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ANALYSIS INTELLECTUAL CAPITAL ON FINANCIAL PERFORMANCE AND SUSTAINABLE GROWTH OF COMPANY IN INDONESIA

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Abstract

The objective of this study is to examine the impact of Intellectual Capital (IC) on financial performance and sustainable growth within consumer goods sector companies in Indonesia over the period from 2018 to 2022. The research employs a multiple regression analysis method to assess the relationship between IC variables—measured using the Value Added Intellectual Coefficient (VAIC)—and its components: Capital Employed Efficiency (CEE), Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE), Innovative Capital Efficiency (RDE), and Relational Capital Efficiency (RCE), in relation to financial performance indicators such as Return on Assets (ROA), Return on Equity (ROE), Sales Growth (SG), and Sustainable Growth Rate (SGR). The results of the analysis indicate a relationship between IC and financial performance, where VAIC demonstrates a significant influence on ROA, ROE, SG, and Sustainable Growth Rate (SGR) in the companies. However, findings regarding the individual IC components (CEE, HCE, SCE, RDE, and RCE) reveal varying effects on financial performance (ROA, ROE, and SG) and SGR. The implications of this study emphasize the critical importance of effective management and development of Intellectual Capital for companies, particularly in enhancing financial performance and achieving sustainable growth.

Analisis Model Intelektual terhadap Kinerja Keuangan dan Pertumbuhan Keberlanjutan Perusahaan di Indonesia

Abstrak

Tujuan dari penelitian ini adalah untuk menguji apakah terdapat pengaruh Intellectual Capital (IC) terhadap kinerja keuangan dan pertumbuhan yang berkelanjutan (Sustainable Growth) pada perusahaan di sektor industri consumer goods di Indonesia selama tahun 2018 sampai dengan 2022. Metode penelitian yang digunakan adalah metode analisis regresi berganda untuk mengukur hubungan antara variabel IC (dinyatakan sebagai nilai VAIC - Value Added Intellectual Coefficient) beserta dengan komponennya Capital Employed Efficiency (CEE), Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE), Innovative Capital Efficiency (RDE) dan Relational Capital Efficiency (RCE) dengan kinerja keuangan Return On Assets (ROA), Return On Equity (ROE), Sales Growth (SG) dan Sustainable Growth Rate (SGR). Hasil analisis menunjukkan adanya hubungan antara IC dan kinerja keuangan, di mana VAIC memiliki pengaruh terhadap ROA, ROE, SG dan Sustainable Growth Rate pada perusahaan. Namun hasil penelitian terhadap komponen IC (CEE, HCE, SCE, RDE dan RCE) menunjukkan hasil yang bervariasi terhadap kinerja keuangan (ROA, ROE, SG) dan Sustainable Growth Rate (SGR). Implikasi dari penelitian ini adalah pentingnya pengelolaan dan pengembangan IC bagi perusahaan, terutama dalam meningkatkan kinerja keuangan dan mencapai pertumbuhan yang berkelanjutan.

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In the era of globalization, rapid developments in economic growth, technology, and the dissemination of information have brought significant impacts to the business sector. This situation demands that companies operate efficiently to consistently generate profits that ensure the sustainability of the organization. Competitive advantage refers to innovative values that cannot be replicated by competitors (Barney J., 1991). These innovative values enhance the company's resilience in facing current developments, thereby supporting sustainable profitability and long-term corporate existence.

Knowledge represents an intangible resource that can drive financial performance and strengthen a firm's competitive advantage. (Soewarno & Tjahjadi, 2020). The basis of knowledge possessed by a company is intellectual capital. Intellectual capital comprises the knowledge and skills of all organizational levels, making it an essential new resource for contemporary business operations (Tarigan et al., 2019). Intellectual capital has contributed to companies' ability to maintain competitive advantage through value creation, as highlighted in research (Bontis, William Chua Chong, et al., 2000). On the other hand, sustainable growth has become a central issue and primary focus in business operations. The increasing awareness of its importance has shifted the focus from traditional economic growth models to sustainable growth models (Ayoub & Mukherjee, 2019). Implementing sustainable growth assists management in prioritizing operational strategies that support the company's long-term growth. Therefore, sustainable growth ensures the company's survival by establishing a solid foundation for long-term development.

