t includes net income (NI) for the current year (t), which could distort the ability to assess the value relevance of net income. Therefore, the prior year's book value is preferred to avoid this overlap.

2. Net income (NI)

Net income (NI) is another critical variable in Ohlson's (1995) corporate valuation model, alongside the book value of capital. This study uses net income for the current year, standardized by sales, as a variable. Net income reflects the company's profitability and is a direct indicator of financial performance, which can influence corporate value.

3. Top shareholder equity ratio (TOP)

The TOP is a variable that can affect corporate value. Previous studies (e.g., Jun, 2011) suggest that companies with a high proportion of ownership by the top shareholder may exhibit a negative relationship between tax avoidance and corporate value. Therefore, the TOP ratio is included as a control variable to account for the influence of top shareholder ownership on the company's valuation.

4. Sales growth rate (GRW)

The GRW indicates the profitability and growth potential of a company. Companies with higher growth rates are generally considered to have higher potential for future profitability and thus higher corporate value. To control for the effects of company growth, this study includes sales growth rate as a control variable.

5. Age of the company (AGE)

The AGE indicates how long the company has been in existence and reflects its stability and longevity. Older companies may have more established market positions, greater experience, and

higher potential for growth, which could positively influence their corporate value. Thus, the age of the company is included as a control variable to account for its effect on corporate value, as suggested by studies such as Black et al. (2006).

By including these control variables, the study ensures that the impact of tax avoidance and CSR activities on corporate value is not confounded by other factors that might influence the company's valuation.

4. Empirical analysis

4.1. Sample selection

Table 1 presents the sample selection process used for the empirical analysis in this study. The target period for the analysis spans 22 years, from 2000 to 2021, and the sample consists of companies listed on the Korean capital market. All data were extracted from the KIS-VALUE database. The companies included in the empirical analysis meet the following conditions, and those that do not meet these criteria are excluded:

Companies with fiscal year-end other than December: Companies whose fiscal year does not end in December are excluded from the sample to maintain consistency in reporting periods across all companies.

Companies that are impaired or under management: Companies facing financial difficulties or under management are excluded because their data may be distorted or not representative of typical corporate behavior, leading to issues with continuity and the validity of the analysis.

Companies in the financial or insurance industry: Companies within the financial (e.g., banks) and insurance industries are excluded due to their distinct accounting practices, which differ significantly from those of other industries. Including them would introduce heterogeneity that could distort the results.

Companies for which data on the analysis variables cannot be extracted: If there is missing or incomplete data for any of the key variables from the KIS-VALUE database, the company is excluded from the analysis.

Companies with negative net income, taxable income, or corporate tax expense: Companies reporting negative figures for net income before tax, taxable income, or corporate tax expenses are excluded, as they are considered to have low or no motivation for tax avoidance. These companies are unlikely to provide meaningful insights into the relationship between tax avoidance and corporate value.

Furthermore, to enhance the robustness and reliability of the results, companies with extreme values or outliers are excluded. The process of excluding outliers is as follows: Preliminary regression analysis is conducted to identify companies with standardized residuals greater than 3 or Cook's distance greater than 1. These companies are considered outliers and excluded from the final sample.

This selection process ensures that the sample consists of companies that meet the criteria for analysis and helps to improve the homogeneity of the sample, thus making the empirical results more reliable and generalizable.

Table 1. Sample selection.

Sample selection procedure (2000–2021)	Sample size (firm-year)
Number of companies extracted	59,268
- Companies whose fiscal year-end (December) is not the closing date - Companies with capital impairment or under management - Companies belonging to the financial or insurance industry - Companies for which data on variables cannot be extracted from the KIS-VALUE database - Companies with negative net income before income tax, taxable income, and income tax expense	48,590
Final analysis number of companies	10,678

4.2. Descriptive statistics

Table 2 shows the descriptive statistics for the variables used in the empirical analysis. MV serves as the proxy for the dependent variable, corporate value. The large standard deviation (8.89973) indicates considerable variation in corporate value across the sample companies.

BV represents the book value of a company's capital at the end of the previous year. The wide range of values suggests significant differences in the capital structures of the firms in the sample. NI indicates the net income for the period, with large variations between companies, as indicated by the high standard deviation (2.5070207). Some companies report negative net income, indicating potential financial difficulties. DDBTD is used as a proxy for tax avoidance. The mean indicates a moderate level of tax avoidance across the sample, though there are some extreme values (minimum: 0.0000069) at both ends of the distribution.

DON represents corporate donations, used as a proxy for CSR activities. The relatively low mean (0.00153) suggests that the majority of companies have small donations relative to their sales, with some companies making significantly larger donations. The interaction variable for tax avoidance and donations (DDBTD*DON) is used to examine the moderating effect of donations on the relationship between tax avoidance and corporate value. The small mean (0.000145) and range indicate that the combined effect of tax avoidance and CSR activities is generally small.

TOP indicates the proportion of ownership held by the top shareholder. The variation in this ratio suggests differences in the ownership structures of the sample companies. GRW represents the sales growth rate. The large standard deviation (3.7997) and the wide range of values reflect considerable variation in the growth potential of the sample companies. AGE represents the age of the company. The relatively small variation (standard deviation: 0.70641) suggests that the companies in the sample are fairly mature, with most being between 9 and 14 years old.

These descriptive statistics provide an overview of the key variables used in the analysis and reveal considerable variation in corporate characteristics across the sample companies, which is important for understanding the factors influencing corporate value.

Table 2. Descriptive statistics.

Variables	N	Mean	Standard deviation	Minimum	Maximum
MV	10,678	1.79079	8.89973	0.01069	652.81457
BV	10,678	0.72583	0.75063	0.00803	60.99341
NI	10,678	0.08328	0.10313	−1.61314	2.86841
DDBTD	10,678	0.08354	0.0925	0.0000069	2.1276
*DDBTD*DON*	10,678	0.000145	0.000792	0.0000000003	0.04194
DON	10,678	0.00153	0.00463	0.00000012	0.24029
TOP	10,678	0.28742	0.14352	0.006	0.9354
GRW	10,678	0.19775	3.7997	−0.99875	281.3941
AGE	10,678	12.3507	0.70641	9.27837	14.03087

Note: Variable description: $MV_{i,t}$: stock price as of the end of March of year t+1 / sales in year t. $BV_{i,t-1}$: book value of net assets at the end of year t-1 / sales in year t. $NI_{i,t}$: net income for the year t / sales in year t. $DDBTD_{i,t}$: tax avoidance in year t [the portion where the difference between accounting profit and taxable income (BTD) cannot be explained by the total accrual]. $DON_{i,t}$: total donations in year t / sales in year t. $DDBTD \times DON_{i,t}$: product of tax avoidance variable and donations (control variable). $TOP_{i,t}$: largest shareholder's stake. $GRW_{i,t}$: sales growth rate [(current sales – previous period sales) ÷ previous period sales]. $AGE_{i,t}$: company age (natural log value of company age).

4.3. Correlation analysis

Table 3 presents the findings of the correlation analysis between the dependent and independent variables employed in this study. As illustrated in Table 3, the results of the Pearson correlation analysis are presented below the diagonal line, while the results of the Spearman correlation analysis are shown above. Pearson correlation analysis is employed to ascertain whether a change in one variable is proportional to a change in another variable. Spearman correlation analysis is utilized to identify a straightforward relationship between two quantitative or ordinal variables, and it possesses the advantage of being able to analyze data sets exhibiting nonlinear relationships between the two variables.

