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Intellectual Capital's Influence on Financial Performance: Mediating and Moderating Factors in Indonesia's Real Estate Sector

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Abstract

The property and real estate sector in Indonesia is essential for the development of vibrant urban areas. This study explores how intellectual capital influences financial performance, highlighting its significant role in driving innovation and competitiveness. Using a Resource-Based View framework, the research incorporates capital structure and firm size as moderating variables to analyse their effects on financial performance. The results show a strong positive correlation between intellectual capital and financial performance, while capital structure has a negative impact. Furthermore, larger companies are able to utilize their intellectual capital more efficiently, leading to improved financial results. These findings emphasize the importance of effectively managing both intellectual capital and capital structure to gain a competitive edge in the real estate sector. This research offers a deeper insight into the factors that affect financial performance in this sector, providing valuable perspectives for strategic financial management and laying the groundwork for future studies beyond Indonesia.

Keywords: *Intellectual Capital, Financial Performance, Capital Structure, Firm Size, Property and Real Estate Sector, Empirical Research.*

Introduction

The Property and Real Estate sector in Indonesia is involved in developing services that support the construction of integrated, dynamic urban areas. This sector produces a wide range of products, including residential properties, apartments, shophouses, office buildings, and commercial centers such as malls and plazas. Intellectual capital, as an intangible asset, plays a crucial role in shaping the financial performance of companies within this sector by boosting their capacity for innovation, improving operational efficiency, and fostering competitive advantages. It consists of human capital (the skills, knowledge, and expertise of employees), structural capital (organizational processes, patents, and culture), and relational capital (connections with customers, suppliers, and other stakeholders), all of which contribute to a company's value creation and long-term success. Strengthening intellectual capital can drive innovation, enhance operational efficiency, and improve a company's competitiveness. Knowledge, experience, and strong networks enable companies to design more innovative projects, manage resources effectively, and build strategic partnerships. According to the Resource-Based View (RBV) theory, the competitive advantage derived from intellectual capital is crucial. However, previous research shows diverse perspectives. For example, research by (Chen et al., 2005) found a positive correlation between the efficiency of intellectual capital and investor valuation, profitability, and revenue growth. Conversely, research by (Muhammad &

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Ismail, 2009) in the Malaysian financial sector shows a more significant impact of physical and financial capital on market value. (Firer & Mitchell Williams, 2003) also did not find evidence supporting a connection between the efficiency of intellectual capital and traditional indicators of company performance.

This study incorporates the variables of capital structure and company size to explore how intellectual capital impacts financial performance. Capital structure is treated as a mediating variable, as a higher level of intellectual capital can reduce capital costs by enhancing the risk perception among lenders and investors. With lower capital costs, companies can more easily obtain financing through debt, leading to a more optimal debt composition in the capital structure, which in turn enhances financial performance. Additionally, company size is used as a moderating variable to assess how the size of a company influences the relationship between intellectual capital, capital structure, and financial performance. Larger companies may have more resources to manage intellectual capital effectively and leverage an optimal capital structure, while smaller companies may face different challenges.

By incorporating capital structure and company size, this study aims to offer a more holistic understanding of the factors influencing the financial performance of companies in Indonesia's property and real estate sector. Consequently, the research seeks to analyze and explore both the direct and indirect relationships between intellectual capital, capital structure, company size, and financial performance within this industry. The article is structured into several sections: introduction and literature review, methodology, results, discussion, and conclusion.

Review of Literature and Hypotheses Development

This section will provide a review of the literature on intellectual capital, capital structure, company size, and financial performance, with a focus on their application in Indonesia's property and real estate sector. In this study, the literature review is conducted comprehensively, referencing established and relevant theories directly related to the research topic. The analysis encompasses three primary theories: Resource-Based View (RBV), trade-off theory, and agency theory, all of which have a direct connection to the variables utilized in this research. The study references the foundational work of Penrose & Penrose (2009), which emphasizes the importance of utilizing heterogeneous resources, including intellectual and physical capital, to achieve competitive advantage. This literature supports the inclusion of intellectual capital and capital structure as strategic resources that contribute to financial performance. It highlights that companies that effectively manage both tangible and intangible resources are more likely to gain sustainable competitive advantages. The study also examines the trade-off theory, which highlights the importance of maintaining an optimal debt-to-equity ratio to maximize a company's value. This theory emphasizes the significance of the Debt-to-Equity Ratio (DER) as a key indicator of capital structure, influencing financial performance. The literature indicates that both excessively high and low debt compositions can negatively affect company performance, particularly within Indonesia's property and real estate sector. Additionally, the literature related to agency theory is examined, revealing that companies with high intangible assets, such as intellectual capital, tend to lower their debt levels to mitigate agency problems, such as suboptimal investment decisions that favor creditors over company owners. By integrating these established theories, the study contributes to the creation of a strong theoretical framework for analyzing the interactions between intellectual capital, capital structure, company size, and financial performance.

