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THE MODERATING ROLE OF NON-DEBT TAX SHIELD ON PROFITABILITY DETERMINANTS

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ABSTRACT

This study examines the effects of intellectual capital, working capital, and leverage on firm profitability, with non-debt tax shield as a moderating variable. Despite the expansion of national infrastructure development, profitability among construction firms remains uneven, as several firms continue to exhibit weak financial performance despite operating under similar industry conditions. This situation suggests that increased project availability does not automatically translate into improved profitability, highlighting potential inefficiencies in the use of internal resources and financial strategies. The analysis is conducted using unbalanced panel data and a Fixed Effects Model. The findings show that intellectual capital and working capital do not have a significant direct effect on profitability, while leverage positively influences profitability. Furthermore, the non-debt tax shield strengthens the relationships between intellectual capital and profitability, as well as between leverage and profitability, but weakens the effect of working capital on profitability. These results highlight the importance of tax-based internal mechanisms in shaping firm profitability.

Keywords: Intellectual Capital, Working Capital, Leverage, Non-debt Tax Shield, Profitability.

INTRODUCTION

In a highly competitive construction industry, profitability represents a crucial indicator of a firm's ability to sustain operational performance and withstand increasing competitive and economic pressures (Cyril & Singla, 2021; Menoncin et al., 2025). Empirical evidence from construction companies listed on the Indonesia Stock Exchange illustrates the volatility of profitability within the sector. Based on 2023 data from 26 firms in the Heavy Constructions and Civil Engineering subsector (J211), return on assets (ROA) ranges widely from approximately -210% to +31%, indicating substantial disparities in profitability across firms. Several companies reported significant losses, such as PT Acset Indonusa Tbk. (-21%) and PT Meta Epsi Tbk. (-125%), while others achieved relatively strong profitability, including PT Paramita Bangun Sarana Tbk. (23%) and PT Total Bangun Persada Tbk. (5%). In addition, firm scale and financial structure vary considerably, with total assets ranging from approximately IDR 37 billion to IDR

99 trillion, and liabilities spanning IDR 5 billion to IDR 82 trillion, reflecting differing levels of financial exposure among firms. This wide dispersion in profitability and financial characteristics highlights the instability of profitability in the construction subsector and emphasizes the importance of effective financial management to sustain profitability amid dynamic economic conditions and intense industry competition (Esfahani et al., 2025; Nguyen & Nguyen, 2024).

Profitability is a measure of a company's ability to generate profits for shareholders from the invested capital. According to Wattanawarangkoon et al. (2022), profitability reflects a company's capacity to utilize its limited resources and develop a competitive advantage, so the company needs to emphasize the most influential factors to increase profits. Variables that affect company profitability that previous researchers have researched are intellectual capital (Kumar et al., 2022; E. Neves et al., 2026), working capital (Alarussi & Gao, 2023; Youssef et al., 2023), leverage (Horvey et al., 2025; Hu et al., 2026), non-debt tax shield (Kumar et al., 2022), solvency risk (Goswami & Malik, 2025), and growth (Kumar et al., 2022). This study focuses on intellectual capital, working capital, and leverage because these variables directly reflect key operational and financial mechanisms that affect profitability in construction companies. Other variables, such as solvency and growth, although examined in prior research, are not included here because they primarily reflect longer-term financial conditions or strategic outcomes, rather than direct operational drivers of profitability.

Intellectual capital is widely studied as a determinant of firm profitability because it enhances organizational efficiency. Tiwari (2022), examining healthcare firms in India (2009-2018), documents a positive relationship between intellectual capital and profitability, with capital employed efficiency as the main driver. Similarly, Singla & Rastogi (2025) find that intellectual capital improves firm performance in the Indian hospitality sector. In the banking industry, Akkas & Asutay (2023) report differing impacts of intellectual capital components among Islamic and conventional banks in GCC countries (2012-2020), while Mollah & Rouf (2022) show that only certain components significantly influence the performance of listed banks in Bangladesh (2014-2018). More recently, Faruq et al. (2023) used static and dynamic panel models on listed banks in Bangladesh (2015-2021) and found that although overall intellectual capital positively affects performance, its components exhibit heterogeneous effects. These findings across different countries, industries, and methodological approaches indicate that the relationship between intellectual capital and profitability remains inconclusive. Moreover, empirical evidence on the construction sector remains limited, underscoring the need for further investigation.