The dependent variable, the market value (MV) of the company, demonstrates a statistically significant correlation with all independent variables at the 1% and 5% levels in Spearman correlation analysis. With the exception of company age (AGE), all variables exhibit a positive (+) correlation in terms of direction. In Pearson correlation analysis, the market value (MV) of a company demonstrates a statistically significant positive correlation at the 1% level with the book value of capital (BV), net income (NI), tax avoidance (DDBTD), and donations (DON). However, no statistically significant correlation is observed between MV and the largest shareholder's equity ratio (TOP), sales growth rate (GRW), or company age (AGE).

With regard to the independent variables, there are also statistically insignificant correlations between variables. However, given that the absolute value of the correlation coefficient is less than 0.5, the possibility of multicollinearity is deemed to be minimal (Kennedy, 1992).

The correlation analysis confirms the strength and direction of relationships between variables. These results establish a solid foundation for subsequent regression analysis, demonstrating that

multicollinearity is not a concern and that key variables such as donations and tax avoidance are positively associated with market value.

Table 3. Correlation analysis.

Variable	MV	BV	NI	DDBTD	DON	TOP	GRW	AGE
MV	1	0.50295	0.32006	0.10654	0.22068	0.01404	0.02185	−0.24056
		<0.0001	<0.0001	<0.0001	<0.0001	0.1468	0.024	<0.0001
BV	0.04903	1	0.37711	0.11677	0.10897	0.04093	0.05134	−0.1854
	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
NI	0.06835	0.12075	1	0.39129	0.11993	0.05268	0.31645	−0.23262
	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
DDBTD	0.04912	0.02561	0.25684	1	0.0221	0.00899	0.16096	−0.15405
	<0.0001	0.0081	<0.0001		0.0224	0.3532	<0.0001	<0.0001
DON	0.11969	0.01969	0.10004	0.03921	1	−0.02802	−0.01723	0.03296
	<0.0001	0.0418	<0.0001	<0.0001		0.0038	0.0751	0.0007
TOP	−0.0094	0.01834	0.01915	0.00449	−0.01308	1	−0.01921	−0.13537
	0.3315	0.0581	0.0407	0.643	0.1766		0.0471	<0.0001
GRW	0.01577	−0.00004	0.06607	0.07882	0.06039	−0.00087	1	−0.13561
	0.1031	0.9966	<0.0001	<0.0001	<0.0001	0.9286		<0.0001
AGE	−0.0182	−0.11205	−0.20196	−0.09325	0.00608	−0.11222	−0.00219	1
	0.0601	<0.0001	<0.0001	<0.0001	0.5297	<0.0001	0.8212	

Note: 1) The Pearson correlation coefficient is displayed below the diagonal, while the Spearman correlation coefficient is displayed above it. 2) Variable description: $MV_{i,t}$: stock price as of the end of March of year t+1 / sales in year t. $BV_{i,t-1}$: book value of net assets at the end of year t-1 / sales in year t. $NI_{i,t}$: net income for the year t / sales in year t. $DDBTD_{i,t}$: tax avoidance in year t [the portion where the difference between accounting profit and taxable income (BTD) cannot be explained by the total accrual]. $DON_{i,t}$: total donations in year t / sales in year t. $DDBTD \times DON_{i,t}$: product of tax avoidance variable and donations (control variable). $TOP_{i,t}$: largest shareholder's stake. $GRW_{i,t}$: sales growth rate [(current sales – previous period sales) ÷ previous period sales]. $AGE_{i,t}$: company age (natural log value of company age).

4.4. Path analysis results

Path analysis is a method of verification and explanation that assesses the existence of a causal relationship between independent variables and dependent variables, as well as between independent and dependent variables (Bohnstedt and Knoke, 1994). This study employs path analysis through the utilization of path diagrams in accordance with the structural equation model. The results of the path analysis indicate that donations serve as the causal variable, while tax avoidance represents the resulting variable in the context of donations and tax avoidance. In other words, as donations increase, tax avoidance also increases, though the converse is rarely observed (see Figure 2).

Upon examination of the results of the causal relationship analysis from donations to tax avoidance and from tax avoidance to donations, the adjusted goodness of fit index (AGFI) yielded a value of 0.93 for the path verification result from donations to tax avoidance and 0.88 for the path

verification result from tax avoidance to donations, indicating that the former is higher. The results indicate that donations affect tax avoidance, which in turn affects net income, book value, and corporate value. Accordingly, this study posits that donations can function as a moderating variable in the relationship between tax avoidance and corporate value and seeks to ascertain whether donations exert a moderating influence on the relationship between tax avoidance and corporate value.

The results of the path analysis indicate that donations act as a causal factor influencing tax avoidance, which subsequently affects corporate value through intermediary financial measures. Based on these findings, the study posits that donations can serve as a moderating variable in the relationship between tax avoidance and corporate value. This sets the stage for further verification of the moderating effect of donations through hierarchical regression analysis.

