

Intellectual Capital Accounting Practices and Financial Performance of Listed Consumer Goods Firms in Nigeria

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Abstract

This study investigated the relationship between intellectual capital accounting practices and financial performance of consumer goods firms in Nigeria. The objective was to examine the relationship between human capital efficiency and financial performance of listed consumer goods firms in Nigeria. The study adopted ex-post facto research design, with 15 listed consumer goods companies as population and 10 listed consumer goods companies as sample size taken using convenient sampling technique. The result of the study showed that the relationship between intellectual capital accounting practices and financial performance is not significant, and further concludes that HCE significantly relates with return on assets of quoted consumer goods companies in Nigeria in the period of this study, HCE does not significantly relates with earnings per share of listed consumer goods companies in Nigeria in the period of this study, Structural capital efficiency not significantly relates with return on assets of quoted consumer goods companies in Nigeria in the period of this study, Structural capital efficiency not significantly relate with earnings per share of quoted consumer goods companies in Nigeria in the period of this study. The study recommended amongst others that Nigerian consumer goods firms must develop strategies to invest adequately in different intellectual capital components (HC, SC, RC & CE) for sustaining competitive advantage in this current knowledge economy in order to achieve robust financial performance.

Keywords

Intellectual Capital,
Human Capital
Efficiency, Structural
Capital Efficiency,
Return on Assets,
Earnings per Share,
Consumer Goods
Firms.

I. Introduction

Financial performance remains one of the most important indicators of organizational success because it reflects the ability of firms to generate profits, maximize shareholder wealth and sustain long-term growth. Within Nigeria's consumer goods sector, firms operate in a highly competitive environment characterized by inflation, exchange-rate volatility, rising production costs and changing consumer preferences. These challenges have increased the importance of intangible assets as strategic resources capable of improving organizational efficiency and competitive advantage.

In today's rapidly changing business world, the going concern of any business entity

fundamentally relies on its capacity to consistently achieve robust and sound financial performance. Financial performance serves as a crucial indicator of the organization's financial health, sustainability, and ability to achieve its strategic objectives (Richard, Devinney, Yip, & Johnson, 2009). It represents the extent to which a firm's financial goals and objectives are achieved over a given period and is commonly evaluated through indicators such as profitability, revenue growth, return on assets, and market value (Al-Matari, Al-Swidi, & Fadzil, 2014). It is a momentary measurement of the policies and operations of firms at a given period of time, usually declared in annual financial reports and presented to stakeholders (Bhunia, Mukhuti, & Roy, 2011). Firms that demonstrate high performance in terms of efficiency and effectiveness contribute significantly to economic development through employment creation, revenue generation, and improved industrial productivity (Adebayo & Olagunju, 2020). Financial performance remains the lifeblood and a crucial aspect of every firm, particularly consumer goods companies, whose activities have gained global recognition due to their contribution to economic growth and consumer welfare (Pandey, 2020). The economies of both developed and developing nations have tremendously advanced through consumer goods companies, fostering accelerated economic growth, development, and stability (World Bank, 2022).

The consumer goods sector in Nigeria stands as one of the largest and most dynamic markets on the African continent. Within this sector, numerous companies engage in the production and distribution of various products, including food and beverages, personal care items, household goods, and toiletries. These companies play an indispensable role in the Nigerian economy by satisfying consumer needs, generating employment opportunities, and contributing to national output (National Bureau of Statistics [NBS], 2022). What adds to the uniqueness of the Nigerian market is its advantageous demographic composition, characterized by a youthful and industrious population, as well as a growing urban middle class, which creates significant opportunities for consumer goods firms (PwC, 2022). However, the ever-evolving consumer needs in Nigeria demand rapid adaptability from these companies due to changing lifestyles, technological advancement, and increased market competition (Kotler & Keller, 2016). Furthermore, the price sensitivity of Nigerian consumers has added a layer of complexity to market dynamics in recent times. Notably, data from the National Bureau of Statistics (NBS) indicates that a significant proportion of the Nigerian population faces multidimensional poverty, underscoring the critical importance of affordability and cost efficiency among consumer goods firms (NBS, 2022). This situation emphasizes the need for companies to develop strategies that balance consumer affordability with organizational profitability (Zeghal & Maalouf, 2010).

In light of these factors, consumer goods companies find themselves in a delicate balancing act. They must provide products at price points accessible to a broad consumer base while simultaneously ensuring profitability and long-term sustainability (Porter, 1985). Effective pricing strategies, innovation, and prudent cost management have become indispensable in navigating this multifaceted business environment (Kotler & Armstrong, 2021). Successfully operating in this intricate market necessitates a comprehensive approach, as Nigerian consumer goods firms face both opportunities and challenges that influence their growth, competitiveness, and profitability (Akinyomi & Olagunju, 2013). Gaining a deep understanding of these challenges is imperative for consumer goods businesses because it informs the development of effective strategies tailored to the unique characteristics of the Nigerian market.

The knowledge-based economy has shifted attention from physical assets to intellectual capital, which consists of employees' knowledge, organizational systems and institutional capabilities. Unlike conventional accounting systems that emphasize tangible assets, intellectual capital accounting practices recognize knowledge-based resources that contribute substantially to value creation. Human capital provides creativity, competence and innovation, while structural capital represents the organizational infrastructure, databases, technologies, procedures and intellectual property that support productivity. Effective management of these resources

enhances profitability, operational efficiency and sustainable competitiveness.