The next factor is working capital, which reflects the company's ability to manage assets smoothly to support operational activities. Effective working capital management is considered to improve operational efficiency, meet short-term obligations, and maintain financial stability. Some studies have found significant positive effects, e.g., Alarussi & Gao, 2023; EL-Chaarani et al., 2025; Youssef et al., 2023, who show that working capital management increases profitability. Niu (2024) found that working capital hoarding was negatively related to profitability when economic policy uncertainty was low, but became positive when uncertainty increased, while L. Chen (2024) documented that companies with higher data assets had stronger working capital and higher profitability. This inconsistency underscores the need for further research to understand the effects of working capital on profitability across different contexts.

Leverage is the third variable that affects profitability, as it reflects the use of debt to finance operations. Excessive debt can reduce solvency and liquidity, thereby

impairing the company's ability to generate profits. Babajee & Seetanah (2022) and Youssef et al. (2023) report a significant negative effect of leverage on ROA, while under certain conditions, increased debt can increase profitability when funds are used productively, as found by Babajee & Seetanah (2022) and M. E. Neves et al. (2024). Alarussi & Gao (2023) show that leverage's influence differs across performance indicators, suggesting that relationships are not always linear and can vary across industries and financial conditions. These differences in findings indicate the need for further research to more comprehensively test the relationship between leverage and profitability.

The novelty of this study lies in the use of non-debt tax shield (NDTS) as a moderating variable in explaining the relationship between intellectual capital, working capital, leverage, and firm profitability. Previous studies primarily treat NDTS as an independent variable or as a determinant of capital structure, while its role as a moderating mechanism remains largely unexplored, particularly in profitability studies. NDTS reflects tax savings obtained without relying on debt financing, mainly through depreciation and amortization expenses (Kumar et al., 2022). By incorporating NDTS as a moderator, this study seeks to explain the inconsistent findings in prior research regarding the effects of intellectual capital, working capital, and leverage on profitability. Efficient use of NDTS may strengthen the positive impact of internal resource management on profitability by enhancing tax efficiency.

In contrast, excessive depreciation and amortization expenses may weaken profitability even when firms exhibit sound operational performance. Therefore, NDTS is expected to condition the effectiveness of internal financial and operational factors in generating profits. The purpose of this study is to examine the effects of intellectual capital, working capital, and leverage on firm profitability, and to analyze the moderating role of the non-debt tax shield in shaping these relationships.

This study examines 18 construction companies listed on the Indonesia Stock Exchange during the 2018-2024 period using an unbalanced panel data approach, analyzed with Stata 17, and is grounded in the contemporary Resource-Based Theory (RBT) perspective (Bananuka et al., 2022; E. Neves et al., 2026), which emphasizes that the effective management of strategic internal resources drives profitability. In this context, intellectual capital, working capital, and leverage are treated as firm-specific resources whose contribution to profitability depends on managerial efficiency in resource utilization. At the same time, the non-debt tax shield (NDTS) is positioned as a financial mechanism that conditions the effectiveness of these resources by providing fiscal benefits without increasing financial risk. By incorporating NDTS as a moderating variable, this study not only re-examines the direct effects of internal resources on profitability but also provides a more comprehensive explanation of profitability dynamics in construction companies, particularly in relation to capital and tax management strategies, thereby contributing empirically to the recent RBT literature and financial management practices.