Financial Performance Approaches Adopted

Financial performance is a subjective evaluation of how efficiently a company utilizes its assets and generates revenue. In assessing financial performance, companies can evaluate their financial position by considering variables such as assets, liabilities, equity, expenses, and revenue. Financial performance can be measured through variables like assets, liabilities, equity, expenses, and revenue, using three forms of measurement: market, accounting, and survey (Orlitzky et al., 2003). In the context of corporate theory, efforts to maximize financial performance are related to the company's goals, measured through variables such as ROA, ROI, ROE, and sales growth. Performance measurement provides analysis and control for companies to improve operations and compete, as well as a basis for investors to consider maintaining or seeking alternative investments. ROIC, as a profitability ratio, reflects a company's ability to generate profit compared to the invested capital, serving as a proxy for management effectiveness and added value on investment (Riyanto, 2008). Thus, the measurement of company performance, particularly ROIC, contributes theoretically to understanding the factors affecting financial performance and their impact on shareholder wealth.

Intellectual Capital Approaches Adopted

Intellectual capital, as knowledge that generates value, is defined by (Klein & Prusak, 1994; Roos et al., 1997; Stewart, 1997), and (Sullivan, 2000). Although definitions of intellectual capital may vary, its primary components generally include human capital, structural capital, and customer capital (Holton III & Yamkovenko, 2008; Mavridis, 2004; Nick, 1998; Roos et al., 1997; Ruta, 2009). In this study, intellectual capital is assessed using the Value Added Intellectual Capital (VAIC) method (Pulic, 2000), which is valued for its ability to utilize available financial data and support cross-sectional comparisons (Firer & Mitchell Williams, 2003; Schneider, 1999). The VAIC model evaluates human capital efficiency (HCE), structural capital efficiency (SCE), and capital employed efficiency (CEE), incorporating factors such as employee experience, patents, and the effective use of financial and physical capital (Pulic, 2000).

Capital Structure Approaches Adopted

Capital structure refers to the mix of debt and equity (both preferred and common stock) that a company uses to finance its operations and acquisitions. According to (E F Brigham & Houston, 2014), a company's capital structure, encompassing both its debt and equity policies, has a significant impact on its risk profile and potential returns (Siddik et al., 2016). The Debt to Equity Ratio (DER) serves as a key indicator, with long-term creditors preferring a low ratio to minimize risk and increase stock prices (Ircham, 2014). Funding resources, both internal and external, form significant capital structure decisions aimed at enhancing the company's value (Cuong & Canh, 2012). The MM (Modigliani-Miller) capital structure theory considers tax factors, while the trade-off theory emphasizes balancing tax savings and financial risk (Singh, 2016); (Santika & Sudiyatno, 2011). The components of capital structure involve long-term debt, short-term debt, and equity, with the goal of creating an optimal mix of financial sources for shareholders, balancing the trade-off between risk and return (Suhendra, 2014).

Firm Size Approaches Adopted

Company size refers to the scale of a business, typically assessed using metrics such as total sales, total assets, average sales, and average total assets (Seftianne & Handayani, 2011). It is commonly measured by net sales for the current year as well as over multiple years. When sales

surpass both variable and fixed costs, the company generates a pre-tax profit. On the other hand, if sales fall short of covering these costs, the company incurs a loss (Brigham & Daves, 2018).

Intellectual Capital and Financial Performance

Empirical research by (Gho, 2005) in Taiwan using the Value Added Intellectual Coefficient (VAIC) shows a positive relationship between intellectual capital, market value, and company financial performance. Similar research by (Muhammad & Ismail, 2009) in Malaysia confirms that intellectual capital positively contributes to profitability and Return on Assets (ROA). These findings are consistent with previous research conducted in the same country during the period from 2001 to 2003 (Gho, 2005), which found that Malaysian banks with satisfactory financial performance (measured by traditional economic measures) had low intellectual capital coefficients.