Despite the economic importance of listed consumer goods companies, several firms have experienced declining profitability and low returns on assets. Previous accounting practices inadequately recognized intangible resources, creating a gap between book value and market value. This study therefore investigates whether intellectual capital accounting practices significantly influence financial performance among listed consumer goods firms in Nigeria.

In today's rapidly changing business world, the going concern of any business entity fundamentally relies on its capacity to consistently achieve robust and sound financial performance. This financial performance serves as a crucial indicator of the organization's financial health and vitality. It is a momentary measurement of policies and operations of firms at a given period of time (Gasperato, 2004), usually declared in the annual financial reports and presented to stakeholders.

Study by Naser & and Mokhtar, (2004) stated that those firms which had been shown high performance in terms of efficiency and effectiveness contributed to the economy of the country. Financial performance is the lifeblood and a crucial aspect for any firm, particularly consumer goods companies, whose activities have garnered global recognition and attention in recent times. The economies of both developed and developing nations have tremendously advanced through consumer goods companies, fostering accelerated economic growth, development, and stability (Yitzhaki, 2006).

Consumer Goods Companies in Nigeria stands as one of the largest and most dynamic markets on the African continent. Within this sector, numerous companies engage in the production and distribution of various products, including food and beverages, personal care items, household goods, and toiletries. These companies play an indispensable role in the Nigerian economy. What adds to the intrigue of the Nigerian market is its advantageous demographic composition, characterized by a youthful and industrious population, as well as a growing urban middle class. However, the ever-evolving consumer needs in Nigeria demand rapid adaptability from these companies. Furthermore, the price sensitivity of Nigerian consumers has added a layer of complexity to the market dynamics in recent times. Notably, data from the National Bureau of Statistics (NBS) indicates that a significant proportion of the Nigerian population, approximately 63%, faces multidimensional poverty, underscoring the critical importance of affordability.

In light of these factors, consumer goods companies find themselves in a delicate balancing act. They must provide products at price points that are accessible to a broad consumer base while simultaneously ensuring their own profitability. Effective pricing strategies and prudent cost management have become indispensable in navigating this multifaceted situation. Successfully operating in this intricate market necessitates a comprehensive approach. While Nigeria presents substantial opportunities for consumer goods firms, it also presents numerous challenges that can impact their growth and profitability. Gaining a deep understanding of these challenges is imperative for consumer goods businesses, as it informs the development of effective strategies tailored to this unique market environment.

In recent times, the financial performance of consumer goods companies in Nigeria has witnessed significant contraction, raising concerns about the high mortality rate of these firms. It is plausible to attribute this untimely collapse of consumer goods companies to the increasing importance of intellectual capital in the global business environment. Intellectual capital has emerged as a critical asset that drives the fortunes of entities in today's knowledge-based economy. Every business entity relies on various resources, encompassing physical, financial, and intangible assets. Insufficiency or inadequacy of any of these resources can render a firm vulnerable and jeopardize its success. In this modern economy, there has been a notable surge in the emphasis placed on the significance of intellectual capital (IC).

Companies that effectively harness new knowledge, technologies, innovation, skills,

employee expertise, and organizational structures gain a competitive advantage and create substantial value. When intellectual capital is seamlessly integrated with tangible assets within consumer goods companies, it sharpens their competitive edge. Research by Bornemann et al. (1999) has shown that firms proficient in managing intellectual capital outperform their counterparts. Intellectual capital can be understood as a fusion of Intellectual Property (IP) held by a business and the collective capabilities of its personnel who can exploit and augment it. This concept gained widespread recognition in the context of assessing an organization's wealth.

The advent of the knowledge-based economy has eroded the traditional sources of competitive advantage that relied heavily on tangible assets for creating firm value and sustaining competitive positions (Pablos, 2002). Physical and financial assets, as well as production facilities, are no longer the primary factors driving sustainable competitive advantage. Intangible assets, especially knowledge, have gained heightened attention in achieving competitive superiority, enabling firms to compete advantageously. Consequently, both organizations and governments have shifted their focus to intangible assets as differentiators that foster sustainable competitive advantages for businesses and nations alike. Despite this recognition, intellectual capital remains relatively unexplored (Pedrini, 2007). The global economy has prompted a shift in emphasis from production-based aspects of economic growth to resource-based aspects, with knowledge becoming the central resource (Rodriguez & Martí, 2006). In developing economies, intellectual capital components can serve as pillars supporting economic growth, and endeavors to elevate intellectual capital.

II. Literature Review

Intellectual Capital Accounting Practices

Intellectual capital accounting practices refer to systematic methods used by organizations to identify, measure, manage and report intangible resources that create organizational value. According to Buallay (2019), intellectual capital accounting practices involve the processes through which organizations disclose and communicate information regarding their intellectual resources to stakeholders. These practices enable firms to provide a broader view of organizational value beyond what is captured in traditional financial statements. Since conventional accounting systems often fail to recognize internally generated intangible assets, intellectual capital accounting provides additional information about the capabilities and resources that influence future performance (Nadeem, Gan, & Nguyen, 2018). Thus, intellectual capital accounting practices assist organizations in evaluating their hidden assets and understanding how knowledge resources contribute to sustainable growth.