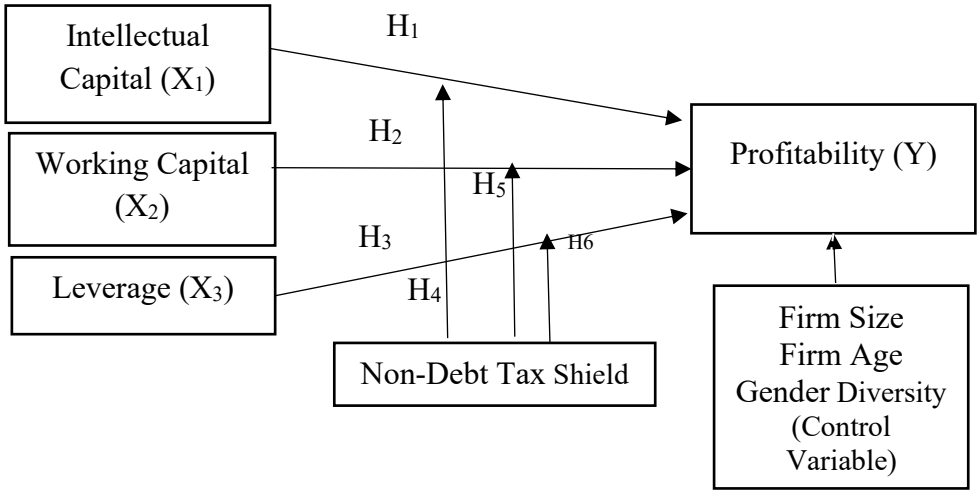

Figure 1. Conceptual Framework

This study is grounded in Resource-Based Theory (RBT), which emphasizes that profitability depends on the effective management of internal resources (E. Neves et al., 2026). Accordingly, intellectual capital, working capital, and leverage are treated as strategic resources that influence profitability. However, their effectiveness may vary across firms due to internal financial conditions. Therefore, non-debt tax shield (NDTS) is incorporated as a moderating variable, as tax savings from depreciation and amortization may either enhance profitability through tax efficiency or weaken it when associated with excessive non-cash expenses. Integrating NDTS into the RBT framework helps explain inconsistencies in prior empirical findings on firm profitability.

Intellectual capital is widely recognized as a key driver of firm profitability, particularly in knowledge-intensive industries where intangible assets play a dominant role in value creation. Intellectual capital enables firms to enhance innovation capacity, improve operational efficiency, and optimize productivity, thereby strengthening their ability to generate profits. Previous studies emphasize that firms with superior intellectual capital are better positioned to transform knowledge and organizational capabilities into economic value, which directly supports profitability growth (Maji & Hussain, 2021). In empirical research, intellectual capital efficiency is commonly measured using the Value-Added Intellectual Coefficient (VAIC™), which captures how effectively firms utilize human capital, structural capital, and capital employed to create value (Jordão & Novas, 2022; Marbun & Ulpah, 2024). Prior empirical evidence consistently demonstrates that higher intellectual capital efficiency is associated with improved financial performance and higher profitability, as effective knowledge management enhances competitive advantage and long-term value creation (E. Neves et al., 2026). Accordingly, based on existing literature and theoretical arguments, intellectual capital is expected to have a positive effect on firm profitability.

H_1 : Intellectual Capital Has A Positive Effect on Firm Profitability

Working capital reflects a firm's ability to manage current assets to support operational activities and meet short-term obligations. Efficient working capital management enhances a firm's flexibility in utilizing available funds and responding to business opportunities, thereby supporting profitability improvement (Youssef et al., 2023). Empirical evidence across industries shows that firms with effective working capital management tend to achieve higher profitability by optimizing the use of current assets without incurring additional costs from cash flow imbalances (Alarussi & Gao,

2023; Kumar et al., 2022). From the perspective of Resource-Based Theory, efficient working capital management is the effective utilization of internal resources. Efficient current asset management enables firms to maintain operational flexibility and exploit business opportunities, thereby creating a sustainable competitive advantage that is difficult for competitors to replicate. Accordingly, effective working capital management is expected to influence firm profitability positively.

H_2 : Working Capital Has A Positive Effect on Firm Profitability

Leverage indicates the extent to which a firm uses debt to finance its assets and operations. When managed effectively, debt serves not only as a source of funding but also as a control mechanism that encourages managerial discipline and greater transparency of information, thereby potentially enhancing firm profitability (Proença & Neves, 2022). Within the Resource-Based Theory framework, leverage can be viewed as a supporting instrument that enables firms to optimize the utilization of internal resources, such as physical assets, operational capabilities, and managerial competencies, to generate competitive advantage and higher profits. Maintaining leverage at an optimal level motivates management to use resources more efficiently, as interest and principal repayment obligations require disciplined and productive operational performance (Horvey et al., 2025). Furthermore, leverage adjustment is influenced by institutional quality: firms operating in stronger institutional environments are better positioned to use debt to support growth and profitability (Hu et al., 2026). These arguments suggest that leverage, when aligned with internal capacity and managerial capability, can strengthen firm profitability.

H_3 : Leverage Has A Positive Effect on Firm Profitability

Non-debt tax shield (NDTS) refers to tax savings from non-debt-related factors, such as depreciation and amortization, without increasing financial risk through additional borrowing (Kumar et al., 2022). Within the Resource-Based Theory framework, NDTS can be regarded as an internal resource that is valuable because it provides fiscal flexibility and enhances firm profitability. As a strategic resource that is relatively firm-specific and difficult to replicate, NDTS enables companies to optimize profit performance through efficient internal asset management, thereby strengthening competitive advantage (Almendros & Mira, 2018; Gabrielli, 2023). In a moderating role, NDTS is expected to condition the effectiveness of internal firm resources in generating profits. Efficient tax savings may amplify the positive effects of intellectual capital, working capital, and leverage on profitability by reducing tax burdens and improving net returns. Conversely, high non-cash expenses associated with NDTS may weaken profitability if not aligned with productive asset utilization. Prior empirical evidence suggests that NDTS has the potential to strengthen the relationship between internal firm factors and profitability, highlighting its relevance as a moderating mechanism rather than merely an independent determinant (Kumar et al., 2022).