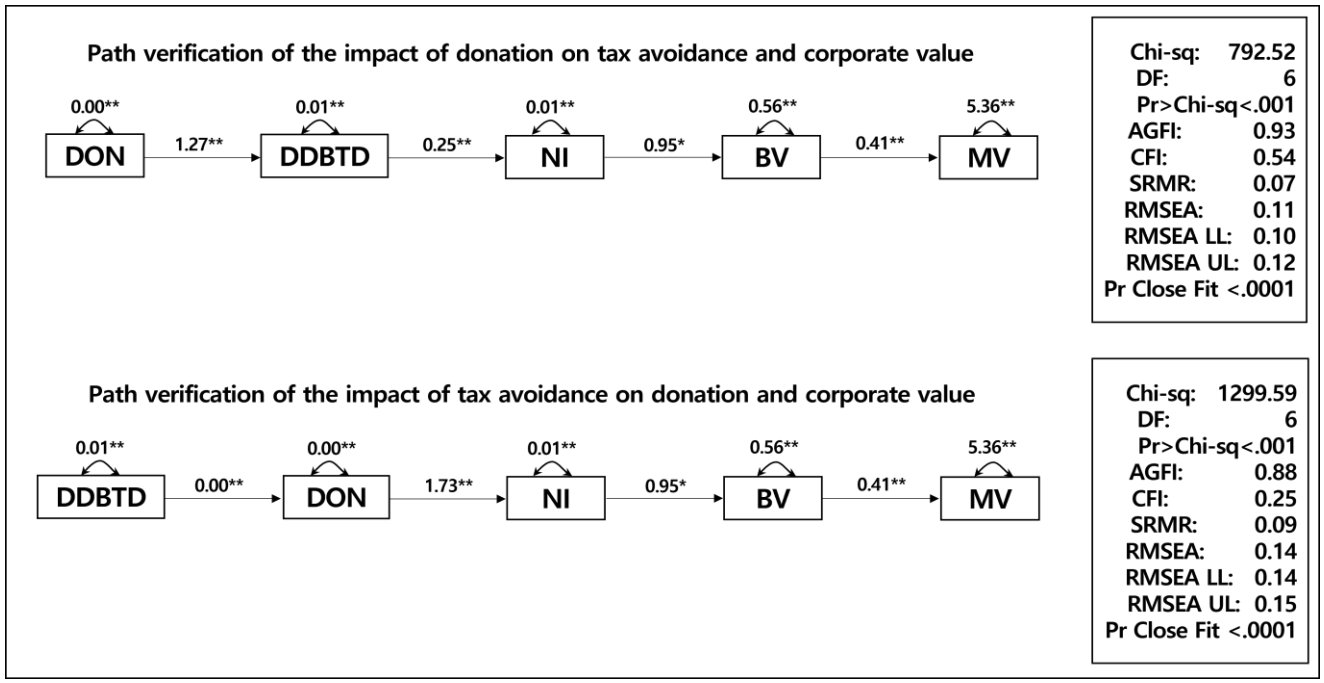

Figure 2. Path verification of the relationship between donations, tax avoidance, and corporate value. 1) Variable description: $MV_{i,t}$: stock price as of the end of March of year t+1 / sales in year t. $BV_{i,t-1}$: book value of net assets at the end of year t-1 / sales in year t. $NI_{i,t}$: net income for the year t / sales in year t. $DDBTD_{i,t}$: tax avoidance in year t [the portion where the difference between accounting profit and taxable income (BTD) cannot be explained by the total accrual]. $DON_{i,t}$: total donations in year t / sales in year t.

4.5. Results of hierarchical moderated regression analysis

The aim of this study is to ascertain whether donations, which can be considered an indicator of corporate social responsibility, exert a moderating influence on the relationship between tax avoidance and corporate value. This will be investigated through path analysis. Furthermore, the study employs moderated regression analysis to elucidate the extent of this moderating effect in greater detail. Moderated regression analysis is a method of statistical analysis that is used to ascertain whether the causal relationship between a dependent variable and an independent variable is moderated (strengthened or alleviated) by a moderator variable in verifying the causal relationship.

In this study, the dependent variable is corporate value, the independent variable is tax avoidance, and the moderator variable is the donations, which represent corporate social responsibility activity. In this study, we employ the hierarchical moderated regression analysis method, utilizing hierarchical analysis to verify the moderating effect of donations.

In this context, hierarchical analysis refers to a sequential approach to regression analysis, whereby independent variables, moderator variables, and interaction variables are entered in a specific order, and each regression analysis is conducted. In the initial stage of the hierarchical moderated regression analysis, the regression analysis is conducted by separately entering the independent variables and the moderator variables for the same dependent variable. In the subsequent stage, the regression analysis is performed by entering the independent variables and the moderator variables collectively. In the second stage of the analysis, the adequacy of the model can be verified by determining whether the increase in the F value resulting from the addition of the moderator variable is statistically significant when compared to the results of the first stage of the analysis. If the coefficient value of the independent variable increases due to the additional input of the moderator variable, it can be inferred that the moderator variable is exerting a significant influence on the dependent variable.

In the final third stage, the moderator variable and the primary independent variable are introduced as a product, and the statistical significance of the interaction variable's effect on the dependent variable is evaluated to ascertain the ultimate moderating effect. Should the analysis results indicate that the interaction variable does not exert a significant effect on the dependent variable, it can be determined that there is no moderating effect.

The interpretation of moderated regression analysis results is contingent upon the sign of the regression coefficients for the independent variables and the interaction variables. In the initial instance, if both the independent variable and the interaction variable are significant and the signs of the two variables are identical, irrespective of whether they are negative (-) or positive (+), the effect is interpreted as synergistic. Nevertheless, if both the independent variable and the interaction variable are significant, yet the signs are disparate, it can be interpreted as a buffering effect.

By employing hierarchical moderated regression analysis, the study systematically evaluates the moderating role of donations in the relationship between tax avoidance and corporate value. The stepwise approach ensures robust analysis, while the interpretation of regression coefficients and interaction variables provides clear evidence of the nature (synergistic or buffering) of this moderating effect.

1. Results of hierarchical moderation regression analysis: Stage 1

The results of the hierarchical moderation regression analysis are presented below. Table 4 depicts the outcomes of a regression analysis conducted on two research models with tax avoidance (DDBTD) and donations (DON) as independent variables, respectively. This analysis represents the initial stage in verifying the moderating effect of donations, a proxy variable for social responsibility activities, on the relationship between tax avoidance and corporate value. The results of the analysis of Models 1 and 2, as presented in Table 4, demonstrate the impact of incorporating the primary independent variable, tax avoidance (DDBTD), and the moderating variable, donations (DON), into the regression model equation with corporate value as the dependent variable. This constitutes the initial stage of the hierarchical moderation regression analysis. The results of the analysis of Model 1, which tests the relationship between tax avoidance and corporate value using tax avoidance as the primary independent variable, are presented in the left-hand column of Table 4. Upon examination of the analysis results, it can be observed that the F-value, which serves to indicate the statistical significance

of the entire research model, has a value of 58.74, thereby indicating a statistically significant result at the 1% level. Additionally, the Adj-R^2 value, which is indicative of the degree to which the independent variables are able to explain the dependent variable within the context of a regression analysis, has a value of 0.1480. Moreover, the maximum value of the variance inflation factor (VIF) is 1.12690, indicating a minimal probability of multicollinearity.

Table 4. Verification of corporate value relevance of tax avoidance by donation: Stage 1.

Variable	Model 1				Model 2			
	coefficient	t-value	Pr > |t|	VIF	coefficient	t-value	Pr > |t|	VIF
(constant)	5.53381	13.48	<0.0001	0	5.71520	13.59	<0.0001	0
BV	0.84755	18.77	<0.0001	1.08226	0.81317	17.53	<0.0001	1.08245
NI	1.91580	8.68	<0.0001	1.16010	2.22030	9.98	<0.0001	1.12277
DDBTD	2.19648	9.21	<0.0001	1.09835				
DON					129.24553	23.05	<0.0001	1.04541
TOP	−0.95873	−6.58	<0.0001	1.04039	−0.92271	−6.17	<0.0001	1.04058
GRW	0.03527	6.51	<0.0001	1.01243	0.02899	5.21	<0.0001	1.01217
AGE	−0.32668	−10.61	<0.0001	1.12690	−0.34313	−10.84	<0.0001	1.12701
∑*YD*	Included				Included			
∑*ID*	Included				Included			
F-Value	58.74***				71.68***			
Adj-R^2	0.1480				0.1753			
Sample size after removing outliers	10,640				10,643			

Note: 1) Model 1: $MV_{i,t} = \beta_0 + \beta_1 BV_{i,t} + \beta_2 NI_{i,t} + \beta_3 DDBTD_{i,t} + \beta_4 TOP_{i,t} + \beta_5 GRW_{i,t} + \beta_6 AGE_{i,t} + \beta_7 \sum ID + \beta_8 \sum YD + \varepsilon_{i,t}$. 2) Model 2: $MV_{i,t} = \beta_0 + \beta_1 BV_{i,t} + \beta_2 NI_{i,t} + \beta_3 DON_{i,t} + \beta_4 TOP_{i,t} + \beta_5 GRW_{i,t} + \beta_6 AGE_{i,t} + \beta_7 \sum ID + \beta_8 \sum YD + \varepsilon_{i,t}$. 3) Variable description: $MV_{i,t}$: stock price as of the end of March of year t+1 / sales in year t. $BV_{i,t-1}$: book value of net assets at the end of year t-1 / sales in year t. $NI_{i,t}$: net income for the year t / sales in year t. $DDBTD_{i,t}$: tax avoidance in year t [the portion where the difference between accounting profit and taxable income (BTD) cannot be explained by the total accrual]. $DON_{i,t}$: total donations in year t / sales in year t. $DDBTD \times DON_{i,t}$: product of tax avoidance variable and donations (control variable). $TOP_{i,t}$: largest shareholder's stake. $GRW_{i,t}$: sales growth rate [(current sales – previous period sales) ÷ previous period sales]. $AGE_{i,t}$: company age (natural log value of company age). ∑*YD*: year dummy. ∑*ID*: industry dummy. 4) *** < 0.01, ** < 0.05.