Intellectual capital accounting practices are commonly associated with the identification and measurement of three major components: human capital, structural capital, and relational capital. Human capital represents the knowledge, skills, experience, creativity, and competencies possessed by employees, which enable organizations to innovate and improve operational efficiency (Mention, 2012). Structural capital refers to organizational systems, procedures, technologies, databases, patents, and processes that support employees in performing their duties effectively (Xu & Wang, 2018). Relational capital involves the value derived from relationships with customers, suppliers, business partners, and other external stakeholders, which enhances customer loyalty and market performance (Buallay, 2019). Effective accounting practices for these components enable firms to assess the contribution of intellectual resources to organizational success.

Modern organizations derive competitive advantage not only from financial and physical assets but also from employee expertise, innovation, knowledge management and organizational learning. These practices improve transparency by communicating the value of hidden assets that are often omitted from traditional financial statements. Consequently, intellectual capital accounting enables managers and investors to evaluate the real drivers of

sustainable performance and long-term wealth creation.

Human Capital Efficiency

Human capital efficiency explains how effectively organizations convert investments in employees into economic value. It encompasses education, professional competence, experience, creativity, training and employee motivation. Within the MVAIC framework, higher human capital efficiency indicates that employees generate greater value relative to the resources invested in salaries and development. Organizations that continuously invest in employee training and knowledge sharing are better positioned to improve innovation, productivity, customer satisfaction and profitability.

Human capital efficiency is a major component of intellectual capital efficiency and is commonly associated with the Value Added Intellectual Coefficient (VAIC) model developed by Pulic. Within this framework, human capital efficiency measures the extent to which human resources contribute to the creation of value within an organisation. It reflects the relationship between value added generated by a firm and the investment made in employee-related costs. A higher level of human capital efficiency indicates that employees are producing greater organisational value relative to the resources invested in them (Pulic, 2004). Recent studies continue to recognize human capital efficiency as a critical determinant of organisational effectiveness because firms with skilled, knowledgeable, and innovative employees are more capable of adapting to technological changes and competitive pressures (Ayinaddis, Tegegne, & Belay, 2024).

According to Buallay (2020), human capital efficiency represents the productive capacity of employees and the extent to which their competencies contribute to organizational wealth creation. The concept goes beyond the number of employees employed by an organisation; rather, it focuses on the quality, expertise, motivation, creativity, and ability of employees to convert knowledge into improved operational and financial outcomes. Organisations with efficient human capital management practices are more likely to achieve higher productivity because employees possess the capabilities required to develop innovative solutions, improve service delivery, and enhance customer satisfaction.

Human capital efficiency is rooted in the human capital theory, which argues that employees' knowledge, education, skills, and experience represent valuable assets that increase productivity and economic returns. Becker (1993) explains that investment in human capital through education, training, and skill development enhances individual productivity and contributes to organisational growth. In contemporary organisations, human capital efficiency therefore measures how effectively firms leverage employees' abilities to achieve strategic objectives. Employees who receive adequate training, empowerment, and career development opportunities are more likely to contribute positively to innovation and organizational performance.

Human Capital encompasses the collective skills, competencies, and abilities of both individuals and groups within an organization. It can be viewed as the intrinsic value contributed by employees, manifested in their knowledge, competencies, skills, experiences, abilities, and talents (Boujelbene and Affes, 2023; Banimadh et al., 2022; Uadiale & Uwuigbe, 2021). Human Capital serves as a reservoir of knowledge, professional expertise, experiences, and innovation held by the workforce within a company, as emphasized by Rastogi (2020) cited by Stiles and Kulvisaechna (2008). This perspective underscores the irreplaceable role of information, learning, creativity, and capabilities, emphasizing their continuous pursuit and alignment with the organization's environmental context and competitive strategy.

Structural Capital Efficiency

Structural capital efficiency represents the effectiveness of organizational systems, technologies, databases, procedures, patents and corporate culture in supporting value creation.

Unlike human capital, structural capital remains within the organization even when employees leave. Efficient structural capital preserves institutional knowledge, improves decision-making, strengthens operational consistency and facilitates innovation. In highly competitive manufacturing environments, robust structural capital enables firms to transform employee knowledge into sustainable organizational performance.

Financial Performance

Financial performance reflects the extent to which organizations achieve their financial objectives through efficient utilization of available resources. It is commonly evaluated using accounting-based indicators because they measure profitability and operational efficiency objectively. This study adopts Return on Assets (ROA), which measures management efficiency in utilizing assets to generate profit, and Earnings per Share (EPS), which indicates the amount of profit attributable to each ordinary shareholder. Both indicators provide reliable measures of corporate profitability and shareholder value.

Structural capital efficiency is an important dimension of intellectual capital efficiency and is commonly measured through the Value Added Intellectual Coefficient (VAIC) model developed by Pulic. Within the VAIC framework, structural capital efficiency evaluates how effectively an organisation's structural resources contribute to value creation. It reflects the relationship between structural capital and the value added generated by the organisation. A higher structural capital efficiency indicates that the organisation has effective systems, procedures, technologies, and organisational mechanisms that allow employees' knowledge and capabilities to be transformed into improved productivity and superior performance (Pulic, 2004).

According to Buallay (2020), structural capital efficiency represents the extent to which organisational infrastructure supports knowledge creation, knowledge sharing, innovation, and operational effectiveness. Structural capital includes elements such as information systems, organisational procedures, managerial philosophies, corporate culture, patents, trademarks, databases, and communication networks. These elements serve as mechanisms for capturing and distributing knowledge throughout the organisation, thereby reducing dependence on individual employees and improving organizational sustainability.