Prior research on tax shields largely examines their role in shaping capital structure and firm valuation. For example, Fischer & Jensen (2019) and Norbäck et al. (2018) analyze the effects of debt tax shields on capital structure decisions and ownership efficiency. In the context of profitability, Kumar et al. (2022) investigate the non-debt tax shield (NDTS) in public–private partnership (PPP) projects and propose that NDTS negatively affects profitability, thereby positioning it as a direct explanatory variable. Beyond profitability models, broader tax-incentive studies demonstrate that tax-related policies influence firms' internal resource allocation, including innovation investment (Wu et al., 2025) and the alleviation of financial constraints (Zeng et al., 2023). While

these studies acknowledge the economic relevance of tax-related shields, they primarily treat NDTS as an independent determinant rather than as a conditional mechanism. Moreover, empirical evidence focusing on construction firms remains limited. Therefore, the role of NDTS as a moderating variable in transforming internal resources into profitability remains underexplored. This study addresses this gap by repositioning NDTS within the Resource-Based Theory framework. These findings suggest that the non-debt tax shield may condition the effectiveness of internal. Based on these arguments, the following hypotheses are proposed:

H_4 : Non-Debt Tax Shield Strengthens The Positive Effect of Intellectual Capital on Firm Profitability

H_5 : Non-Debt Tax Shield Strengthens The Positive Effect of Working Capital on Firm Profitability

H_6 : Non-Debt Tax Shield Strengthens The Positive Effect of Leverage on Firm Profitability

RESEARCH METHODS

This study employs a quantitative approach using secondary data from Refinitiv Eikon, covering firms listed on the Indonesia Stock Exchange (IDX) during 2018-2024. Using purposive sampling, 18 firms were selected based on two criteria: (1) firms consistently classified under the J211 sub-sector in the Indonesia Stock Exchange and under the Heavy Constructions & Civil Engineering classification in Refinitiv Eikon during the observation period, and (2) availability of at least four consecutive years of complete financial statements required to compute all research variables, including lagged components for Return On Average Equity (ROAE). These criteria result in an unbalanced panel dataset. Profitability is measured by ROAE, with intellectual capital, working capital, and leverage as independent variables and non-debt tax shield (NDTS) as a moderating variable. Firm size, firm age, and gender diversity are included as control variables. Panel regression analysis is conducted using Stata 17, and based on the Chow, Lagrange Multiplier, and Hausman tests, the Fixed Effects Model is selected. Robust standard errors are applied to address heteroskedasticity and autocorrelation. The analysis includes descriptive statistics, multicollinearity tests, and hypothesis testing using t-tests and F-tests. Statistical significance is evaluated at the 1%, 5%, and 10% levels, which are conventional thresholds widely adopted in empirical accounting and finance research (Solikhah & Weng, 2024).

Table 1.1. Variables Operationalization

No	Variable	Measurement	Scale
1.	Profitability (Adesina, 2021)	$\text{ROAE} \frac{\text{Net Profit After Tax}}{\text{/Average Total Equity}}$	Ratio
2.	Intellectual Capital (Akkas & Asutay, 2023)	$\text{HCE} = \frac{\text{Total Income – Operating Expense}}{\text{- Staff Expense}}$	Ratio
		$\text{SCE} = \frac{\text{Balance between equities and long-term liabilities}}{\text{. Total Income – Operating Expense}}$	

Table 1.2. Variables Operationalization (Continuation)

No	Variable	Measurement	Scale
		$\text{CEE} = \frac{\text{Total Income – Operating Expense}}{\text{: Balance between current assets and current liabilities}}$	
		$\text{VAIC™} = \text{HCE} + \text{SCE} + \text{CEE}$	
3.	Working Capital (M. E. Neves et al., 2024)	$\text{WCR} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$	Ratio
4.	Leverage (Proença & Neves, 2022)	$\text{Leverage} \frac{\text{= Total Debt}}{\text{/Total Equity}}$	Ratio
5.	Non-debt Tax Shield (Kumar et al., 2022)	$\text{NDTS} = \frac{\text{Depreciation Expense + Amortization Expense}}{\text{+ Total Assets}}$	Ratio
6.	Firm Size (Alarussi & Gao, 2023)	Natural logarithm of Total Assets	Ratio
7.	Firm Age (Abdullah et al., 2022)	The Natural Logarithm of the Age of the Company	Ratio
8.	Gender Diversity (E. Neves et al., 2026)	$\text{GD} = \frac{\text{Number of Female Board of Directors}}{\text{/Total Board of Directors}}$	Ratio