The utilization of corporate resources can be carried out through the Intellectual Capital (IC) approach, which plays a crucial role in optimizing resource use to achieve maximum organizational performance. Intellectual Capital (IC) encompasses non-physical assets that are difficult to measure but essential for sustaining competitive advantage and fostering innovation. According to Bontis, Keow, et al. (2000), Intellectual Capital (IC) comprises several key components—namely, Human Capital, Structural Capital, and Relational Capital—and is typically quantified through the Value Added Intellectual Coefficient (VAIC) mode (Pulic, 1998). In both empirical research and practical settings, the VAIC model serves as a widely recognized tool for measuring the effectiveness of Intellectual Capital deployment. Empirically, intellectual capital is highly beneficial in improving company performance and sustainable business growth (Chowdhury et al., 2019). Based on the study by Xu and Wang (2018), Intellectual Capital is identified as a key driver of corporate competitiveness and sustainability, thereby reinforcing the conclusions of prior research. In alignment with this, Kasoga (2020) provides evidence that Intellectual Capital positively impacts financial performance, with indicators such as sales growth, return on assets, asset turnover, and market share showing a significant relationship. The components of VAIC significantly explain its impact on asset turnover and return on assets in the pharmaceutical industry in Bangladesh (Chowdhury et al., 2019). Soewarno and Tjahjadi (2020) conducted research in Indonesia, revealing that, in general, Intellectual Capital has an impact on company performance as measured by Return on Assets (ROA), Return on Equity (ROE), ATO, and price-to-book ratio, although not all components have an impact on financial performance.

Given the significant potential of Intellectual Capital in driving corporate performance and ensuring sustainable growth globally, this study aims to examine the impact of Intellectual Capital on company performance and sustainable growth in firms listed on the Indonesia Stock Exchange, specifically within the consumer goods sector, over the period from 2018 to 2022. The primary objective of this research is to explore the empirical relationships between Intellectual Capital (IC) and

measures of company performance, including ROA, ROE, Sales Growth (SG), and the Sustainable Growth Rate (SGR).

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Intellectual Capital is considered a rare and irreplaceable organizational asset, positioning it as a critical element in achieving and maintaining competitive advantage (Soewarno & Tjahjadi, 2020). Intellectual capital will enhance a company's performance if managed effectively. Extensive research has been conducted to explore how Intellectual Capital (IC) influences various aspects of financial performance. According to research by Rana & Hossain (2023), The study finds that VAIC has a significant positive relationship with financial performance, as measured by Return on Assets (ROA), Return on Equity (ROE), and Tobin's Q (TQ). This observation supports the conclusions drawn by the results of Xu and Wang (2018), which was conducted on manufacturing firms in Korea. The results indicated that firms that demonstrate superior efficiency in managing Intellectual Capital are more likely to exhibit higher levels of profitability. Similarly, research by Kasoga (2020) also revealed a positive impact of IC on the profitability of companies in Tanzania. Based on the above explanations, this study expects a significant effect of VAIC on profitability and performance indicators, using the indicators of Return on Assets (ROA), Return on Equity (ROE), and Sales Growth (SG). In line with the research objectives and literature review, the hypotheses developed in this study are as follows:

- **Hypothesis 1A (H1A).** Intellectual Capital has significant influence on Profitability
- **Hypothesis 1B (H1B).** Intellectual Capital has significant influence on Sales Growth (SG)

As a key element of the VAIC framework, Human Capital Efficiency (HCE) assesses how effectively human capital (HC) contributes to value creation within a company. According to Bontis et al. (1995) underscore the importance of human capital (HC) in the context of a knowledge-based economy, asserting that it is a fundamental source of innovation and strategic renewal, which in turn elevates performance levels. SCE defines the ratio of structural costs to value added by a company. The strategic deployment of these resources plays a crucial role in boosting organizational performance. Empirical evidence suggests that SCE is positively correlated with both accounting performance and market performance indicators. CEE is a key metric for evaluating the effectiveness of physical capital deployment within a company. According to Pulic (1998), Capital Employed Efficiency (CEE) refers to all financial funds and physical capital required, which are essential elements in the VAIC model. However, several previous studies have yielded varied results. demonstrates that the components of intellectual capital are significantly correlated with financial performance, as measured by ROA, ROE, and leverage. The results corroborate the findings of Oppong and Pattanayak (2019), which demonstrated a significant effect of HCE, SCE, and CEE on the performance of firms. However, this contradicts the findings of Kasoga (2020), where HCE and CEE did not show a positive impact on financial performance, and Firer & Williams (2003), which also found no significant link between the three IC components and profitability. Drawing from the previous findings, this study anticipates that HCE, SCE, and CEE will significantly affect the financial performance of firms, evaluated through ROA, ROE, and Sales Growth (SG). In light of the aforementioned discussions, the following hypotheses are proposed for empirical testing:

- **Hypothesis 2A (H2A).** Capital Employed Efficiency (CEE) has a significant influence on profitability.