The coefficient value of the primary independent variable, tax avoidance (DDBTD), is 2.19648, indicating statistically significant results at the 1% level. Among the independent variables, the book value of capital (BV), net income (NI), and sales growth rate (GRW) demonstrate significant positive coefficient values at the 1% level. Conversely, the largest shareholder's equity ratio (TOP) and corporate age (AGE) exhibit significant negative coefficient values at the 1% level.

The following section presents the results of Model 2, which examines the relationship between corporate value and donations (DON), representing corporate social responsibility, as the primary independent variable. These findings are illustrated in the right column of Table 4. Upon examination of the analysis results, it can be observed that the F-value, which serves to indicate the statistical

significance of the entire research model, reaches a value of 71.68, thereby demonstrating a statistically significant result at the 1% level.

Additionally, the Adj-R^2 value, which is indicative of the extent to which the independent variables are able to explain the dependent variable within the context of a regression analysis, reaches a value of 0.1753. Moreover, the maximum value of the VIF is 1.12701, indicating a minimal probability of multicollinearity. The coefficient value of the primary independent variable, donations (DON), is 131.46583, indicating statistical significance at the 1% level. The coefficient values of the remaining independent variables are largely consistent with the results of Model 1.

The results of Stage 1 establish the independent significance of both tax avoidance and donations in explaining corporate value. This forms a foundational baseline for further investigation into the moderating effect of donations on the relationship between tax avoidance and corporate value in subsequent stages of the hierarchical regression analysis.

2. Results of the hierarchical moderated regression analysis: Stage 2

Table 5 presents the results of Model 3, which employed a hierarchical moderated regression analysis to examine the moderating effect of donations (proxy for social responsibility activities) on the relationship between tax avoidance and corporate value. Tax avoidance (DDBTD) and donations (DON) were entered as independent variables in the second stage of the analysis.

The analysis results indicate that the maximum value of the VIF is 1.17074, which suggests that the probability of multicollinearity is minimal. Furthermore, the F-value, which indicates the statistical significance of the entire research model, is 73.35, which is statistically significant at the 1% level. This value is an improvement over the 58.74 and 71.68 shown in the analysis results of Models 1 and 2 in Table 4. Furthermore, the Adj-R^2 value, which indicates the degree to which the independent variables explain the dependent variable in the regression analysis, is 0.1833, representing an increase from the 0.1480 and 0.1753 values observed for Models 1 and 2, respectively, in Table 4.

The coefficient value of the primary independent variable, tax avoidance (DDBTD), is 2.23547, representing an increase from the coefficient value of the initial stage (2.19648). The coefficient value of the moderating variable, donations (DON), is 128.33431, exhibiting a slight decline from the coefficient value of the initial stage (129.24553). As demonstrated in Table 5, the fact that the F value is statistically significant and continues to increase in each stage of the hierarchical moderated regression analysis indicates that donations, a proxy variable for social responsibility activities, exert an effect as a moderating variable on the corporate value relevance of tax avoidance. Furthermore, the increase in the Adj-R^2 value (which indicates the explanatory power of independent variables on the dependent variable) in each stage provides additional evidence in support of this conclusion. Additionally, the observation that the coefficient value of tax avoidance increases while the coefficient value of donations decreases as the analysis progresses from the first to the second stage demonstrates that donations exert an influence as a moderating variable on the corporate value relevance of tax avoidance.

The hierarchical moderated regression analysis clearly demonstrates that donations (social responsibility activities) have a moderating effect on the relationship between tax avoidance and corporate value. This suggests that companies engaging in socially responsible activities (donations) can moderate and enhance the positive value relevance of tax avoidance.

Table 5. Verification of corporate value relevance of tax avoidance by donation: stage 2 (input of moderator variables).

Variable	Model 3			
	coefficient	t-value	Pr > |t|	VIF
(Constant)	5.37675	12.89	<0.0001	0
BV	0.81060	17.66	<0.0001	1.08250
NI	1.80492	8.03	<0.0001	1.17074
DDBTD	2.23547	9.22	<0.0001	1.10025
DON	128.33431	23.52	<0.0001	1.04602
TOP	-0.90230	-6.10	<0.0001	1.04065
GRW	0.02568	4.66	<0.0001	1.01649
AGE	-0.32789	-10.47	<0.0001	1.12890
$\sum YD$	Included			
$\sum ID$	Included			
F-Value	73.35***			
Adj-R^2	0.1833			
Sample size after removing outliers	10,642			

Note: 1) Model 3: $MV_{i,t} = \beta_0 + \beta_1 BV_{i,t} + \beta_2 NI_{i,t} + \beta_3 DDBTD_{i,t} + \beta_4 DON_{i,t} + \beta_5 TOP_{i,t} + \beta_6 GRW_{i,t} + \beta_7 AGE_{i,t} + \beta_8 \sum ID + \beta_9 \sum YD + \varepsilon_{i,t}$. 2) Variable description: $MV_{i,t}$: stock price as of the end of March of year t+1 / sales in year t. $BV_{i,t-1}$: book value of net assets at the end of year t-1 / sales in year t. $NI_{i,t}$: net income for the year t / sales in year t. $DDBTD_{i,t}$: tax avoidance in year t [the portion where the difference between accounting profit and taxable income (BTD) cannot be explained by the total accrual]. $DON_{i,t}$: total donations in year t / sales in year t. $DDBTD \times DON_{i,t}$: product of tax avoidance variable and donations (control variable). $TOP_{i,t}$: largest shareholder's stake. $GRW_{i,t}$: sales growth rate [(current sales – previous period sales) ÷ previous period sales]. $AGE_{i,t}$: company age (natural log value of company age). $\sum YD$: year dummy. $\sum ID$: industry dummy. 3) *** < 0.01, ** < 0.05

3. Results of hierarchical moderated regression analysis: Stage 3

Table 6 illustrates the findings of Model 4, which employed a hierarchical moderated regression analysis to investigate the moderating effect of donations (proxy variable representing social responsibility activities) on the relationship between tax avoidance and corporate value. The analysis included the interaction variable (DDBTD*DON) in addition to tax avoidance (DDBTD) and donation (DON) variables in the third stage of the hierarchical moderated regression analysis.