This study specifies panel regression models to examine the effects of intellectual capital, working capital, leverage, and control variables on firm profitability, as well as the moderating role of the non-debt tax shield (NDTS). A baseline model estimates the direct effects of the independent variables. In contrast, an extended model incorporates NDTS's main explanatory variable interactions to assess NDTS's moderating effect.

Basic model (without moderation):

$$ROAE_{it} = \alpha + \beta_1 X1_{it} + \beta_2 X2_{it} + \beta_3 X3_{it} + \beta_4 M_{it} + \beta_5 C1_{it} + \beta_6 C2_{it} + \beta_7 C3_{it} + \varepsilon_{it}$$

Models with NDTS moderation:

$$ROAE_{it} = \alpha + \beta_1 X1_{it} + \beta_2 X2_{it} + \beta_3 X3_{it} + \beta_4 M_{it} + \beta_5 (X1 * M)_{it} + \beta_6 (X2 * M)_{it} + \beta_7 (X3 * M)_{it} + \beta_8 C1_{it} + \beta_9 C2_{it} + \beta_{10} C3_{it} + \varepsilon_{it}$$

Table 2.1. Description of Regression Equations

Symbol	Description
α	Constanta
$\beta_1 X1_{it}$ $Intellectual\ Capital$	The direct influence of Intellectual Capital on Profitability
$\beta_2 X2_{it}$ Working Capital	The direct influence of Working Capital on Profitability
$\beta_3 X3_{it} Leverage$	Direct Influence of Leverage on Profitability
$\beta_4 M_{it}$ $NDTS$	The direct effect of Non-debt Tax Shield on Profitability

Table 2.2. Description of Regression Equations (Continuation)

Symbol	Description
$\beta_5(X1 * M)_{it}$ *Intellectual Capital x NDTS*	The Effect of Intellectual Capital and Non-debt Tax Shield Interaction on Profitability
$\beta_6(X2 * M)_{it}$ *Working Capital Ratio x NDTS*	The Effect of Working Capital and Non-debt Tax Shield Interaction on Profitability
$\beta_7(X3 * M)_{it}$ Leverage x NDTS	The Effect of Leverage and Non-debt Tax Shield Interaction on Profitability
$\beta_8 C1_{it}$ Firm Size	The direct influence of Firm Size as a control variable on Profitability
$\beta_9 C2_{it}$ Firm Age	The direct influence of Firm Age as a control variable on Profitability
$\beta_{10} C3_{it}$ Gender Diversity	The direct influence of Gender Diversity as a control variable on profitability

RESULTS AND DISCUSSION

The descriptive overview indicates that profitability among construction firms varies considerably, with several companies experiencing performance pressures during the observation period. Intellectual capital and working capital exhibit substantial heterogeneity, reflecting differences in how firms manage knowledge-based resources and operational liquidity. Leverage also shows noticeable variation, suggesting diverse financing strategies across firms. In contrast, the non-debt tax shield appears relatively consistent, indicating similar tax-saving patterns within the sector. Firm size and firm age are relatively stable, while gender diversity remains limited, highlighting the low representation of women on corporate boards in Indonesian construction companies. Prior to hypothesis testing, diagnostic checks indicate that the regression model does not suffer from multicollinearity. The variance inflation factor (VIF) values remain well below the commonly accepted threshold, with the highest VIF recorded at 1.430. It suggests that the explanatory variables are sufficiently independent and suitable for subsequent regression analysis.