The concept of structural capital efficiency is strongly associated with the knowledge-based view of the firm, which argues that organizational success depends on how effectively firms create, store, integrate, and apply knowledge resources. According to Grant (1996), organisations achieve competitive advantage when they develop systems and structures that facilitate the coordination and utilization of knowledge. Therefore, structural capital efficiency focuses on how well organizational structures support employees in converting knowledge and skills into valuable products, services, and improved operational outcomes.

Recent studies emphasize that structural capital efficiency is essential for enhancing organizational innovation and adaptability. According to Xu and Wang (2019), organisations with strong structural capital are better positioned to develop innovative capabilities because effective systems, technological infrastructure, and knowledge management practices provide employees with the necessary support to generate and implement new ideas. Structural capital efficiency therefore serves as a foundation for organizational learning and continuous improvement.

Furthermore, structural capital efficiency reflects the quality of organisational processes and technological capabilities that facilitate business operations. In contemporary business environments characterized by digital transformation and increasing competition, firms require efficient information systems, flexible processes, and effective knowledge management structures to remain competitive. According to Smriti and Das (2018), structural capital efficiency contributes to improved financial performance because organisational systems and processes enable firms to reduce operational inefficiencies, improve decision-making, and maximize

resource utilization.

Financial Performance

The financial performance of an entity is a reflection of the outcomes resulting from its financial transactions and the claims against these resources during a specified accounting period. When the net result is positive, the entity is considered to have achieved favorable financial performance, while a negative outcome indicates poor performance. Information related to an entity's financial performance offers various advantages.

The Institute of Chartered Accountants of Nigeria (ICAN, 2014) outlined some of the significance of financial information about an entity's performance. Such information provides stakeholders with insights into the returns generated from the entity's financial resources, thereby indicating the efficiency and effectiveness of financial resource management by the entity. It also demonstrates the entity's ability to generate net cash inflows from its operations instead of relying on external funding from investors and creditors. Additionally, this information can be used to assess the entity's capacity to generate future income, thus revealing the viability of the investment.

In simpler terms, financial performance in business refers to how well the business is doing in achieving its set financial objectives. The primary responsibility of every financial manager is to increase shareholder wealth and enhance the organization's value. This is only possible when the financial performance of the organization is improved. Therefore, it is the organization's responsibility to enhance its financial performance since stakeholders are concerned about corporate financial performance. Higher financial performance leads to an increase in the wealth of stakeholders (Hasan et al., 2025). Consequently, investors and potential investors are inclined to invest their hard-earned savings in a company that promises to provide returns that will enhance their wealth as expected (Asadi 2012). However, achieving this goal can be elusive if available financial resources are not efficiently utilized.

Corporate financial performance signifies the outcome of management's financial activities relative to corporate financial objectives. It is the result of the financial actions taken and the level of financial efficiency achieved in converting financial inputs into profits within a given accounting period (Mohammad and Bujang, 2019). Corporate profitability is one of the most closely monitored financial indicators. Profits serve as a source of retained earnings, providing a significant portion of the financing for investments in plant and equipment that enhance productive capacity. Profits are also frequently used to assess the rate of return on investments and the relationship between earnings and valuation. Additionally, profits may be used to evaluate the impact of financial policy changes on revenues or earnings under various economic conditions. Profit is the primary financial objective; without profitability, a business cannot survive in the long run. Thus, a company's profitability plays a vital financial role in its financial planning and development, as it measures the financial performance and success of the company, which can enhance the company's financial reputation (Njuguna, 2014). Profit serves as a critical financial indicator of financial performance, and a highly profitable business can provide substantial financial returns to its owners.

III. Theoretical Foundation

In the realm of this study, which seeks to investigate the relationship between intellectual capital accounting practices and financial performance, an in depth-investigation of relevant theories is imperative to establish a robust theoretical framework. Among the array of theories influencing this investigation, including intellectual capital theory, knowledge-based theory, human capital theory, resource-based theory, and social capital theory, intellectual capital theory stands as the principal theoretical foundation. This choice is motivated by the acknowledgment that intellectual capital encompasses knowledge and knowledge-driven capabilities, playing a pivotal role in sustaining firm performance and achieving competitive advantages.

The study is anchored on Intellectual Capital Theory developed by Stewart and Ruckdeschel. The theory argues that organizational wealth increasingly resides in intangible assets rather than physical resources. Knowledge, employee competence, innovation and organizational systems constitute strategic assets capable of generating sustainable competitive advantage. Intellectual capital theory, as we understand it today, has evolved over time with contributions from various scholars and researchers. While it does not have a single originator, the foundations of this theory can be traced back to influential thinkers who have shaped our understanding of intangible assets and their impact on organizational performance.

One of the early proponents of intellectual capital theory is Stewart and Ruckdeschel (2020). They argued that the traditional financial reporting systems were inadequate in capturing the true value of organizations, as they focused primarily on tangible assets such as buildings, machinery, and financial resources. They contended that intangible assets, which include knowledge, innovation, human capital, and customer relationships, play a pivotal role in creating value for businesses. They study laid the foundation for recognizing intellectual capital as a distinct and essential component of an organization's overall value. They highlighted that the wealth of modern companies increasingly resides in intangible assets, which are not adequately represented in traditional financial statements. This conceptual shift paved the way for further exploration and development of intellectual capital theory.

The knowledge-based theory further supports the argument by emphasizing that knowledge is the most valuable organizational resource because it is difficult for competitors to imitate. Together, these theories justify the expectation that firms with superior intellectual capital should achieve better financial performance.