The examination of the analytical results indicates that the highest value of the VIF is 1.74575, suggesting a negligible probability of multicollinearity. Furthermore, the F-value, which indicates the statistical significance of the entire research model, is 76.37, which is statistically significant at the 1% level. This value is an improvement over the F-value shown in the analysis results of Models 1 and 2 in Table 4 and Model 3 in Table 5. Furthermore, the Adj-R^2 value, which indicates the degree to which the independent variables explain the dependent variable in the regression analysis, is 0.1941, which also demonstrates an increased value in comparison to Model 1 and Model 2 in Table 4, as well as Model 3 in Table 5.

The coefficient values of the main independent variables, tax avoidance (DDBTD) and donations (DON), are 1.37544 and 77.77325, respectively. These values are lower than those observed in stages 1 and 2. However, the coefficient value of the interaction variable (DDBTD*DON) is 416.28712, which demonstrates a significant positive value at the 1% level.

As illustrated in Table 6, the F-value and Adj-R^2 value demonstrate an increase in each stage, while the coefficient value of the interaction variable exhibits a statistically significant positive (+) value. This indicates that donations, a proxy variable for social responsibility activities, serve as a moderating variable that further strengthens the effect of tax avoidance on corporate value.

The results confirm that donations, acting as a proxy for social responsibility activities, significantly moderate the relationship between tax avoidance and corporate value. This finding underscores the importance of corporate social responsibility (CSR) efforts in enhancing the impact of tax avoidance strategies on corporate value. The analysis demonstrates that as companies increase their donation expenditures, the positive impact of tax avoidance on corporate value becomes more pronounced, emphasizing the strategic role of CSR activities in improving financial outcomes for companies.

Table 6. Verification of the relevance of tax avoidance to corporate value by donation: Stage 3 (input of interaction variable).

Variable	Model 4			
	coefficient	t-value	Pr > |t|	VIF
(Constant)	5.40301	13.03	<0.0001	0
BV	0.81895	17.96	<0.0001	1.08275
NI	1.76880	7.92	<0.0001	1.17095
DDBTD	1.37544	5.47	<0.0001	1.19803
DON	77.77325	11.20	<0.0001	1.65937
*DON*DDBTD*	416.28712	11.98	<0.0001	1.74575
TOP	−0.89436	−6.08	<0.0001	1.04067
GRW	0.02238	4.08	<0.0001	1.01905
AGE	−0.32281	−10.37	<0.0001	1.12911
∑*YD*	Included			
∑*ID*	Included			
F-Value	76.37***			
Adj-R^2	0.1941			
Sample size after removing outliers	10,642			

Note: 1) Model 4: $MV_{i,t} = \beta_0 + \beta_1 BV_{i,t} + \beta_2 NI_{i,t} + \beta_3 DDBTD_{i,t} + \beta_4 DON_{i,t} + \beta_5 DDBTD*DON_{i,t} + \beta_6 TOP_{i,t} + \beta_7 GRW_{i,t} + \beta_8 AGE_{i,t} + \beta_9 \sum ID + \beta_{10} \sum YD + \varepsilon_{i,t}$. 2) Variable description: $MV_{i,t}$: stock price as of the end of March of year t+1 / sales in year t. $BV_{i,t-1}$: book value of net assets at the end of year t-1 / sales in year t. $NI_{i,t}$: net income for the year t / sales in year t. $DDBTD_{i,t}$: tax avoidance in year t [the portion where the difference between accounting profit and taxable income (BTD) cannot be explained by the total accrual]. $DON_{i,t}$: total donations in year t / sales in year t. $DDBTD \times DON_{i,t}$: product of tax avoidance variable and donations (control variable). $TOP_{i,t}$: largest shareholder's stake. $GRW_{i,t}$: sales growth rate [(current sales – previous period sales) ÷ previous period sales]. $AGE_{i,t}$: company age (natural log value of company age). $\sum YD$: year dummy. $\sum ID$: industry dummy. 3) ***<0.01, **<0.05.

4.6. Additional analysis

4.6.1. Additional analysis 1: Corporate classification by donation size (median)

Table 7 illustrates the outcomes of examining the moderating influence of donations, a surrogate indicator for social responsibility initiatives, on the correlation between tax avoidance and corporate value. This is achieved by categorizing the upper and lower corporate groups based on the median donation amount. Table 7 presents the results of Model 4, which employed a regression analysis by entering tax avoidance (DDBTD), donations (DON), and the interaction variable (DDBTD*DON) as the third stage of the moderated regression analysis, as illustrated in Table 6.

The results of the analysis for the lowest corporate group, based on the median donation amount, are presented in the left-hand column of Table 7. The analysis results for the bottom group indicate that the VIF reaches a maximum value of 2.87684, which suggests that the probability of multicollinearity is minimal. Furthermore, the F-value, which indicates the statistical significance of the entire research model, is 29.06, which is statistically significant at the 1% level. The coefficients of the primary independent variables, tax avoidance (DDBTD) and donations (DON), are −0.19775 and −20.14033, respectively, indicating statistically insignificant coefficients. However, the coefficient of the interaction variable (DDBTD*DON) is 13,105, demonstrating a significant positive coefficient at the 1% level. Although the coefficients of tax avoidance and donations are statistically insignificant, the coefficient of the interaction variable is significant, thereby confirming that donations serve as a moderating variable in the corporate value relevance of tax avoidance in the lower donation group.

The results of the analysis of the top company group, based on the median, are presented in the right-hand column of Table 7. In the analysis results of the subgroup, the maximum value of the VIF is 1.91096, indicating a minimal probability of multicollinearity. Moreover, the F-value, which indicates the statistical significance of the entire research model, is 41.29, which is statistically significant at the 1% level. The coefficients of the primary independent variables, tax avoidance (DDBTD) and donations (DON), are 2.18856 and 63.55731, respectively, and are both statistically significant at the 1% level. The coefficient of the interaction variable (DDBTD*DON) is also 423.87086, which is a significant positive coefficient at the 1% level. The results demonstrate that both tax avoidance and donations contribute to an increase in corporate value, but not only in the upper donation group: donations serve as a moderating variable in the corporate value relevance of tax avoidance. Thus, the greater the donation amount, the greater the impact of tax avoidance on corporate value.

In both the bottom group (lower donation companies) and the top group (higher donation companies), donations serve as a moderating variable, enhancing the relationship between tax avoidance and corporate value. For the bottom group, even though the individual coefficients for tax avoidance and donations are not statistically significant, the interaction variable indicates that donations still have a positive moderating effect. In the top group, donations and tax avoidance both significantly contribute to corporate value, with donations intensifying the positive effect of tax avoidance on corporate value.

This analysis supports the idea that the moderating role of donations in the relationship between tax avoidance and corporate value is present in both lower and higher donation groups, but the impact is more substantial in the top group. As donations increase, the positive influence of tax avoidance on corporate value strengthens. This further underscores the importance of corporate social responsibility

activities (represented by donation expenditures) in enhancing the financial performance and value of a company through tax avoidance strategies.

Table 7. Verification of corporate value relevance of tax avoidance according to donation: Classification based on the median of donations.