Table 3. Model Test Results

ROAE	Coefficient	Robust Std. err	t	P-value
Cons	-2.277	1.392	-1.640	0.120
IC	0.000	0.001	0.840	0.412
WC	0.000	0.000	0.570	0.579
DER	0.029	0.002	15.580	0.000
NDTS	-3.478	1.864	-1.870	0.079
Firm Size	0.084	0.048	1.750	0.099
Firm Age	-0.093	0.047	-2.010	0.061
GD	0.361	0.326	1.110	0.282
R-Square			0.370	
Prob > F			0.000	

Source: Research Data, 2025

After incorporating the interaction terms, the model provides a clearer explanation of profitability dynamics than the baseline estimation, in which leverage is the only variable with a significant direct effect. The interaction between intellectual capital and

non-debt tax shield (NDTS) exhibits a positive and statistically significant effect at the 5% level, indicating that tax savings from non-debt sources strengthen the contribution of intellectual capital to profitability. In contrast, the interaction between working capital and NDTS is negative and statistically significant at the 10% level, providing marginal evidence that NDTS alters the relationship between working capital and profitability in an unfavorable direction. Meanwhile, the interaction between leverage and NDTS remains positive and highly significant at the 1% level, confirming that NDTS strongly reinforces the profitability effect of leverage. Overall, these results highlight NDTS as an important moderating mechanism that reshapes the relationship between internal financial factors and firm profitability. The negative signs of IC and DER in Model 2 reflect their conditional effects when NDTS equals zero, consistent with moderation models in which the total impact depends on the level of the interacting variable. These findings should also be interpreted within the context of the Indonesian construction industry during the 2018-2024 period, particularly the COVID-19 disruption, which intensified cash flow pressures and financing constraints, thereby increasing the strategic importance of leverage, tax efficiency, and adaptive intellectual capital management.

Table 4. MRA Results

ROAE	Coefficient	Robust Std. err	t	P-value
Cons	-2.035	1.991	-1.020	0.321
IC	-0.000	0.000	-0.470	0.643
WC	0.009	0.005	2.060	0.055
DER	-0.026	0.012	-2.210	0.041
NDTS	-9.980	4.686	-2.130	0.048
VAIC*NDTS	0.057	0.020	2.840	0.011
WC*NDTS	-0.772	0.375	-2.060	0.055
DER*NDTS	1.329	0.193	6.900	0.000
Firm Size	0.083	0.068	1.220	0.238
Firm Age	-0.067	0.035	-1.910	0.073
GD	0.512	0.315	1.620	0.123
R-Square			0.569	
Prob > F			0.000	

Source: Research Data, 2025

Effect of Intellectual Capital on Profitability

The empirical results indicate that intellectual capital, as measured by VAIC, does not have a significant effect on profitability, as proxied by ROAE. Therefore, H_1 is rejected, as the estimated coefficient is statistically insignificant ($p > 0.100$). Intellectual capital efficiency has not yet become a primary determinant of profitability in the sampled construction firms. This finding suggests that the management of intellectual capital has not directly enhanced shareholders' return on equity. From the perspective of Resource-Based Theory, this condition implies that although intellectual capital constitutes an internal resource, its utilization has not fully met the criteria of a productive source of competitive advantage in generating profits. In the Indonesian construction sector, intellectual capital alone may not directly translate into higher profitability, given the industry's project-based, capital-intensive nature. The result is inconsistent with the findings of Babajee & Seetanah (2022) and Maji & Hussain (2021), who document a positive relationship between VAIC and profitability, particularly in the long run and among firms with superior performance levels. However, this finding aligns with Maji &

Hussain's (2021) argument that the impact of intellectual capital becomes insignificant at lower performance quantiles, suggesting that VAIC's effectiveness is highly contingent on firms' internal conditions. Furthermore, Mollah & Rouf (2022) report that when VAIC is decomposed into its components, not all elements, especially structural capital efficiency, exhibit a significant relationship with firm profitability, which may explain the weak aggregate effect of VAIC on ROAE. Akkas & Asutay (2023) further highlight that the significance of intellectual capital is context-dependent and influenced by institutional characteristics and internal management systems. Meanwhile, Neves et al. (2026) demonstrate that the contribution of intellectual capital to profitability is heterogeneous and perceived differently by stakeholders. They may therefore not always be directly reflected in accounting-based profitability indicators. Overall, the insignificance of VAIC on ROAE in this study indicates that the role of intellectual capital in enhancing firm profitability is conditional and highly dependent on managerial effectiveness and firm-specific characteristics within the sample.