Capital Structure and Financial Performance

The trade-off theory (Kraus & Litzenberger, 1973) emphasizes the importance of companies carefully considering their capital structure. The effect of capital structure on a company's financial performance has been explored in various studies, yielding different outcomes. For example, research by (Vithessonthi & Tongurai, 2015) found that financial leverage (capital structure) does influence performance. Similarly, a study by (Salim & Yadav, 2012), revealed a significant relationship between total debt, short-term debt, and company performance in the property sector, as measured by Return on Assets (ROA).

Intellectual Capital and Capital Structure

Intellectual capital factors can influence capital structure, as stated by (Bolek & Lyroudi, 2015) in their research using regression analysis. They found that intangible assets negatively affect long-term debt to equity ratio (DER), long-term debt to total assets ratio (LTDR), and total debt to total assets ratio (DR), with a very weak relationship. This finding is supported by (Long & Malitz, 1985), They empirically found that for U.S. listed companies, the growth of market financial leverage is influenced by the nature of the investment opportunities the company encounters.

Intellectual Capital, Capital Structure, and Financial Performance

The mediating variable, capital structure, is grounded in prior research that shows a direct relationship between capital structure and financial performance, as well as a direct effect of intellectual capital on capital structure. This study will further explore whether the level of intellectual capital influences the determination of capital structure, which in turn indirectly impacts financial performance. The direct effect of intellectual capital on financial performance aligns with the research conducted by (Gan & Saleh, 2008), which states that intellectual capital influences company profitability. Additionally, the study by (Salim & Yadav, 2012) It suggests that capital structure is significantly related to financial performance.

Intellectual Capital, Firm Size, and Financial Performance

The relationship between intellectual capital and financial performance will also be moderated by company size. Company size is directly proportional to the total sales volume, which serves as a proxy for company size (Dang et al., 2018). Total sales are related to the level of cash holdings. Thus, company size can influence a company’s intellectual capital.

Research Gap and Hypothesis Development

Previous studies on the impact of intellectual capital on financial performance have produced mixed results, highlighting a research gap that this study aims to address. This research seeks to resolve the inconsistencies in earlier findings by incorporating mediating and moderating variables into the analysis of the relationship between intellectual capital and financial performance. Capital structure serves as a mediating variable because high intellectual capital can reduce risk perception, thereby lowering capital costs and enabling more optimal financing. Company size, serving as a moderating variable, helps to examine how the scale of a company influences the relationship between intellectual capital, capital structure, and financial performance. This approach provides a new conceptual framework and deep insights into the interactions among factors influencing financial performance, along with practical recommendations for company management to design more efficient strategies.

As a result, this study makes a valuable contribution to the literature in the areas of financial management and business strategy. Therefore, this research will test the following hypotheses:

H1: Intellectual capital affects financial performance.

H2: Capital structure affects financial performance.

H3: Intellectual capital influences capital structure.

H4: Intellectual capital affects financial performance through capital structure.

H5: Intellectual capital affects financial performance with company size as a moderating variable.

Theoretical Background

The Resource-Based View (RBV) highlights that a company can gain a competitive advantage by effectively utilizing diverse resources, including both intellectual and physical capital (Penrose & Penrose, 2009). According to RBV, a company is seen as a bundle of physical and intangible resources, with a focus on acquiring, managing, and sustaining these resources to create added value that impacts financial performance. In the context of property and real estate companies, the integration of RBV with capital structure and company size is crucial. Companies that can intelligently manage their capital structure, considering the proportion between intellectual and physical capital, are more likely to achieve sustainable competitive advantages, thereby improving financial performance. Company size affects resource utilization; larger companies may excel at managing complex capital structures, while smaller companies are more flexible in responding to market changes. In Indonesia's property and real estate sector, an excessively high debt composition can harm company performance by increasing interest burdens, while an excessively low debt composition can also lower financial performance. The trade-off theory emphasizes the significance of maintaining a balanced debt-to-equity ratio to maximize a company's value. Additionally, the agency theory is relevant, as companies with substantial intangible assets often lower their debt levels to mitigate agency problems caused by debt. These issues can include managers making suboptimal investment decisions that prioritize creditors' interests over those of the company's owners.