Variable	Subgroup (Model 4)				Upper group (Model 4)			
	coefficient	t-value	Pr > |t|	VIF	coefficient	t-value	Pr > |t|	VIF
(Constant)	5.42506	11.40	<0.0001	0	5.97580	8.53	<0.0001	0
BV	0.69163	13.20	<0.0001	1.09377	0.82242	10.65	<0.0001	1.08504
NI	0.92944	3.66	0.0003	1.29328	3.08727	7.61	<0.0001	1.21912
DDBTD	−0.19775	−0.56	0.5789	2.13111	2.18856	4.52	<0.0001	1.37779
DON	−20.14033	−0.07	0.9477	1.85375	63.55731	7.32	<0.0001	1.65880
*DON*DDBTD*	13,105	5.48	<0.0001	2.87684	423.87086	9.37	<0.0001	1.91096
TOP	−0.44092	−2.64	0.0082	1.04548	−1.51027	−6.05	<0.0001	1.04192
GRW	−0.04674	−1.14	0.2553	1.18652	0.02138	3.14	0.0017	1.02261
AGE	−0.33670	−9.44	<.0001	1.16092	−0.34400	−6.55	<0.0001	1.11781
∑*YD*	Included				Included			
∑*ID*	Included				Included			
F-Value	29.06***				41.29***			
Adj-R^2	0.1519				0.2049			
Sample size after removing outliers	5,328				5,317			

Note: 1) Model 4: $MV_{i,t}= \beta_0 +\beta_1 BV_{i,t} + \beta_2 NI_{i,t} + \beta_3 DDBTD_{i,t} + \beta_4 DON_{i,t} + \beta_5 DDBTD*DON_{i,t} + \beta_6 TOP_{i,t} + \beta_7 GRW_{i,t} + \beta_8 AGE_{i,t} + \beta_9 \sum ID + \beta_{10} \sum YD + \varepsilon_{i,t}$. 2) Variable description: $MV_{i,t}$: stock price as of the end of March of year t+1 / sales in year t. $BV_{i,t-1}$: book value of net assets at the end of year t-1 / sales in year t. $NI_{i,t}$: net income for the year t / sales in year t. $DDBTD_{i,t}$: tax avoidance in year t [the portion where the difference between accounting profit and taxable income (BTD) cannot be explained by the total accrual]. $DON_{i,t}$: total donations in year t / sales in year t. $DDBTD \times DON_{i,t}$: product of tax avoidance variable and donations (control variable). $TOP_{i,t}$: largest shareholder's stake. $GRW_{i,t}$: sales growth rate [(current sales – previous period sales) ÷ previous period sales]. $AGE_{i,t}$: company age (natural log value of company age). $\sum YD$: year dummy. $\sum ID$: industry dummy. 3) *** < 0.01, ** < 0.05.

4.6.2. Additional analysis 2: Corporate classification by donation size (quartile)

Table 8 illustrates the moderating effect of donations, a proxy variable for social responsibility activities, on the relationship between tax avoidance and corporate value. This is achieved by dividing the top corporate group (top, top) and the bottom corporate group (bottom, bottom) based on donation quartiles. Table 8 presents the results of Model 4, which employed a regression analysis by entering tax avoidance (DDBTD), donations (DON), and the interaction variable (DDBTD*DON) as the third stage of the moderated regression analysis, as in Table 7 and Table 6.

The results of the analysis for the lowest corporate group (1st quartile), based on quartiles, are presented in the leftmost column of Table 8. The analysis results for the lowest group indicate that the

VIF reaches a maximum value of 3.02383, which suggests that the probability of multicollinearity is minimal. Furthermore, the F-value, which indicates the statistical significance of the entire research model, is 26.51, which is statistically significant at the 1% level. The coefficient values of the major independent variables, tax avoidance (DDBTD) and donations (DON), and the interaction variable (DDBTD*DON), are 0.34450, 3180.95873, and −8093.74797, respectively. These values indicate that the coefficients are statistically insignificant. These findings substantiate the hypothesis that donations do not function as a moderating variable in the relationship between tax avoidance and corporate value in the lowest-performing companies.

The results of the analysis of the lower-ranking company (2nd quartile) group, based on the median, are presented in the second left column of Table 8. In the subgroup analysis, the maximum value of the VIF is 9.56356, which is below the 10-value criterion for the possibility of multicollinearity but higher than the values observed in the previous analysis.

The F-value, which indicates the statistical significance of the entire research model, is 11.75, which is statistically significant at the 1% level. The Adj-R^2 value, which indicates the explanatory power of the model, is 0.1206, which is the lowest value among the four quartile groups. The coefficient values of the primary independent variables, tax avoidance (DDBTD) and donations (DON), are −1.02912 and −871.32419, respectively, and both are statistically insignificant. However, the coefficient value of the interaction variable (DDBTD*DON) is 18.135, which is a significant positive coefficient value at the 1% level. These findings suggest that in the lower group, donations act as a moderating variable in the corporate value relevance of tax avoidance, with a positive correlation between the size of the donation and the impact of tax avoidance on corporate value.

The results of the analysis for the top companies (3rd quartile) group, based on the median, are presented in the first right column of Table 8. In the analysis results for the top group, the VIF reaches a maximum value of 10.69282, which exceeds the critical value of 10 for the possibility of multicollinearity. Although the VIF of the main independent variable exceeds the conventional threshold (VIF > 10), its coefficient remains highly significant at the 1% level and is theoretically relevant. As recommended by Gujarati and Porter (2009), Wooldridge (2016), and Hair et al. (2010), the variable is retained in the model to avoid omitted variable bias and ensure theoretical consistency. Therefore, it can be concluded that the relationship between the independent variables is significant.

The F-value, which indicates the statistical significance of the entire research model, is 23.94, which is statistically significant at the 1% level. The coefficient values of the primary independent variables, tax avoidance (DDBTD), and the interaction variable (DDBTD*DON), are −0.71575 and 3634.22168, respectively, indicating insignificant values. The coefficient value of the donation variable (DON) is −111.32633, which is statistically significant at the 5% level. These findings suggest that donations do not function as a moderating variable in the corporate value relevance of tax avoidance within the upper group (3rd quartile).

The results of the analysis of the top company (4th quartile) group, based on the median, are presented in the rightmost column of Table 8. In the analysis results of the top group, the VIF has a maximum value of 2.07211, indicating a very low probability of multicollinearity.

The F-value, which indicates the statistical significance of the entire research model, is 24.51, which is statistically significant at the 1% level. The coefficients of the major independent variables, tax avoidance (DDBTD) and donations (DON), and the interaction variable (DDBTD*DON), are 2.09737, 390.54009, and 1.34841, respectively. These values are statistically significant at the 1% level. The results demonstrate that in the top group (4th quartile), both tax avoidance and donations exert a

significant influence on the enhancement of corporate value. As donations rise, the correlation between tax avoidance and corporate value also intensifies.

In the 1st and 2nd quartiles (lower donation groups), donations have a minimal or negative impact on the moderating effect of tax avoidance on corporate value. In the 3rd quartile, donations do not moderate the effect, although there is a significant influence of donations on corporate value.

The most significant results are observed in the 4th quartile (the highest donation group), where both tax avoidance and donations play an important role in enhancing corporate value. As donations increase, the correlation between tax avoidance and corporate value becomes stronger.