Effect of Working Capital on Profitability

The empirical results indicate that working capital, measured by the working capital ratio (WCR), does not significantly affect profitability (ROAE). Thus, H_2 is rejected, since the coefficient is positive but statistically insignificant. It implies that working capital management does not directly translate into profitability improvements in the sample firms. From a Resource-Based Theory (RBT) perspective, this finding suggests that working capital does not fully meet the criteria for a strategic resource capable of generating sustainable competitive advantage, as it is relatively easy to imitate and primarily operational in nature in the short term. Working capital efficiency appears less directly impactful on profitability in construction firms because project timelines and contract-based cash flows limit the immediate effect of operational liquidity. This result is consistent with the findings of Youssef et al. (2023) and Proença & Neves (2022), who argue that working capital is not perceived as a primary determinant of profitability but rather serves as a mechanism for maintaining financial stability. In addition, Kumar et al. (2022) document that the relationship between working capital and profitability tends to be positive yet statistically insignificant, as funds tied up in current assets may reduce the efficiency of productive resource allocation. Conversely, Alarussi & Gao (2023) find a negative relationship between working capital and profitability, reinforcing the argument that excessive working capital can suppress returns when resources are not optimally utilized. Furthermore, Wattanawarangkoon et al. (2022) emphasize that the role of working capital is highly contingent on the firm's life cycle and its ability to control costs and manage leverage. Overall, these findings indicate that increases in working capital do not automatically translate into higher returns on equity, particularly for firms operating in business environments characterized by high asset intensity and elevated project risk.

Effect of Leverage on Profitability

The estimation results show that leverage has a positive and statistically significant effect on profitability (ROAE). Accordingly, H_3 is accepted, as the coefficient is significant at the 1% level. It reflects that construction firms can enhance returns by efficiently using debt to finance large-scale projects and operational expansion. From a financial strategy perspective, leverage can be used to enhance operational capacity when debt is allocated to productive assets and expansion activities. This finding is consistent with Mnif & Tahari (2025), who document that higher leverage encourages firms to optimize operations to achieve greater profit growth. A similar argument is advanced by Horvey et al. (2025), who show that leverage can improve profitability when it is

managed efficiently and maintained at an optimal level, enabling firms to benefit from tax advantages and expand operating cash flows. From a managerial perspective, these results support the view of Proença & Neves (2022), who argue that managers tend to be more confident in using debt productively, even though, from shareholders' perspectives, leverage is often perceived as a risk to equity returns. This divergence in perceptions helps explain why, in certain contexts, leverage may enhance equity-based profitability.

Nevertheless, the findings differ from those of Aiello et al. (2024), who report a negative impact of leverage on profitability, particularly for firms facing limited access to external financing and higher financial risk. Such discrepancies reinforce the threshold effect argument proposed by Horvey et al. (2025), which suggests that leverage increases profitability only up to a certain point and may reduce it thereafter. In addition, (Pham & Nguyen, 2020) emphasize that ownership structures and institutional contexts also influence the effectiveness of leverage in improving profitability. Overall, leverage should not be interpreted solely as a measure of financial risk but also as an indicator of managerial capability in utilizing external financing to enhance firm profitability.

The Moderating Effect of Non-Debt Tax Shield on the Relationship between Intellectual Capital and Profitability

The findings indicate that the interaction between intellectual capital and non-debt tax shield has a positive and significant effect on profitability. Therefore, H_4 is accepted, as the moderating coefficient is statistically significant, confirming that NDTS strengthens the relationship between intellectual capital and firm profitability. The positive moderating effect suggests that NDTS enhances financial flexibility, enabling construction firms to invest more effectively in knowledge-intensive project planning and management. NDTS functions as an internal financial mechanism that creates financial slack through non-debt tax savings, thereby providing firms with greater capacity to allocate resources toward knowledge-based activities, including team member skill development, organizational systems, and technology-driven innovation. Prior literature suggests that tax incentives and fiscal policies play a crucial role in improving firms' financial conditions and encouraging long-term investments oriented toward enhancing capabilities and non-financial performance, which ultimately translate into improved financial outcomes (H. Chen & Zhao, 2026; Loo & Lau, 2019). From a resource orchestration perspective, the effectiveness of intellectual capital depends on the availability of sufficient internal financial support to sustain knowledge-based investments. In this context, NDTS enhances financial flexibility through tax savings, enabling firms to continuously fund human capital development, organizational processes, and innovation activities without increasing leverage exposure. This condition strengthens managerial capability to optimally combine internal resources and external financing in order to enhance profitability (Kang & Ryu, 2025).

Furthermore, previous studies demonstrate that the availability of internal financial slack enhances the effectiveness of intangible resource utilization and strategic investments in value creation, particularly when such resources require sustained, high-risk funding, as is the case with intellectual capital (G. Chen & Sui, 2025). In addition, cross-country empirical evidence shows that strong internal financial conditions reinforce the relationship between investments in tangible and intangible assets and firm value creation, thereby supporting the argument that NDTS serves as a supportive mechanism that enhances the productivity of strategic resources (Uyar et al., 2023). Accordingly, this study extends the application of RBT by demonstrating that the effectiveness of intellectual capital in improving profitability depends not only on the presence of the

resource itself, but also on the support of internal financial mechanisms, such as non-debt tax shields, that enable more efficient and sustainable exploitation of the resource.