- **Hypothesis 2B (H2B).** Human Capital Efficiency (HCE) has a significant influence on profitability.
- **Hypothesis 2C (H2C).** Structural Capital Efficiency (SCE) has a significant influence on profitability.
- **Hypothesis 2D (H2D).** Capital Employed Efficiency (CEE) has a significant influence on sales growth.
- **Hypothesis 2E (H2E).** Human Capital Efficiency (HCE) has a significant influence on sales growth.
- **Hypothesis 2F (H2F).** Structural Capital Efficiency (SCE) has a significant influence on sales growth.

R&D expenditures are widely regarded in academic research as a key metric for assessing a company's innovation capacity (Bosworth & Rogers, 2001). Research and development (R&D) expenditures are generally considered a driver of company advancement and growth. Marketing, sales, and advertising expenses are commonly used as proxies for Relational Capital (RC), under the assumption that these costs are directed toward establishing and maintaining relationships with external stakeholders (Nazari, 2015).

Previous studies have yielded mixed results, such as the research by Xu & Wang (2018), which found that RDE did not have a negative impact on financial performance. In a similar vein, Vishnu and Gupta (2014) reported that Relational Capital Efficiency (RCE) is not significantly correlated with financial performance. In contrast, research by Chen et al. (2005) demonstrated that RDE positively affected Return on Assets (ROA) and Revenue Growth, while the study by Chauvin, Keith W., and Hirschey (1993) showed that Relational Capital Efficiency (RCE) had a positive and significant relationship with market value. Building on the aforementioned discussions, this study hypothesizes a significant impact of RDE and RCE on corporate financial performance, with performance measured such as ROA, ROE, and Sales Growth. Consequently, this study presents the following hypotheses for empirical testing:

- **Hypothesis 3A (H3A).** Innovative Capital Efficiency (RDE) has a significant influence on profitability.
- **Hypothesis 3B (H3B).** Relational Capital Efficiency (RCE) has a significant influence on profitability.
- **Hypothesis 3C (H3C).** Innovative Capital Efficiency (RDE) has a significant influence on sales growth.
- **Hypothesis 3D (H3D).** Relational Capital Efficiency (RCE) has a significant influence on sales growth.

Intellectual Capital is an emerging key concept in the economic landscape and plays a crucial role in ensuring corporate sustainability (Smriti & Das, 2017). Companies that maintain a Sustainable Growth Rate (SGR) are ultimately able to avoid unprofitable expansion. Effective management of SGR enables companies to prevent excessive financial resource burdens and mitigate the risks associated with overleveraging (Xu & Wang, 2018). Efficient management of SGR enables companies to prevent excessive financial resource burdens and mitigate excessive financial leverage (Xu & Wang, 2018). A greater leverage of Intellectual Capital leads to a higher sustainable growth rate. This relationship has been demonstrated in earlier studies, including those by Zhang and Wang (2022) and Kasoga (2020), which identified a significant effect of intellectual capital on sustainable growth. Based on the foregoing, this study anticipates a significant impact of Intellectual Capital on the Sustainable Growth Rate (SGR). Accordingly, the study proposes the following hypothesis:

- **Hypothesis 4 (H4).** Intellectual Capital has a significant influence on Sustainable Growth Rate (SGR).