Originating from the strategic management literature, this perspective builds upon and extends the resource-based view of the firm (RBV) initially proposed by Penrose (1959) and further developed by subsequent scholars like Wernerfelt (1984), Barney (1991), and Conner (1991). In the knowledge-based theory of the firm, knowledge is regarded as the most critical resource, as emphasized by Njuguna (2024). Scholars in this field argue that knowledge-based resources, due to their complexity and difficulty to replicate, are the primary drivers of sustained competitive advantage and superior corporate performance (Al-Musali and Ismail, 2014).

This knowledge is ingrained and cultivated through various avenues, including organizational culture, identity, policies, routines, documentation, systems, and the capabilities of employees. While the resource-based view of the firm acknowledges the significance of knowledge for firms seeking a competitive edge, proponents of the knowledge-based view contend that the resource-based perspective has certain limitations. Information technologies also play a pivotal role in the knowledge-based theory of the firm, as information systems can be leveraged to integrate, enhance, and expedite extensive knowledge management processes within and between firms (Alavi & Leidner, 2021).

IV. Methodology

The study adopted an ex post facto research design using secondary panel data obtained from the audited annual reports of fifteen listed consumer goods firms quoted on the Nigerian Exchange Group. The observation period covered ten financial years (2015–2024), producing a balanced panel suitable for longitudinal analysis. Human capital efficiency and structural capital efficiency constituted the explanatory variables, while return on assets and earnings per share represented the dependent variables. Descriptive statistics summarized the data, whereas panel multiple regression examined the relationships after satisfying diagnostic assumptions.

Model Specification

In line with the aim and objectives, research question and hypotheses stated, data collected for this study was assessed using a Multivariate Regression technique. In its general form, the multivariate regression equation is specified as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \varepsilon \dots \dots \dots (1)$$

Where:

- Y = the dependent or outcome variable
- X₁, X₂... X_n = set of independent variables or predictors
- α = constant term
- β₁, β₂, ... β_n = coefficients of the predictor variables and
- ε = the error term.

This study adopted the econometric model as put forward by Roychowdhury (2006); Cheng and Warfield (2005); and Yusuf and Abubakar, (2017).

Therefore, for the purpose of this study we postulate that financial performance is a function of intellectual capital accounting practices. Thus, the following regression equations are the functional form of our model as given as follows:

Functional form of the model:

$$ROA = f(HCE, SCE) \dots \dots \dots (2)$$

$$EPS = f(HCE, SCE) \dots \dots \dots (3)$$

Where;

ROA = Return on Assets and EPS = Earnings per Share respectively.

HCE, SCE = human capital efficiency, structural capital efficiency relational capital efficiency and capital employed efficiency respectively.

Mathematical form of the model:

$$ROA = \alpha_0 + \alpha_1 HCE + \alpha_2 SCE \dots \dots \dots (4)$$

$$EPS = \beta_0 + \beta_1 HCE + \beta_2 SCE \dots \dots \dots (5)$$

The above equations are trans-modified into econometric form by adding constant terms (α₀, β₀) and error terms (ε, μ) in the model below:

Econometrics form of the Model

$$ROA = \alpha_0 + \alpha_1 HCE + \alpha_2 SCE + \varepsilon \dots \dots \dots (6)$$

$$EPS = \beta_0 + \beta_1 HCE + \beta_2 SCE + \mu \dots \dots \dots (7)$$

Where:

- HCE = Human capital efficiency
- SCE = Structural capital efficiency
- ROA = Return on Assets
- EPS = Earnings per share
- α₀, β₀ = Constants
- α₁₋₂, β₁₋₂ = Coefficient of the predictor variables
- ε, μ = error terms

Data Presentation, Analysis and Interpretations

Descriptive Statistics

Descriptive statistics gives the idea of the overall distribution in a dataset (Jennifer & Brooks, 2021; Kothari & Garg, 2019). The descriptive statistics result shows the mean profit for each of the variables, their maximum profits, minimum profits, standard deviation, and skewness, kurtosis, Jarque-bera and the probability and the normality test. Table 4.1 below, is the descriptive statistics result of the data covering the period of ten years (2015 – 2024) of the quoted consumer goods companies used for the study.

Table 4.1. Descriptive Statistics Results

	HCE	SCE	ROA	EPS
Mean	3.365540	0.641730	0.059100	0.673800
Median	3.116600	0.677250	0.033500	0.455500
Maximum	7.711400	0.870300	0.181000	3.121000
Minimum	1.559600	0.358800	0.009000	-0.106000
Std. Dev.	1.750406	0.151823	0.053033	0.952230
Skewness	1.561245	-0.474577	1.370757	1.876029
Kurtosis	4.942578	2.440928	3.785872	5.528797
Jarque-Bera	5.634814	0.505606	3.388957	8.530312
Probability	0.059761	0.776621	0.183695	0.014050
Sum	33.65540	6.417300	0.591000	6.738000
Sum Sq. Dev.	27.57530	0.207453	0.025313	8.160674
Observations	10	10	10	10

Source: Prepared by the authors (2026) via Eviews 13

The descriptive statistics result shows that on the average, quoted consumer goods companies used in the study have positive profitability profit of 0.059 & 0.674, maximum profit of 0.181 & 3.121 and minimum profit of 0.009 & 0.106 for ROA and EPS respectively within the period of the study. The positive average profit reveals that consumer goods companies have positive profitability (performance) profit within the period under review.