The Moderating Effect of Non-Debt Tax Shield on the Relationship between Working Capital and Profitability

The results indicate that the interaction between working capital and non-debt tax shield is negative and statistically significant. However, H5 is rejected because the moderating effect runs counter to the hypothesized direction, indicating that NDTS weakens the relationship between working capital and profitability. This finding suggests that although working capital plays an important role as an operational resource supporting the smooth functioning of business activities, a high level of NDTS may alter the way firms utilize their working capital. In contrast, higher NDTS may encourage firms to retain excess liquidity rather than deploy working capital efficiently in operations, thereby weakening their contribution to profitability. Excess working capital under NDTS may reduce profitability in construction firms, as idle liquidity could be retained rather than deployed for productive project investments. It is consistent with empirical evidence showing that increases in working capital driven by tax incentives are not necessarily followed by higher investment, innovation, or productive expansion, but are more likely to be held as internal cash reserves (Albertus et al., 2025). In addition, high liquidity levels may encourage opportunistic behavior and inefficiencies in financial management, including a higher risk of tax non-compliance and distortions in managerial decision-making (Kim et al., 2022), ultimately eroding the contribution of working capital to profitability. The cash flow management literature further emphasizes that excess liquidity does not always enhance profitability, particularly when it is not accompanied by efficient cash cycle management, as funds are often tied up in low-yield liquid assets (Rompotis, 2025). Moreover, large cash holdings and suboptimal cash flow management may increase financial risk and managerial pressure, potentially reducing the quality of operational decisions and overall profitability (Chang et al., 2023; Li et al., 2023). Accordingly, this study demonstrates that NDTS does not always act as a reinforcing factor in the relationship between working capital and profitability. However, it may instead create a crowding-out effect on operational resource utilization efficiency, thereby weakening the contribution of working capital to firm profitability.

The Moderating Effect of Non-Debt Tax Shield on the Relationship between Leverage and Profitability

The regression results show that the interaction between leverage and non-debt tax shield (NDTS) is positive and significant, supporting H_6. NDTS enhances the effect of leverage on profitability by reducing the effective cost of debt through tax-saving mechanisms, helping construction firms manage financing efficiently. From the RBT perspective, NDTS is an internal, valuable, and inimitable resource embedded in the firm's assets, enabling the strategic use of debt to support value creation rather than serving solely as a financial burden. Theoretically, this finding is consistent with the literature indicating that tax incentive structures influence the marginal benefits of debt, where the limitation or optimization of tax shield alters the effectiveness of leverage in enhancing firm value (Bhanot et al., 2025; Hutahean et al., 2025). Furthermore, empirical evidence on accelerated depreciation policies shows that non-interest tax incentives can lower investment costs, reduce financing constraints, and enhance productivity and firm value (Hu et al., 2026; Li & Shen, 2023; Zeng et al., 2023). Accordingly, NDTS not only serves as a partial substitute for the debt tax shield but also reinforces leverage as a productive financing mechanism when combined with tax-based internal resources. This finding extends the capital structure literature by showing that leverage's impact on

profitability is conditional on the firm's internal capacity to manage tax benefits, underscoring the relevance of RBT in explaining the interaction among fiscal policy, financing decisions, and profitability.

CONCLUSION

This study demonstrates that profitability in Indonesian construction firms is not solely determined by internal resources, but is significantly conditioned by tax-based financial mechanisms, particularly the non-debt tax shield (NDTS). While intellectual capital and working capital do not directly enhance profitability, leverage can contribute positively when managed effectively. Moreover, NDTS strengthens the effects of intellectual capital and leverage, but weakens the contribution of working capital, highlighting the importance of internal financial flexibility in shaping firm performance. From a practical perspective, construction firms should optimize tax planning by effectively leveraging non-debt tax shields, such as depreciation and amortization, to enhance financial flexibility and reduce effective financing costs. Managers are also encouraged to align leverage decisions and knowledge-based investments with tax-efficient financial policies to improve profitability and sustainability. Future research may explore potential nonlinear effects of NDTS and apply alternative measurement approaches to provide deeper insights into the interaction between internal financial mechanisms and firm resources.

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