To achieve sustainable growth, companies must efficiently manage their operational activities to generate value for all stakeholders. he Value-Added Intellectual Coefficient (VAIC) framework is

comprised of three key components: Capital Employed Efficiency (CEE), Human Capital Efficiency (HCE), and Structural Capital Efficiency (SCE), which collectively assess the efficiency of intellectual capital utilization within an organization, serve as key foundations for optimizing intellectual assets and attaining sustainable growth. The existing literature reveals divergent conclusions about the effects of each component of intellectual capital on firm performance. According to Lu et al. (2021), CEE and SCE were found to have no significant effect on sustainable growth individually; however, the study also revealed that CEE, HCE, and SCE are significantly associated with sustainable growth when considered together. Drawing from prior empirical evidence, this study expects that the efficiency of capital employed, human capital, and structural capital significantly contributes to the firm's sustainable growth rate. Consequently, the study advances the following hypotheses:

- **Hypothesis 5A (H5A).** Capital Employed Efficiency (CEE) has a significant influence on Sustainable Growth Rate (SGR).
- **Hypothesis 5B (H5B).** Human Capital Efficiency (HCE) has a significant influence on Sustainable Growth Rate (SGR).
- **Hypothesis 5C (H5C).** Structural Capital Efficiency (SCE) has a significant influence on Sustainable Growth Rate (SGR).

Efficient utilization of R&D resources, as captured by RDE, supports continuous innovation and product development, both of which are critical for sustaining a firm's competitive advantage. In the same vein, RCE measures the firm's effectiveness in maintaining and utilizing relationships with external entities such as customers, suppliers, and other business collaborators to sustain competitive advantage. Both RDE and RCE contribute to a company's ability to achieve sustainable growth. Prior studies have suggested that RDE influences the Sustainable Growth Rate (Tolga & Demir, 2014), and other research has found that RDE and RCE have a positive correlation with Sustainable Growth Rate. Additionally, Xu & Wang (2018) identified a significant relationship between RCE and sustainable growth. herefore, this study proposes that RDE and RCE serve as key determinants of Sustainable Growth Rate (SGR), given their strategic contributions to innovation and external stakeholder engagement. Accordingly, the study proposes the following hypotheses:

- **Hypothesis 6A (H6A).** Innovative Capital Efficiency (RDE) has a significant influence on Sustainable Growth Rate (SGR).
- **Hypothesis 6B (H6B).** Relational Capital Efficiency (RCE) has a significant influence on Sustainable Growth Rate (SGR).

METHODOLOGY

SAMPLE SELECTION

The target population of this study consists of companies listed on the Indonesia Stock Exchange (IDX) within the consumer goods industry. This study employs quantitative data collected over a five-year period, specifically from 2018 to 2022. Based on predetermined sample selection criteria, the final sample size consists of 130 companies. The total number of observations obtained throughout the research period amounts to 650 observations.

Table 1. Sample Selection

No.	Criteria	Number of Companies
1	Consumer Goods Companies	273
2	Companies That Have Recently Conducted an Initial Public Offering (IPO) After the Specified Period	(103)

3	Companies That Have Not Submitted Complete Financial Statements (Temporary Suspension)	(11)
4	Companies with negative equity (-)	(17)
5	ROE Value (ROE > 100% and ROE < -100%)	(12)
	Number of Companies	130
	Number of observations = 130 x 5	650

Source: Processed data

This study employs Return on Assets (ROA), Return on Equity (ROE), and Sales Growth (PERF) as the dependent variables. The corresponding formulas for these variables are outlined below:

Tabel .2 Dependent Variable Formula

Return on Assets (ROA)	$\boldsymbol{ROA = \frac{Net\ Income}{Total\ Assets}}$
Return on Equity (ROE)	$ROE = \frac{Net\ Income}{Total\ Equity}$
Sales Growth (SG)	$Sales\ Growth = \frac{Current\ Sales - Pervious\ Sale}{Previous\ Sales}$
Sustainable Growth Rate (SGR)	*SGR = Net profit ratio × Asset turnover ratio × Retention rate × Equity multiplier*

Intellectual Capital serves as the independent variable in this study and is quantified using the VAIC metric. The VAIC metric was established by Pulic (1998). The formulas for VAIC and its respective subcomponents are below :

Table 3. Independent Variable Formulas

VAIC = CEE + HCE + SCE	
VAIC	Value Added Intellectual Coefficient
CEE	Capital Employ Efficiency
HCE	Human Capital Efficiency
SCE	Structual Capital Efficiency
VA = C + D + A + OP	
VA	Value Added
C	Employee Salaries
D	Depreciation
A	Amortization
OP	Operating Profit
CEE = VA / CE	
CEE	Capital Employ Efficiency
VA	Value Added
CE	Capital Employed (Total Equity)
HCE = VA / HC	
HCE	Human Capital Efficiency
VA	Value Added
HC	Salaries and wages
SCE = SC / VA	
SCE	Structual Capital Efficiency
SC	Structural Capital (VA – HC)
VA	Value Added

In addition to the three components of VAIC, research and development (R&D) expenditure and advertising expenditure are introduced as proxies for innovative capital and RC.