The moderating effect of donations on the relationship between tax avoidance and corporate value becomes more pronounced in the highest donation quartile (4th quartile), supporting the notion that significant donation expenditures strengthen the positive impact of tax avoidance on corporate value. In contrast, for companies with lower donation expenditures, the moderating effect is weaker or absent.

Table 8. Verification of corporate value relevance of tax avoidance by donation: Classification by donation size (quartile).

Variable	1st quartile (Model 4)				2nd quartile (Model 4)				3rd quartile (Model 4)				4th quartile (Model 4)			
	coefficient	t-value	Pr > |t|	VIF	coefficient	t-value	Pr > |t|	VIF	coefficient	t-value	Pr > |t|	VIF	coefficient	t-value	Pr > |t|	VIF
(Constant)	3.17490	8.10	<0.0001	0	7.58372	9.07	<0.0001	0	5.12647	8.06	<0.0001	0	3.99280	3.24	0.0012	0
BV	0.95930	16.20	<0.0001	1.14862	0.08373	2.70	0.0070	1.02471	0.94157	11.55	<0.0001	1.10974	1.15206	7.57	<0.0001	1.06328
NI	0.84804	4.39	<0.0001	1.29706	1.75172	3.61	0.0003	1.33201	1.69741	3.93	<0.0001	1.34841	5.73739	9.56	<0.0001	1.18582
DDBTD	0.34450	1.18	0.2365	2.44606	−1.02912	−0.75	0.4510	8.85104	−0.71575	−0.55	0.5809	9.92712	2.09737	2.69	0.0073	1.50970
DON	3180.95873	3.70	0.0002	1.77042	−871.32419	−1.27	0.2060	1.95448	−111.32633	2.21	0.0271	2.05486	1.34841	5.83	<0.0001	1.63846
*DON*DDBTD*	−8093.74797	−1.19	0.2332	3.02383	18,135	3.00	0.0027	9.56356	3634.22168	−0.61	0.5423	10.69282	390.54009	6.81	<0.0001	2.07211
TOP	−0.05840	−0.43	0.6641	1.05373	−1.21537	−4.11	0.8196	1.05318	−0.87077	−3.76	0.0002	1.05287	−1.65796	−4.05	<0.0001	1.05774
GRW	−0.01535	−0.48	0.6282	1.17585	−0.09344	−1.23	0.2204	1.22210	0.76532	8.00	<0.0001	1.12826	0.01735	2.13	0.0336	1.03369
AGE	−0.21308	−7.32	<0.0001	1.16918	−0.44409	−7.12	<0.0001	1.15869	−0.32041	−6.96	<0.0001	1.09967	−0.16244	−1.77	0.0768	1.17875
∑*YD*	Included				Included				Included				Included			
∑*ID*	Included				Included				Included				Included			
F-Value	26.51***				11.75***				23.94***				24.51***			
Adj-R2	0.2479				0.1206				0.2281				0.2311			
Sample size after removing outliers	2,633				2,667				2,640				2,660			

Note: 1) Model 4*:* $MV_{i,t} = \beta_0 + \beta_1 BV_{i,t} + \beta_2 NI_{i,t} + \beta_3 DDBTD_{i,t} + \beta_4 DON_{i,t} + \beta_5 DDBTD*DON_{i,t} + \beta_6 TOP_{i,t} + \beta_7 GRW_{i,t} + \beta_8 AGE_{i,t} + \beta_9 \sum ID + \beta_{10} \sum YD + \varepsilon_{i,t}$.) Variable description: $MV_{i,t}$: stock price as of the end of March of year t+1 / sales in year t. $BV_{i,t-1}$: book value of net assets at the end of year t-1 / sales in year t. $NI_{i,t}$: net income for the year t / sales in year t. $DDBTD_{i,t}$: tax avoidance in year t [the portion where the difference between accounting profit and taxable income (BTD) cannot be explained by the total accrual]. $DON_{i,t}$: total donations in year t / sales in year t. $DDBTD \times DON_{i,t}$: product of tax avoidance variable and donations (control variable). $TOP_{i,t}$: largest shareholder's stake. $GRW_{i,t}$: sales growth rate [(current sales – previous period sales) ÷ previous period sales]. $AGE_{i,t}$: company age (natural log value of company age). $\sum YD$: year dummy. $\sum ID$: industry dummy. 3) *** < 0.01, ** < 0.05

5. Conclusions

5.1. Summary

This study examines the impact of donation expenditures and tax avoidance on corporate value, focusing on companies listed on the Korean Stock Exchange and KOSDAQ from 2000 to 2021. Specifically, it explores whether donation expenditures moderate the relationship between tax avoidance and firm value. By employing a hierarchical regression framework based on Ohlson's (1995) valuation model, the study provides new empirical evidence on the intersection of tax strategy and corporate social responsibility (CSR) in the Korean context.

The empirical findings indicate that both donation expenditures and tax avoidance are positively associated with corporate value in Korea's capital market. More importantly, donation expenditures function as a positive moderator in the relationship between tax avoidance and firm value. Additional subgroup and quartile analyses show that this moderating effect is significantly stronger in firms with the highest levels of donation spending. In contrast, the moderating effect is statistically insignificant in firms with low to moderate donation levels.

These results suggest that donation expenditures may only enhance the positive effect of tax avoidance on firm value once they exceed a certain threshold. In such cases, donations could serve as a signaling mechanism or a reputational buffer that amplifies the perceived legitimacy of tax strategies. However, it is important to emphasize that the study does not suggest that donations are used unethically for tax evasion. Rather, the findings imply that, in certain institutional settings, well-managed donation policies may strategically interact with tax practices to influence market valuation—without necessarily breaching legal or ethical standards.

This study contributes to the literature in several ways. First, unlike prior studies that rely primarily on qualitative CSR scores provided by rating agencies (e.g., Lanis & Richardson, 2012; Hoi et al., 2013), this research employs a concrete accounting measure—donation expenditures—from firms' financial statements, thereby enhancing construct validity. Second, the analysis focuses on Korea, a country with unique institutional features, such as relatively transparent donation disclosures and a tax code that includes specific incentives for corporate philanthropy. These contextual factors provide a useful setting to examine the nuanced role of donation behavior in shaping the link between tax avoidance and firm value. Thus, the study extends existing international literature by introducing a country-specific lens that captures the complexity of CSR-tax dynamics in East Asia.

5.2. Limitations and future research

Several limitations should be acknowledged. First, the use of Ohlson's (1995) model, while well-established in valuation research, may constrain the analytical scope. Future research should explore alternative modeling approaches—such as structural equation modeling or industry-adjusted panel regressions—to test the robustness of the moderating effect. Second, the current measure of donation intensity, defined as donation expenditure divided by sales, may be influenced by firm size and scale effects. Subsequent studies could enhance robustness by using alternative metrics such as donation-to-assets ratios or industry-adjusted donation levels.

Third, while this study focuses on the moderating role of donations, future research could investigate whether donation behavior mediates the relationship between tax practices and firm value. Mediation analysis would help disentangle whether donations merely influence the strength of this relationship (as a moderator) or constitute part of the transmission pathway (as a mediator).