Conceptual Framework

In this study, the company's financial performance is the dependent variable, while intellectual capital serves as the independent variable. Capital structure is considered the mediating variable,

and company size acts as the moderating variable. The dependent variable, company performance (Y), is measured by Return on Invested Capital (ROIC). The independent variable (X1), intellectual capital, is assessed using the Value Added Intellectual Capital (VAIC) method. The mediating variable (Z), capital structure, is evaluated through the Debt-to-Equity Ratio (DER), and the moderating variable (X2), company size, is measured by total sales. Thus, the relationships among the dependent variable, independent variable, mediating variable, and moderating variable can be outlined as follows:

$Y = \beta0 + \beta1X1 + \beta2Z + \varepsilon1$ …… 1

$Z = \beta0 + \beta3X1 + \varepsilon2$ …..... 2

$Y = \alpha + \beta4X1 + \beta X1X2 + \varepsilon3$…….……..... 3

Then the regression equation is transformed into logarithmic form, resulting in the following equation:

$\text{Log } Y = \beta0 + \beta1\text{LogX1} + \beta2\text{LogZ} + \varepsilon1$ …... 1

$\text{Log } Z = \beta0 + \beta3\text{LogX1} + \varepsilon2$ …..... 2

$\text{Log } Y = \alpha + \beta4\text{LogX1} + \beta\text{LogX1X2} + \varepsilon3$……..... 3

Where β represents the coefficient that indicates the expected average change in the dependent variable (Y) when the independent variable (X) changes by one unit, while controlling for other variables in the model. ε is the symbol for the random error or the prediction inaccuracy of the model relative to the actual data.

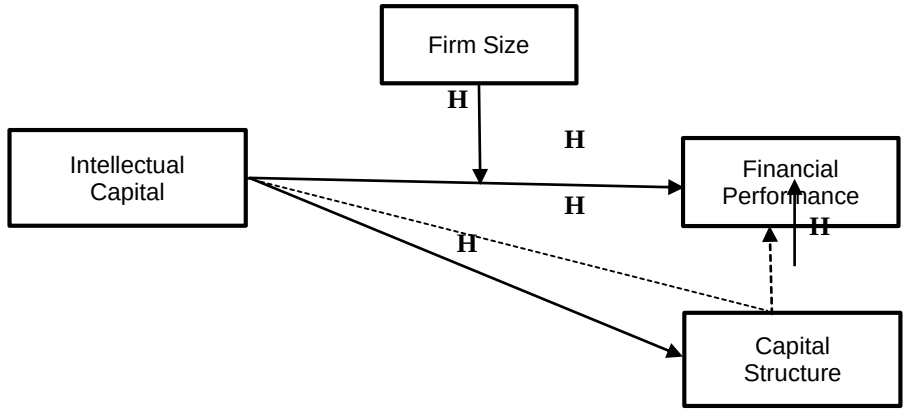

Figure 1. Conceptual Framework

Research Design

This study uses path analysis due to its capability to examine both direct and indirect relationships among variables, making it suitable for analyzing complex interactions in financial performance. Path analysis, which builds on multiple regression techniques, allows for a comprehensive understanding of how various factors influence each other within a causal framework (Schumacker & Lomax, 2004). By using this method, the research can evaluate not only the direct effects of independent variables on the dependent variable but also the indirect

effects that are mediated through other variables, offering a more nuanced view of the relationships involved. Additionally, this research uses panel data, which combines cross-sectional and time-series data, as it includes observations from 30 companies over a 6-year period (2016-2021). Panel data is chosen because it allows the study to account for both individual company differences and changes over time, improving the precision of the estimates and enabling the identification of trends and patterns that may not be visible in cross-sectional data alone. The use of Eviews12 software for processing enhances the robustness of the analysis by efficiently managing and analyzing this complex dataset (Kerlinger, 1973).

Variables and Measures

In this study, the company's financial performance is the dependent variable, intellectual capital is the independent variable, capital structure functions as the mediating variable, and firm size serves as the moderating variable. The dependent variable, financial performance, is measured using Return on Invested Capital (ROIC) (Orlitzky et al., 2003). The independent variable, intellectual capital is evaluated using the Value Added Intellectual Capital (VAIC) method (Pulic, 2000). The mediating variable, capital structure, is measured by the Debt-to-Equity Ratio (DER) (Ircham, 2014), while the moderating variable, firm size, is evaluated through total sales (Brigham & Houston, 2018). The relationships among these variables are examined using path analysis through two regression models:

$$\text{Log } Y = \beta 0 + \beta 1 \text{LogX1} + \beta 2 \text{LogZ} + \varepsilon 1 \ldots\ldots 1$$

$$\text{Log } Z = \beta 0 + \beta 3 \text{LogX1} + \varepsilon 2 \ldots\ldots\ldots\ldots\ldots 2$$

Hypothesis testing for mediation is performed using the procedure outlined by (Baron & Kenny, 1986), commonly known as the Sobel Test. This test is used to evaluate the strength of the indirect effect of the independent variable (X) on the dependent variable (Y) through the mediating variable (I). To test the moderating variable, Moderated Regression Analysis (MRA) is applied, which involves multiple linear regression with an interaction term (X1X2), representing the moderating effect of variable X2 on the relationship between X1 and Y. The equation is as follows:

$$Y = \alpha + b1X1 + bX1X2 + e$$

In this model, both X1 and X2 also have a direct effect on Y.