RDE = R&D Expenditure / Book Value of Common Stocks

RCE = Advertising Expenditure / Book Value of Common Stocks

The control variables in this study consist of firm size (SIZE) and leverage (LEV), with the addition of the COVID variable to account for the impact of the COVID-19 pandemic occurring from 2020 to 2022. The formula for the control variables is as follows:

Table 4. Control Variable Formulas

Firm Size (SIZE)	*Size = Ln Total Assets*

Leverage (LEV)	*Leverage = Total Liability / Total Assets*

MODELS

Model 1 investigates the relationship between intellectual capital (VAIC) and financial performance (ROA, ROE, and Sales Growth).

$$PERF_{i,t} = \beta 0 + \beta 1 VAIC_{i,t} + \beta 2 SIZE_{i,t} + \beta 3 LEV_{i,t} + \beta 4 COVID_{i,t} + \varepsilon_{i,t} \quad (1)$$

Model 2 examines the relationship between the components of intellectual capital (CEE, HCE, and SCE) and financial performance (ROA, ROE, and Sales Growth).

$$PERF_{i,t} = \beta 0 + \beta 1 CEE_{i,t} + \beta 2 HCE_{i,t} + \beta 3 SCE_{i,t} + \beta 4 SIZE_{i,t} + \beta 5 LEV_{i,t} + \beta 6 COVID_{i,t} + \varepsilon_{i,t} \quad (2)$$

Model 3 investigates the relationship between Innovative Capital Efficiency (RDE) and Relational Capital Efficiency (RCE) with financial performance (ROA, ROE, and Sales Growth).

$$PERF_{i,t} = \beta 0 + \beta 1 CEE_{i,t} + \beta 2 HCE_{i,t} + \beta 3 SCE_{i,t} + \beta 4 RDE_{i,t} + \beta 5 RCE_{i,t} + \beta 6 SIzE_{i,t} + \beta 7 LEV_{i,t} + \beta 8 COVID_{i,t} + \varepsilon_{i,t} \quad (3)$$

Model 4 examines the relationship between intellectual capital (VAIC) and the Sustainable Growth Rate (SGR).

$$SGR_{i,t} = \beta 0 + \beta 1 VAIC_{i,t} + \beta 2 SIZE_{i,t} + \beta 3 LEV_{i,t} + \beta 4 COVID_{i,t} + \varepsilon_{i,t} \quad (4)$$

Model 5 investigates the relationship between the components of intellectual capital (CEE, HCE, and SCE) and the Sustainable Growth Rate (SGR).

$$SGR_{i,t} = \beta 0 + \beta 1 CEE_{i,t} + \beta 2 HCE_{i,t} + \beta 3 SCE_{i,t} + \beta 4 SIZE_{i,t} + \beta 5 LEV_{i,t} + \beta 6 COVID_{i,t} + \varepsilon_{i,t} \quad (5)$$

Model 6 explores the relationship between Innovative Capital Efficiency (RDE) and Relational Capital Efficiency (RCE) with the Sustainable Growth Rate (SGR).

$$SGR_{i,t} = \beta 0 + \beta 1 CEE_{i,t} + \beta 2 HCE_{i,t} + \beta 3 SCE_{i,t} + \beta 4 RDE_{i,t} + \beta 5 RCE_{i,t} + \beta 4 SIZE_{i,t} + \beta 5 LEV_{i,t} + \beta 6 COVID_{i,t} + \varepsilon_{i,t} \quad (6)$$

Where:

- i = 1,...n and t = 1, ... t represent companies and years, respectively.
- β0, β1, β2, β3, β4, β5, β6, and β7 are the assumed parameters.
- ϵ denotes the measurement error term.

RESULT

The descriptive statistics are summarized in the table below, indicating a total of 650 valid observations. This figure represents the number of observations utilized and analyzed in this study.