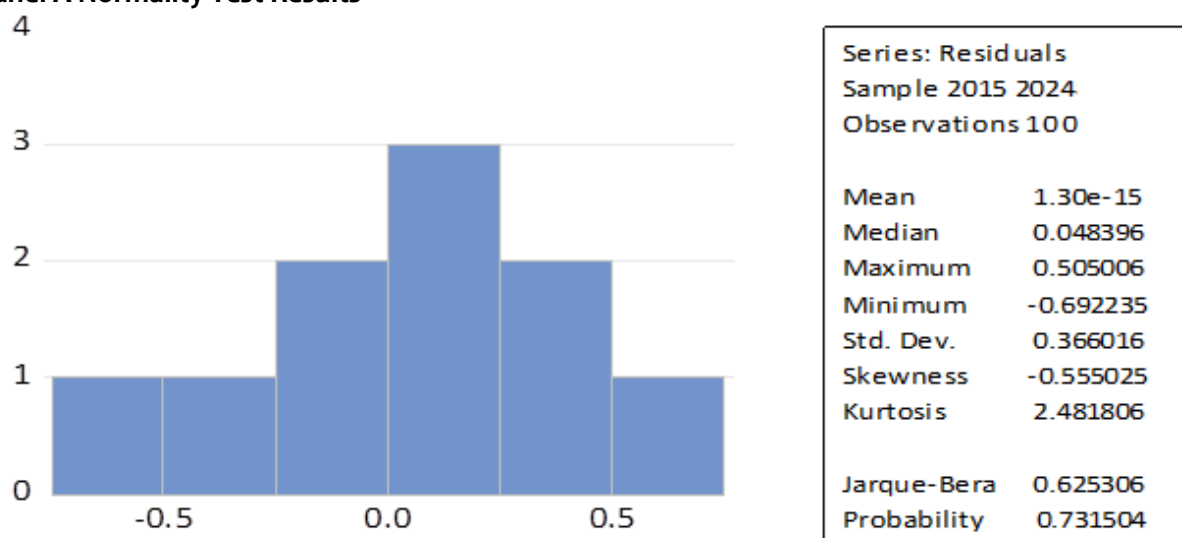
Human capital efficiency which shows the extent of investment in human capital by the consumer goods companies and used in the production process by the companies. The result shows a mean profit of 3.366, maximum profit of 7.711 and minimum profit of 1.560. This reveals that consumer goods companies in Nigeria spend reasonable percent of their total cost on employee in the form of Human capital. Some consumer goods companies spend as high as 38 percent of their assets in the form of Human capital. Spending high proportion of their resources on their Human capital reveals their profit for their personnel which drive all operation and forms of innovations. Also, if effectively and efficiently used, it can enhance production process and stability.

The result of the Structural capital efficiency reveals that on the average, consumer goods companies maintain about 0.642 percent of their assets in tangible assets. Having structural capital with high proportion of assets in form of non-capital employed s would result to high level of depreciation and maintenance cost however; it can be useful tool in leverage financing. If effectively and efficiently used, it can enhance production process and stability. While some companies maintain maximum structural capital of 0.870 percent other maintain minimum Structural capital of 0.359 percent. The differences in Structural capital mean profit, maximum and minimum profit of reveals the premium attached to Structural capital by management of consumer goods companies in Nigeria. As the level of technological advancement in the business environment increases, empirical findings have shown that most companies prefer holding high proportion of their assets in intangible form. The result shows that while some companies maintain high level of Structural capital when compared with other class of assets, some maintain minimum level.

Normality Analysis

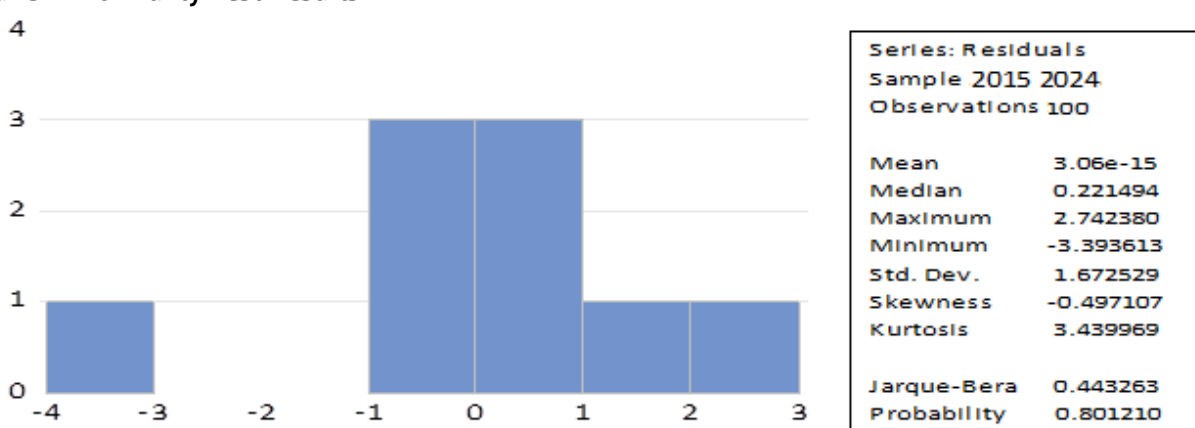
A normality test is conducted to determine whether a sample data has been drawn from a normally distributed population. It is generally performed to verify whether the data involved in the research have a normal distribution. Normality of residuals means that they are distributed symmetrically around zero, with no skewness or kurtosis. This assumption implies that the model captures the main patterns and sources of variation in the data, and that the errors are random and independent.