Empirical Result and Discussion

Classical Assumption Testing

In this study, classical assumption tests were conducted for each research variable, including tests for heteroscedasticity, multicollinearity, and normality. The heteroscedasticity test results revealed that the correlation values for all independent variables were higher than the threshold 0.05 with ABS (residuals), indicating no heteroscedasticity in the model (Gujarati & Porter, 2009). Furthermore, the correlation values for all independent variables were below 0.9, signifying no multicollinearity or strong correlation among the independent variables in the model (Gujarati & Porter, 2009). Additionally, the normality test yielded a JB Probability value of 0.7, or $P > 0.05$, which suggests that the data follows a normal distribution, thus meeting the normality assumption.

Empirical Result

Direct Effect Hypothesis Testing

In this study, Table 1 is used to examine and analyze Hypothesis 1, which explores the direct effect of the independent variable, intellectual capital (represented by VAIC), and Hypothesis 2, which evaluates the impact of capital structure (represented by DER) on the dependent variable, financial performance (represented by ROIC). Additionally, Table 2 is employed to analyze Hypothesis 3, which investigates the direct effect of intellectual capital (proxied by VAIC) on the dependent variable, capital structure (proxied by DER).

Dependent Variable: LN_ROIC_REV				
Method: Least Squares				
Date: 07/12/24 Time: 14:12				
Sample: 1 180				
Included observations: 121				
Indicator Saturation: IIS, 121 indicators searched over 5 blocks				
7 IIS variables detected				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.770380	0.182868	-26.08653	0.0000
LN_VAIC	0.733976	0.088922	8.254131	0.0000*
LN_DER	-0.233031	0.066535	-3.502365	0.0007*
R-squared	0.579775	Mean dependent var		-3.135655
Adjusted R-squared	0.545703	S.D. dependent var		0.936872
S.E. of regression	0.631466	Akaike info criterion		1.997485
Sum squared resid	44.26122	Schwarz criterion		2.228542
Log likelihood	-110.8478	Hannan-Quinn criter.		2.091326
F-statistic	17.01605	Durbin-Watson stat		1.032054
Prob(F-statistic)	0.000000			

Table 1. Results Of the Regression Test for Dependent Variable (ROIC) and Independent Variables (VAIC And DER)

Note: *Significant at The 0.05 Level.

Source: Processed Financial Statement Data

Table 1 demonstrates that intellectual capital has a positive impact on financial performance, whereas the capital structure variable exhibits a negative effect on financial performance.

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Dependent Variable: LN_DER				
Method: Least Squares				
Date: 07/12/24 Time: 15:53				
Sample: 1 180				
Included observations: 164				
Indicator Saturation: IIS, 164 indicators searched over 6 blocks				
11 IIS variables detected				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.166554	0.142539	-1.168476	0.2445
LN_VAIC	-0.248554	0.075793	-3.279364	0.0013*
R-squared	0.419643	Mean dependent var		-0.679029
Adjusted R-squared	0.373522	S.D. dependent var		0.959031
S.E. of regression	0.759077	Akaike info criterion		2.362522
Sum squared resid	87.00577	Schwarz criterion		2.608243
Log likelihood	-180.7268	Hannan-Quinn criter.		2.462275
F-statistic	9.098738	Durbin-Watson stat		0.536134
Prob(F-statistic)	0.000000			

Table 2. Results of the Regression Test for Mediation Variable (DER) And Independent Variable (VAIC)

Note: *Significant at the 0.05 level.

Source: processed financial statement data

In Table 2, it shows that intellectual capital has a negative effect on capital structure.

Indirect Effect Hypothesis Testing

In this study, to test Hypothesis 4, which investigates the indirect effect of intellectual capital on financial performance through capital structure, a Sobel test was conducted on Equation 1 and Equation 2. In this analysis, the dependent variable, financial performance, is represented by ROIC, the independent variable, intellectual capital, is represented by VAIC, and the mediating variable, capital structure, is represented by DER. The Sobel test is performed by regressing Equation 1 and Equation 2, and then the regression coefficients from both equations are used in the Sobel test calculation as follows.