Table 5. Descriptive Statistics

Var.	Obs	Mean	Std. dev.	Min	Max
ROA	650	0.0247	0.0833	-0.5032	0.4930
ROE	650	0.0310	0.1476	-0.7121	0.5177
SG	650	0.1217	0.6135	-0.9853	8.5747
SGR	650	0.0063	0.1308	-0.7121	0.4387
VAIC	650	3.1109	4.8593	-51.5838	58.0842
CEE	650	0.3222	0.2981	-0.4447	1.8771
HCE	650	2.4915	2.6771	-10.7953	21.6350
SCE	650	0.2972	3.8254	-51.6030	58.1019
RDE	650	0.0005	0.0022	0.0000	0.0260
RCE	650	0.0461	0.1289	0.0000	1.4176
Size	650	14.8006	1.6039	10.7500	19.0109
Lev	650	0.4241	0.1988	0.0004	0.9643
COVID	650	0.6000	0.4903	0.0000	1.0000

The research framework adopts ROA, ROE, Sales Growth, and SGR as dependent variables, while the explanatory variables comprise VAIC and its

subcomponents—CEE, HCE, SCE, RDE, and RCE—together with relevant control variables. The analysis was conducted using STATA 17.0, and Table 6 presents the empirical findings of the study Models 1A and 1B exhibit a significant value for the VAIC variable of 0.003 and 0.000, respectively, indicating a significant influence of Intellectual Capital on ROA, ROE, and Sales Growth. Model 2A, Model 2B, and Model 2C exhibit a significant value for the CEE variable of 0.000, 0.000, and 0.005, demonstrating a statistically significant association between CEE and ROA, ROE, and Sales Growth.

The significant values for the HCE variable are 0.000, 0.000, and 0.000, confirming a significant effect of HCE on ROA, ROE, and Sales Growth.

The significant values for the SCE variable are 0.653, 0.939, and 0.090, indicating that SCE do not have a significant effect on ROA and ROE but has a negative impact on Sales Growth. Model 3A, Model 3B, and Model 3C exhibit a significant value for the RDE variable of 0.392, 0.428, and 0.048, indicating that RDE does not influence ROA and ROE but has a negative effect on Sales Growth.

The observed significance values 0.490, 0.651, and 0.134 for RCE suggest the absence of a statistically significant relationship with ROA, ROE, and Sales Growth. Model 4 exhibits a significant VAIC value of 0.000, confirming that VAIC has a significant impact on the Sustainable Growth Rate (SGR). Model 5 exhibits a significance value for CEE, HCE, and SCE of 0.000, 0.000, and 0.803, respectively. These results indicate that CEE and HCE have a significant impact on the Sustainable Growth Rate (SGR), whereas SCE does not.

DISCUSSION

Based on the results of data analysis, it was found that Intellectual Capital has a significant effect on ROA, ROE, and Sales Growth. The strategic role of Intellectual Capital in an organization lies in its capacity to improve profitability. These findings support the RBV theory proposed by Wernerfelt (1984). Through the strategic utilization of Intellectual Capital, companies can effectively manage and maintain the quality of both tangible and intangible assets, ensuring that these assets generate maximum added value. These results align with existing empirical evidence in the literature Bayraktaroglu et al. (2019) and Ozkan et al. (2017). Furthermore, concerning the components of Value-Added Intellectual Coefficient (VAIC) the analysis revealed that both CEE and HCE significantly affect ROA, ROE, and Sales Growth. However, SCE was found to negatively influence Sales Growth while having no significant effect on ROA and ROE. This suggests that an increase in CEE and HCE values leads to an enhancement in profitability and sales growth.

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Table 6. Hypothesis Testing Results

Variable	ROA	ROE	SG	ROA	ROE	SG
VAIC	0.003***	0.005***	0.014***			
	(0.001)	(0.001)	(0.002)			
CEE				0.182***	0.397***	0.050***
				(0.009)	(0.019)	(0.018)
HCE				0.004***	0.008***	0.030***
				(0.001)	(0.001)	(0.005)
SCE				-0.000	0.000	-0.007*
				(0.000)	(0.000)	(0.004)
SIZE	0.016***	0.028***	-0.007*	0.011***	0.017***	-0.012**
	(0.002)	(0.004)	(0.004)	(0.001)	(0.002)	(0.005)