Finally, it is essential to interpret the term "strategic use of donations" cautiously. While the findings indicate that donations may reinforce the positive valuation effects of tax avoidance, this does not imply unethical behavior. Future studies should more clearly distinguish between ethically motivated CSR and tax-optimized donation strategies, potentially by incorporating qualitative case studies or survey-based evidence to supplement quantitative results.

Use of AI tools declaration

The authors declare they have not used Artificial Intelligence (AI) tools in the creation of this article.

Acknowledgments

We thank the editor and the anonymous referees for their scrutiny of our paper.

Conflict of interest

All author declares no conflicts of interest in this paper.

References

Aboody D, Lev B (2001) *R&D productivity in the chemical industry*. Working paper, New York University.

Aiken LS, West SG (1991) *Multiple regression: Testing and interpreting interactions*. Sage Publications.

Black BS, Kim W, Jang H (2006) Does corporate governance affect firm value? Evidence from Korea. *J Law Econ Organ* 22: 366–413. https://doi.org/10.1093/jleo/ewj018

Bohnstedt GW, Knoke D (1994) *Statistics of social data analysis*. Peacock Publishers.

Choi GD, Kim KS, Ryu HS (2015) Business strategy and tax avoidance. *Korean Accounting Review* 40: 271–326. [In Korean]

Choi MH (2015) The effect of corporate social responsibility on tax aggressiveness and cost of capital. *Accounting Information Review* 33: 161–193. [In Korean]

Davis AK, Guenther DA, Krull LK, et al. (2016) Do socially responsible firms pay more taxes? *Account Rev* 91: 47–68. https://doi.org/10.2308/accr-51224

Desai MA, Dyck A, Zingales A (2007) Theft and taxes. *J Financ Econ* 84: 591–623. https://doi.org/10.1016/j.jfineco.2006.05.005

Desai M, Dharmapala D (2006) Corporate tax avoidance and high-powered incentives. *J Financ Econ* 79: 145–179. https://doi.org/10.1016/j.jfineco.2005.02.002

Graff Zivin J, Small A (2005) A Modigliani-Miller theory of altruistic corporate social responsibility. *B E J Econ Anal Policy* 5: 1–19. https://doi.org/10.1515/1538-0653.1369

Griliches Z, Mairesse J (1984) *Productivity and R&D at the firm level,* In: R&D, *patent and productivity (pp. 339–374).* University of Chicago Press.

Gujarati DN, Porter DC (2009) *Basic Econometrics* (5th ed.). McGraw-Hill Education.

Hair JF, Black WC, Babin BJ, et al. (2010) *Multivariate Data Analysis* (7th ed.). Pearson.

Hanlon M, Slemrod J (2009) What does tax aggressiveness signal? Evidence from stock price reaction to news about tax shelter involvement. *J Public Econ* 93: 126–141. https://doi.org/10.1016/j.jpubeco.2008.09.004

Heinkel R, Kraus A, Zechner J (2001) The effect of green investment on corporate behavior. *J Financ Quant Anal* 36: 431–449. https://doi.org/10.2307/2676219

Hoi CK, Wu Q, Zhang H (2013) Is corporate social responsibility (CSR) associated with tax avoidance? Evidence from irresponsible CSR activities. *Account Rev* 88: 2025–2059. https://doi.org/10.2308/accr-50544

Jensen K, Jakus P, English B, et al. (2002) *Willingness to pay for environmentally certified hardwood products by Tennessee consumers*. University of Tennessee, Department of Agricultural Economics, Study Series No. 01–02.

Jun JS (2011) Tax evasion and firm value: The role of corporate governance. *Public Finance Review* 4: 59–85. [In Korean]

Kennedy PE (1992) *A Guide to Econometrics*. MIT Press.

Ki ES (2012) The effect of corporate social responsibility on tax avoidance and the market response to tax avoidance. *Korean Journal of Taxation Research* 29: 107–136. [In Korean]

Koh YS, Kim JH, Choi WW (2007) A study on corporate tax avoidance. *Korean Journal of Taxation Research* 24: 9–40. [In Korean]

Kolodziej S, Niesiobędzka M (2022) Does charity donation lead to tax cheating? *Pol Psychol Bull* 53: 261–267. https://doi.org/10.24425/ppb.2022.143372

Kwon KJ (2012) The comparative value relevance of entertainment, advertising, and donation expenditures. *Korea International Accounting Review* 45: 321–346. [In Korean]

Lanis R, Richardson G (2012) Corporate social responsibility and tax aggressiveness: An empirical analysis. *J Account Public Policy* 31: 86–108. https://doi.org/10.1016/j.jaccpubpol.2011.10.006

Lev B, Sougiannis T (1996) The capitalization, amortization and value relevance of R&D. *J Account Econ* 21: 107–138. https://doi.org/10.1016/0165-4101(95)00410-6

Lev B, Petrovits C, Radhakrishnan S (2010) Is doing good for you? How corporate charitable contributions enhance revenue growth. *Strateg Manage J* 31: 182–200. https://doi.org/10.1002/smj.810

Miller A, Oats L (2014) *Principles of international taxation* (4th ed.). Bloomsbury Professional.

Myers SC (1977) Determinants of corporate borrowing. *J Financ Econ* 5: 147–175. https://doi.org/10.1016/0304-405X(77)90015-0

Ohlson JA (1995) Earnings, book values, and dividends in equity valuation. *Contemp Account Res* 11: 661–687. https://doi.org/10.1111/j.1911-3846.1995.tb00461.x

Park SH, Kim KS (2020) Tax aggressiveness and reputational costs. *Journal of Taxation and Accounting* 21: 155–188. [In Korean]

Park SO, Na HJ, Choi JU, et al. (2014). Donation and tax avoidance. *The Journal of Small Business Innovation* 17: 1–12. [In Korean]

Park S, Jang J, Jeung GC, et al. (2006) Corporate governance and earnings management: An empirical study. *Accounting Information Review* 24: 213–241. [In Korean]

Shin JW (2019) The study of relationship between corporate governance and corporate values on interim effect of short-term taxation and long-term taxation strategies. *Review of Accounting and Policy Studies* 24: 129–162. [In Korean]

Sikoski L (2020) The risk of tax avoidance through charitable donation in the U.S. art market. *University of Montana Conference on Undergraduate Research (UMCUR)*.

Son US, Yang DH, Lee SC, et al. (2012) A study on the effect of corporate governance structure on the relationship between tax sheltering and firm value. *Journal of Taxation and Accounting* 13: 385–419. [In Korean]

Sougiannis T (1994) The accounting valuation of corporate R&D. *Account Rev* 69: 44–68.

Teoh SH, Welch I, Wazzan CP (1999) The effect of socially activist investment policies on the financial markets: Evidence from the South African boycott. *J Bus* 72: 35–89. https://doi.org/10.1086/209602

Watson L (2015) Corporate social responsibility, tax avoidance, and earnings performance. *J Am Tax Assoc* 37: 1–21. https://doi.org/10.2308/atax-51022

Wooldridge JM (2016) *Introductory Econometrics: A Modern Approach* (6th ed.). Cengage Learning.

Wright P, Ferris S (1997) Agency conflict and corporate strategy: The effect of divestment on corporate value. *Strateg Manage J* 18: 77–83. https://doi.org/10.1002/(SICI)1097-0266(199701)18:1<77::AID-SMJ810>3.0.CO;2-R

AIMS Press