Dependent Variable: LN_DER				
Method: Least Squares				
Date: 01/03/24 Time: 15:55				
Sample: 1 180				
Included observations: 164				
Indicator Saturation: IIS, 164 indicators searched over 6 blocks				
10 IIS variables detected				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.094996	0.240080	0.395684	0.6929

LN_VAIC	-0.268290	0.078019	-3.438767	0.0008*

Table 3. Regression of Independent Variables on the Intervening Variable

Note: *Significant at the 0.05 level.

Source: processed financial statement data

Dependent Variable: LN_ROIC_REV				
Method: Least Squares				
Date: 01/03/24 Time: 14:56				
Sample: 1 180				
Included observations: 121				
Indicator Saturation: IIS, 121 indicators searched over 5 blocks				
8 IIS variables detected				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.081804	0.276186	-14.77916	0.0000
LN_DER	-0.260034	0.065230	-3.986438	0.0001*

Table 4. Regression of Intervening Variable on Dependent Variable

Note: *Significant at the 0.05 level.

Source: processed financial statement data

From Table 3, it is evident that a represents the path from the independent variable to the mediating variable, while from Table 4, b represents the path from the mediating variable to the dependent variable. To test Hypothesis 4, which explores the effect of intellectual capital (proxied by VAIC) on financial performance (proxied by ROIC) through capital structure (as a mediating variable, proxied by DER), the Sobel test is performed, with the calculations presented as follows:

$$t = \frac{\text{ab}}{\sqrt{(b^2SEa^2) + (a^2SEb^2)}}$$

$$t = \frac{0{,}268290 \text{ x } 0{,}260034}{\sqrt{(0{,}260034^2\ x\ 0{,}078019^2) + (0{,}268290^2\ x\ 0{,}065230^2)}}$$

$$t - hitung = 3{,}387$$

$$t - tabel = 1{,}973$$

The results of the Sobel test calculations show that the calculated T value of 3.387 is higher than the table T value of 1.973, indicating that intellectual capital significantly affects financial performance through the capital structure variable. Therefore, Hypothesis 4 is accepted.

Moderating Effect Hypothesis Testing

Hypothesis 5 investigates the impact of intellectual capital, represented by VAIC, on financial performance, proxied by ROIC, with company size as a moderating variable proxied by total sales. This is conducted through Moderated Regression Analysis (MRA). In the first stage of the MRA, a regression test is performed with intellectual capital proxied by VAIC and company size

proxied by total sales against financial performance proxied by ROIC. In the second stage, a regression test is conducted using intellectual capital proxied by VAIC and the interaction variable of company size (proxied by total sales) along with intellectual capital against financial performance proxied by ROIC.

Dependent Variable: LN_ROIC_REV				
Method: Least Squares				
Date: 07/12/24 Time: 21:23				
Sample: 1 180				
Included observations: 122				
Indicator Saturation: IIS, 122 indicators searched over 5 blocks				
8 IIS variables detected				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5.798813	0.238390	-24.32494	0.0000
LN_VAIC	0.887543	0.085662	10.36102	0.0000*
LN_SALES	0.140663	0.027150	5.180938	0.0000*
R-squared	0.641529	Mean dependent var		-3.133014
Adjusted R-squared	0.609234	S.D. dependent var		0.933449
S.E. of regression	0.583511	Akaike info criterion		1.846329
Sum squared resid	37.79381	Schwarz criterion		2.099151
Log likelihood	-101.6261	Hannan-Quinn criter.		1.949018
F-statistic	19.86483	Durbin-Watson stat		1.087627
Prob(F-statistic)	0.000000			

Table 5. Results of MRA Stage 1

Note: *Significant at the 0.05 level.

Source: processed financial statement data

Dependent Variable: LN_ROIC_REV				
Method: Least Squares				
Date: 07/12/24 Time: 21:13				
Sample (adjusted): 1 60				
Included observations: 45 after adjustments				
Indicator Saturation: IIS, 45 indicators searched over 2 blocks				
12 IIS variables detected				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.979287	0.174933	-28.46390	0.0000
LN_VAIC	0.950889	0.080994	11.74026	0.0000*
INTICSALES	0.012069	0.002308	5.229649	0.0000*

R-squared	0.934527	Mean dependent var	-3.274888
Adjusted R-squared	0.903973	S.D. dependent var	0.883023
S.E. of regression	0.273634	Akaike info criterion	0.507149
Sum squared resid	2.246263	Schwarz criterion	1.109370
Log likelihood	3.589143	Hannan-Quinn criter.	0.731651
F-statistic	30.58587	Durbin-Watson stat	2.066347
Prob(F-statistic)	0.000000		

Table 6. Results of MRA Stage 2

Note: *Significant at the 0.05 level.