Variable	ROA	ROE	SG	ROA	ROE	SG
LEV	-0.127***	-0.203***	0.071**	-0.199***	-0.314***	0.042
	(0.010)	(0.027)	(0.030)	(0.010)	(0.018)	(0.043)
COVID	-0.022**	-0.041**	0.007	-0.013***	-0.022***	-0.016
	(0.009)	(0.016)	(0.011)	(0.002)	(0.003)	(0.013)
Constant	-0.158***	-0.287***	0.101*	-0.106***	-0.199***	0.170**
	(0.038)	(0.052)	(0.060)	(0.019)	(0.034)	(0.074)
N	650	650	650	650	650	710
F	0.0000	0.0000	0.0000	0.0000	0.0000	0.000
R²	0.2355	0.2124	0.0108	0.3388	0.3241	0.0365

Legend: *** p<0.01, ** p<0.05, * p<0.1, Standard errors in parentheses

Source: Processed Data

Table 6. Hypothesis Testing Results (continued)

Variable	ROA	ROE	SG	SGR	SGR	SGR
VAIC				0.005***		
				(0.001)		
CEE	0.182***	0.392***	0.054***		0.274***	0.277***
	(0.009)	(0.020)	(0.018)		(0.018)	(0.018)
HCE	0.004***	0.007***	0.032***		0.008***	0.008***
	(0.001)	(0.001)	(0.005)		(0.001)	(0.001)
SCE	-0.000	0.000	-0.007*		-0.000	-0.000
	(0.000)	(0.000)	(0.004)		(0.000)	(0.000)
RDE	-0.895	-1.405	-7.656**			-2.319
	(1.046)	(1.773)	(3.874)			(1.647)
RCE	-0.005	-0.012	0.057			0.001
	(0.007)	(0.027)	(0.038)			(0.028)
SIZE	0.011***	0.017***	-0.013***	0.019***	0.010***	0.011***
	(0.001)	(0.002)	(0.005)	(0.004)	(0.002)	(0.002)
LEV	-0.199***	-0.289***	0.023	-0.150***	-0.193***	-0.199***
	(0.010)	(0.020)	(0.043)	(0.028)	(0.019)	(0.019)
COVID	-0.013***	-0.023***	-0.014	-0.041***	-0.027***	-0.027***
	(0.002)	(0.004)	(0.013)	(0.016)	(0.003)	(0.004)
Constant	-0.104***	-0.205***	0.182**	-0.202***	-0.136***	-0.134***
	(0.019)	(0.035)	(0.073)	(0.057)	(0.032)	(0.032)
N	650	650	650	650	650	650
F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R²	0.3370	0.3165	0.0387	0.163	0.2525	0.2540

Legend: *** p<0.01, ** p<0.05, * p<0.1, Standard errors in parentheses

Source: Processed Data

The observed results conform to those reported in prior studies by Xu & Wang (2018), Smriti & Das (2018), and Kasoga (2020).

Regarding the variables Research and Development Expenditure (RDE) and Advertising Expenditure (RCE), the analysis reveals that RDE

does not exert an impact on ROA or ROE but has a negative influence on Sales Growth. Innovative Capital, as reflected in R&D expenditure, represents investments made in research and development activities that are essential for business innovation and the attainment of a competitive advantage (Vishnu & Gupta, 2014). However, despite its long-term significance for innovation, R&D expenditures entail prolonged lead times and high uncertainty, which may contribute to a decline in short-term Sales Growth. Additionally, findings related to RCE indicate that it does not exert a significant influence on ROA, ROE, or Sales Growth. Smriti & Das (2018) argue that ineffective advertising investments may lead to a decline in brand awareness and product appeal, consequently diminishing consumer confidence. As a result, businesses may experience a decrease in profitability and revenue generation. These outcomes align with existing literature on the subjected by Chen et al. (2005) and Gupta et al. (2020). The empirical evidence further demonstrates that Intellectual Capital exerts a positive impact on Sustainable Growth Rate (SGR), reinforcing the role of VAIC in establishing a robust foundation for sustainable growth. This suggests that firms with higher VAIC values are better equipped to adapt to changing business environments, ensuring growth and corporate sustainability. These findings corroborate the research of Xu & Wang (2018), who assert that Intellectual Capital significantly influences SGR. Moreover, CEE has a significant association with SGR, indicating that firms capable of efficiently managing their capital and resources achieve higher sustainable growth rates. This aligns with the findings of Nadeem et al. (2018), which establish a significant relationship between CEE and SGR. Likewise, HCE is found to have a substantial impact on SGR, underscoring the importance of human resource management efficiency in driving sustainable growth. These results are consistent with the studies conducted by Ahmed & Hussin (2023) and Lu et al. (2021). However, SCE does not exhibit a significant relationship with SGR, a finding that is consistent with the research of Rana & Hossain (2023). Furthermore, RDE does not influence SGR, as research and development activities are inherently long-term strategic initiatives that accumulate knowledge and expertise over time (Tolga & Demir, 2014). Similarly, RCE does not significantly impact SGR, although its potential effect on corporate growth could become evident over an extended period (Andreeva & Garanina, 2016). These results are consistent with previous research findings by Rana & Hossain (2023).