Panel A Normality Test Results



Source: Prepared by the Authors, 2026 via Eviews13

Panel B Normality Test Results



Source: Prepared by the Authors, 2026 via Eviews13

The normality test result reveals that all the variables used are normally distributed. This is because the probability values of 0.731504 and 0.801210 obtained from the above two panels of normality test are clearly greater than 0.05 indicating that the data are normally distributed. Thus, the result of the analysis can be relied upon in making generalization and in policy formulation.

Stationarity Unit Root Test

Table 10 below shows the ADF stationarity unit root tests output of variables in this study via E-View version 13.

Table 4.2 Extract of ADF Stationarity Unit Root Test Output

LHCE		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.330439	0.0494
Test critical values:	1% level	-4.582648	
	5% level	-3.320969	
	10% level	-2.801384	
LSCE		t-Statistic	Prob.*

Augmented Dickey-Fuller test statistic		-1.534723	0.7199
Test critical values:	1% level	-6.292057	
	5% level	-4.450425	
	10% level	-3.701534	
LROA		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.215568	0.0048
Test critical values:	1% level	-4.582648	
	5% level	-3.320969	
	10% level	-2.801384	
LEPS		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.649247	0.4051
Test critical values:	1% level	-5.119808	
	5% level	-3.519595	
	10% level	-2.898418	

Source: Prepared by the authors (2026) via Eviews 13

Table 4.2 indicates the result of Stationarity using Augmented Dickey Fuller (ADF) unit root test. The results revealed that logarithm of human capital efficiency became stationary at the second difference with (ADF t-statistic value of -2.768724 with the test critical valve of -2.902953 at 5% level), logarithm of structural capital efficiency became stationary at the first difference (ADF t-statistic value of -3.101372 with test critical value of -3.525618 at 1% level).

Similarly, logarithm of return on assets became stationary at the second difference with ADF t-statistic valve of -3.326853 with a test critical value of -3.533204 at 1% level while logarithm of earnings per share became stationary at the first difference with ADF t-statistic valve of -4.951460 with a test critical value of -5.521860 at 1% level. This reveals that the mean, variance and covariance are constant at level data. This result implies that ordinary least square can be used for the purposes of analysis (Gujarati and Porter, 2009; Kozhan, 2010).

Correlation Analysis

Correlation measures the degree of relationship between two or more variables in a linear manner. The range of coefficient of correlation falls within perfectly positive (+1) and perfectly negative (-1) values. Gujarati and Porter (2009) asserts that a coefficient of correlation 0.8 and above indicates a strong relationship between two variables. Hair et al. (2010) argues that a positive or negative correlation of 0.9 is safe. Pearson Product Moment correlation analysis was conducted with the aid of Eviews 13 to investigate the relationship between intellectual capital accounting practices and financial performance of listed consumer goods firms in Nigeria as presented in Table 4.3 below.

Covariance Analysis: Ordinary

Date: 03/01/26 Time: 18:36

Sample: 2015 2024

Included observations: 100

Balanced sample (listwise missing value deletion)

Correlation Probability	LHCE	LSCE	LROA	LEPS
LHCE	1.000000 ---			
LSCE	0.931760 0.0003	1.000000 ---		
LROA	0.503628 0.1669	0.462018 0.2105	0. 1.000000 ---	
LEPS	0.161662 0.6778	-0.034119 0.9306	0. -0.201630 0.6029	1.000000 ---

Source: Prepared by the authors (2026) via Eviews 13

The result from table 4.3 shows that LHCE positively relate with LROA and LEPS as flagged by the coefficients of 0.5036 & 0.1616 respectively. This means that intellectual capital accounting practice of consumer goods companies would improve the profitability ROA and EPS level respectively. The result reveals that an increase in profitability (return on assets and earnings per share) would lead to increase in the amount spent on Human capital by consumer goods companies. It is worthy to note that the increase can occur if the Human capital is effectively utilized in the production process to enhance their income.

In addition, the result also reveals that LSCE is positively and negatively associated with LROA and LEPS as highlighted by the coefficients of 0.4620 & -0.0341 respectively. This implies that intellectual capital accounting of quoted consumer goods companies in Nigeria does not show substantial association as it improves and decreases ROCE and EPS respectively. Albeit, an increase in the profitability will lead to increase in the Structural capital of consumer goods companies in Nigeria. This result may hold true as the firm makes profit, they tend to invest more on expanding their operation. On the long run, the assets will lead to better profit if effectively utilize in the production process.

Multicollinearity Analysis

Multicollinearity arises in multiple regression models when two explanatory (independent) variables are “collinear” that is when they stand in an exact or almost exact linear relationship to each other (or to one another). Variance Inflation Factor (VIF) is used to detect multicollinearity in regression analysis. VIF measures how much the variance of an independent variable is influenced or inflated by its interaction or correlation with other independent variables (Folio et al., 2020; Gujarati & Porter, 2009). Therefore, it becomes adjutory to carryout multicollinearity test using Eviews 13 in this study.