Source: processed financial statement data

In Table 5, the significance of the probability results is less than 5%, indicating that in the first stage of the MRA, there is a significant effect of the company size variable on financial performance. Similarly, in Table 6, the probability significance results are below 5%, indicating that in the second stage of the Moderated Regression Analysis (MRA), the interaction between intellectual capital and company size significantly affects financial performance. In moderation analysis, if the results are significant in both the first and second stages, it can be concluded that the moderating variable, company size (represented by total sales), moderates the relationship model, specifically the connection between intellectual capital and financial performance.

Discussion

The Impact of Intellectual Capital on Financial Performance

The research findings in the property and real estate sector show a significant positive relationship of 0.73, or 73%, between intellectual capital and financial performance. This suggests that an increase in intellectual capital is linked to an improvement in the company's financial performance. These results are consistent with the Resource-Based View theory, which posits that rare, valuable, inimitable, and non-substitutable resources can serve as a competitive advantage for firms. This finding also aligns with empirical research by (Gho, 2005) on commercial banks in Malaysia, which identified a relationship between intellectual capital, market value, and financial performance. The study employed VAIC as a proxy, following (Pulic, 2000), methodology, underscoring the critical role of intellectual capital in boosting profitability and revenue growth. Furthermore, a study by (Muhammad & Ismail, 2009) in Malaysia also found a positive correlation between intellectual capital and corporate performance, especially in the banking, insurance, and brokerage sectors.

In the Indonesian property and real estate sector, intellectual capital has a notable effect on financial performance can be explained by the operational needs and business development that heavily rely on skilled labor. This sector requires competent personnel to execute construction projects, manage properties, and conduct marketing and sales, all of these are essential elements of a company's intellectual capital. Intellectual capital is made up of three key components: human capital, structural capital, and relational capital (Gho, 2005). Consequently, the greater the efficiency or optimization of intellectual capital, such as the knowledge and expertise of employees, innovations in processes and management systems, and strong customer relationships, the better the financial performance of companies in the property and real estate

sector. In other words, companies that can optimally manage and utilize their intellectual capital will possess a higher competitive advantage, positively impacting their financial performance.

The Impact of Capital Structure on Financial Performance

The research findings in the property and real estate sector reveal a significant negative relationship, with a coefficient of -0.23 (or 23%), between capital structure and financial performance. This indicates that as the capital structure increases, the company's financial performance tends to decline. These results are consistent with the study by (Le & Phan, 2017) on non-financial companies in Vietnam, which found that the debt ratio has a significant negative impact on corporate performance. This outcome also supports the trade-off theory, which suggests that companies aim to maintain an optimal capital structure where the costs and benefits of debt issuance are carefully balanced. An optimal capital structure allows firms to achieve the best performance by determining the right solvency ratio, which compares total debt to total equity.

An optimal capital structure represents a balance between debt and equity that maximizes company value and minimizes capital costs. When debt exceeds the optimal level, associated costs, such as interest and bankruptcy risk, outweigh benefits like tax reductions, negatively impacting financial performance. Research by (Herdinata & Tandelilin, 2013) found that debt policy can negatively affect corporate performance when debt levels are low, but can have positive effects as debt increases. In the property and real estate sector in Indonesia, a capital structure with excessively high debt increases interest burdens and reduces profitability, while too low debt levels also lower financial performance. Managers must balance the tax savings from debt with the risks of financial pressure to maximize company value.

The Impact of Intellectual Capital on Capital Structure

This study, conducted in the property and real estate sector, reveals a significant negative relationship, with a coefficient of -0.248 (or 24.8%), between intellectual capital and capital structure. This suggests that as the efficiency of intellectual capital increases, the proportion of the capital structure financed by debt decreases. These findings align with the research by (Bolek & Lyroudi, 2015), which showed that intellectual capital negatively influences long-term debt-to-equity ratio (DER), long-term debt-to-total-assets ratio (LTDR), and total debt-to-total-assets ratio (DAR)). Furthermore, (D'Amato, 2021) demonstrated that companies with higher intellectual capital tend to have lower financial leverage and greater profitability. Similarly, (Long & Malitz, 1985) found that companies investing in intangible assets, such as advertising and research and development (R&D), typically have more limited debt capacity.