Table 7 Summary of Hypothesis Results

Hypothesis		**Result**
H1A	Intellectual Capital has a significant influence on Profitability	Supported
H1B	Intellectual Capital has a significant influence on Sales Growth	Supported
H2A	Capital Employed Efficiency (CEE) has a significant influence on profitability	Supported
H2B	Human Capital Efficiency (HCE) has a significant influence on profitability	Supported
H2C	Structural Capital Efficiency (SCE) has a significant influence on profitability	Not Supported
H2D	Capital Employed Efficiency (CEE) has a significant influence on sales growth	Supported
H2E	Human Capital Efficiency (HCE) has a significant influence on sales growth	Supported
H2F	Structural Capital Efficiency (SCE) has a significant influence on sales growth	Supported
H3A	Innovative Capital Efficiency (RDE) has a significant influence on profitability	Not Supported
H3B	Relational Capital Efficiency (RCE) has a significant influence on profitability	Not Supported
H3C	Innovative Capital Efficiency (RDE) has a significant influence on sales growth	Supported
H3D	Relational Capital Efficiency (RCE) has a significant influence on sales growth	Not Supported

Table 7 Summary of Hypothesis Results

Hypothesis		Result
H4	Intellectual Capital has a significant influence on Sustainable Growth Rate	Supported
H5A	Capital Employed Efficiency (CEE) has a significant influence on Sustainable Growth Rate	Supported
H5B	Human Capital Efficiency (HCE) has a significant influence on Sustainable Growth Rate	Supported
H5C	Structural Capital Efficiency (SCE) has a significant influence on Sustainable Growth Rate	Not Supported
H6A	Innovative Capital Efficiency (RDE) has a significant influence on Sustainable Growth Rate	Not Supported
H6B	Relational Capital Efficiency (RCE) has a significant influence on Sustainable Growth Rate	Not Supported

Source: Processed data

CONCLUSION AND RECOMMENDATIONS

The conclusions outlined below are derived from the statistical analyses and discussions provided in the earlier sections:

1. The analysis reveals a statistically significant relationship between Intellectual Capital and financial performance, indicating that the strategic management of intangible assets enhances the effectiveness of corporate resource utilization, as reflected in ROA, ROE, Sales Growth, and SGR.
2. The findings indicate that both CEE and HCE significantly contribute to improvements in ROA, ROE, Sales Growth, and SGR. In this context, CEE and HCE play a crucial role in achieving operational efficiency. Conversely, Structural Capital Efficiency (SCE) does not exhibit a statistically significant effect on ROA, ROE, or SGR; however, it is negatively associated with Sales Growth.
3. The results indicate that neither RDE nor RCE significantly affect ROA, ROE, or SGR.. However, RDE is negatively associated with Sales Growth, implying that higher R&D efficiency may, counterintuitively, correspond with a reduction in sales growth

These findings may have several important practical implications. Business practitioners are required to optimize the utilization of all corporate resources effectively. Proper management of Intellectual Capital enables company to maximize the value of their intangible assets, thereby creating a long-term competitive advantage. Investors may conduct a comprehensive evaluation of a company's ability to leverage Intellectual Capital effectively as part of their investment decision-making process. Regulators can establish Intellectual Capital disclosure policies within corporate financial reporting frameworks to enhance transparency and accountability. Academics and researchers are encouraged to further explore and deepen their understanding of the interplay between Intellectual Capital, financial performance, and sustainable growth.

Fundamentally, this study still has several limitations that require refinement and further development in future research. Specifically, it was conducted on companies within the consumer goods sector, thereby limiting its generalizability to firms operating in other industries. The availability of data posed a constraint in this study, primarily due to the incompleteness of time-series data for benchmark variables, namely R&D Expenses and Advertising Costs. In this research, The VAIC methodology was employed to examine the contribution of Intellectual Capital to company performance.

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