These results are also related to agency theory, which suggests that companies with growing intangible assets tend to reduce their debt levels to manage agency problems arising from debt. When companies invest in intangible assets, managers tend to increase the company's risk, which leads bondholders to limit the amount of debt provided. Furthermore, managers are likely to invest less if they believe that creditors stand to gain more than the owners. In the property and real estate sector, an increase in intellectual capital tends to reduce the use of debt, with companies relying more on equity or internal funds. This reflects how the agency dynamics between management and shareholders influence financial decisions and investment strategies in this sector.

The Impact of Intellectual Capital and Financial Performance Through Capital Structure

The results of Hypothesis 4 in this study indicate that intellectual capital significantly impacts financial performance through capital structure as a mediating variable. The Sobel test reveals that the calculated T value of 3.387 exceeds the table T value of 1.973, suggesting a significant mediation effect. This finding supports the Resource-Based View (RBV) theory, which posits that intangible assets like intellectual capital can positively influence company performance. In the property and real estate sector, firms that effectively manage and optimize their intellectual capital, such as through advanced location analysis or a deep understanding of market trends, can achieve a sustainable competitive advantage. Moreover, the results of this study align with agency theory in the context of the relationship between intellectual capital and capital structure. Companies with substantial intangible assets tend to reduce their debt levels to mitigate agency problems associated with debt financing. Since creditors often face challenges in accurately assessing the value of intangible assets, these companies are more likely to use equity financing rather than debt for their investments. For professionals and decision-makers in the property and real estate sector, this research offers valuable insights into the importance of managing intellectual capital and making informed financial decisions to improve company performance. The integration of these findings with RBV and agency theory can provide a solid framework for optimizing the use of intangible resources and improving a company's competitiveness in a competitive market.

The Impact of Intellectual Capital on Financial Performance with Company Size as a Moderating Variable

In the property and real estate sector in Indonesia, this study highlights the important moderating role of company size in the relationship between intellectual capital and financial performance. The findings from the first regression analysis show that company size, measured by total sales, significantly impacts financial performance. This suggests that larger companies in the sector are better positioned to generate higher revenues and manage assets more efficiently, ultimately improving their overall financial performance. Additionally, the results of the second regression analysis indicate that the interaction between company size and intellectual capital also has a significant effect on financial performance. This implies that company size not only directly influences financial performance but also moderates the relationship between intellectual capital and financial outcomes. In this context, larger property and real estate companies can be more effective in leveraging their intangible assets, such as in-depth knowledge of local markets or advantages in developing large-scale property projects, to achieve sustainable competitive advantage in this highly competitive industry.

Managerial Implication

The managerial implications of this study's findings indicate that managers in the property and real estate sector should proactively manage and optimize their intellectual capital to enhance financial performance. Given the significant positive effect of intellectual capital on financial performance, managers need to focus on developing and maintaining intellectual resources such as knowledge, expertise, innovation, and knowledge management systems. Efficiency in utilizing intellectual capital is crucial; managers must ensure that every investment in intellectual capital yields maximum results by increasing productivity and innovation. This can be achieved through ongoing employee training, the implementation of advanced technologies, and the optimization of business processes. Additionally, managers need to balance the company’s

capital structure to maximize corporate value and avoid excessive debt burdens that could impair financial performance. By using the Resource-Based View (RBV) and agency theory as guiding frameworks, managers should ensure that intellectual capital is utilized efficiently and effectively, which will lead to sustainable competitive advantage, increased profitability, and foster future growth for the company.

Conclusions and Limitation

This study concludes that intellectual capital has a significant positive effect on the financial performance of companies within the property and real estate sector, with increases in intellectual capital correlating with improvements in financial performance. Practices such as optimizing intellectual capital need to be consistently adopted to enhance profitability and efficiency within companies. Additionally, capital structure demonstrates a significant negative effect on financial performance, suggesting that management should exercise caution when managing debt-to-equity ratios. The study also reveals that company size, acting as a moderating variable, affects the relationship between intellectual capital and financial performance, with larger companies being able to utilize their intellectual capital more effectively to gain a competitive edge and enhance financial performance. These findings highlight the critical role of intellectual capital and capital structure management in shaping business strategy. However, a limitation of this study is its exclusive focus on the property and real estate sector in Indonesia, meaning the results may not be applicable to other industries. Future research should investigate the impact of intellectual capital and capital structure on company performance across different sectors and in broader contexts.

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