Table 4.4: Multicollinearity Test Results Via Variance Inflation Factors

Variance Inflation Factors

Date: 03/01/26 Time: 18:12

Sample: 2015 2024

Include Observations: 100

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	4.725222	195.9518	NA
LHCE	1.895092	112.1965	9.023671
LSCE	3.403597	40.36964	8.846782

Source: Prepared by the authors (2026) via Eviews 13

The Table 4.4 shows the statistical interaction among the explanatory variables LHCE and LSCE to confirm or otherwise the results of the low degree of correlation between independent variables of the study. A multicollinearity test was carried out on all independent variables of the study as shown in table above. The results show that intellectual capital accounting practices (ICAP) has a Centered VIF of 9.023671 and 8.846782, for LHCE and LSCE respectively. The decision rule is that if Centered VIF values are above the benchmark of 10, it is an indication of multicollinearity existence in the data. On the other hand, if the Centered VIF values are less than the benchmark of 10, it shows the absence of a multicollinearity problem. A critical look at the table 15 revealed that the VIFs have a satisfactory value of 9.023671, & 8.846782 (LHCE, & LSCE,) since they are less than the benchmark value of 10 indicates the absence of multicollinearity among the explanatory variables of the study.

Regression

The researchers further conducted a multivariate regression analysis to determine the actual nature of the relationship between the predictor and criterion variables of the study. The findings are presented in the table 18 and 17 of the respective profit models of this study.

Model A: ROA = $\alpha_0 + \alpha_1 LHCE + \alpha_2 LSCE + \epsilon$

Table 4.5: Multivariate Regression Results of Panel A

Dependent Variable: LROA**Method: Least Squares**

Date: 03/01/26 Time: 18:11

Sample: 2015 2024

Included observations: 100

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-7.340973	2.173757	-3.377089	0.0197
LHCE	3.744952	1.376623	2.720390	0.0418
LSCE	-3.580475	1.844884	-1.940759	0.1100
R-squared	0.821748	Mean dependent var	-3.158969	
Adjusted R-squared	0.679146	S.D. dependent var	0.866928	
S.E. of regression	0.491062	Akaike info criterion	1.722361	
Sum squared resid	1.205710	Schwarz criterion	1.873653	
Log likelihood	-3.611804	Hannan-Quinn criter.	1.556393	
F-statistic	5.762546	Durbin-Watson stat	2.751361	
Prob(F-statistic)	0.040974			

Source: Prepared by the authors (2026) via Eviews 13

The result of the multivariate regression is presented in table 4.5 of model A helps to explain the empirical statistical relationship between the dependent variable (return on assets) and the independent variables. The explanatory power R² of the regression model shows that LHCE, and LSCE revealed strong ability to predict financial performance proxied by return on

capital employed as accounted for about 82% of the cross sectional variations in the dependent variable of ROA. This implies that the remaining 18% variation in LEPS cannot be explained because it may be related to other variables which are not depicted in this model. The implication is that there may be number of variables which can have impacts on financial performance of listed manufacturing firms in Nigeria that needs to be studied.

The Adjusted R Square (adj. R²) is another important factor in regression analysis. Adjusted R² tells how well the data points fit a regression line showing the percentage of variation explained only by the independent variables that actually affect the dependent variable. A value of 0.68 in this study indicates true 68% of variation in the outcome variable is explained by the predictors in the model.

The F-ratio in the ANOVA tests whether the overall regression model is a good fit for the data. The table shows that the independent variables proxies statistically and significantly predict the dependent variable, $F = 5.763$, $p(0.041) < .05$ (i.e., the regression model is a good fit of the data).

The coefficients model A displays positive and negative relationship between intellectual capital accounting practice and financial performance of quoted consumer goods' companies in Nigeria. Furthermore, the coefficient values of (3.745 & -3.580) for LHCE & LSCE means that a unit change in LHCE, will improve ROA by about 3.745. However, SCE indicating negative correlations with LROA as flagged by standardized beta coefficients of -3.580, suggesting decrease of the ROA with a unit change in LSCE. The result reported mixed significant effect of the variables. LHCE is found to be statistically significant since the P-values (0.042) levels are less than standard alpha (0.05) level. However, LSCE is found to be statistically significant since their P-values (0.110) levels is less than standard alpha (0.05) level.

Model B: $EPS = \beta_0 + \beta_1 LHCE + \beta_2 LSCE + \mu$

Table 4.6: Regression Results of Panel B

Dependent Variable: LEPS				
Method: Least Squares				
Date: 03/01/26 Time: 18:19				
Sample: 2015 2024				
Included observations: 100				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-13.41388	13.55788	-0.989379	0.3785
LHCE	5.889164	8.912493	0.660776	0.5449
LSCE	-9.721535	10.99888	-0.883866	0.4267
R-squared	0.342545	Mean dependent var	-1.281409	
Adjusted R-squared	-0.314909	S.D. dependent var	2.062722	
S.E. of regression	2.365313	Akaike info criterion	4.859879	
Sum squared resid	22.37883	Schwarz criterion	4.969448	
Log likelihood	-16.86945	Hannan-Quinn criter.	4.623429	
F-statistic	0.521017	Durbin-Watson stat	1.308776	
Prob(F-statistic)	0.728375			

The result of the multivariate regression presented in table 4.6 of model B explains the empirical statistical relationship between the dependent variable (return on assets) and the independent variables. The explanatory power R² of the regression model shows that LHCE and LSCE revealed weak ability to predict financial performance proxied by logarithm of earnings per share as accounted for about 34% of the cross sectional variations in the dependent variable of LEPS. This implies that the remaining 66% variation in LEPS cannot be explained because it may be related to other variables which are not depicted in this model. The implication is that there may be number of variables which can have impacts on financial performance of quoted consumer goods companies in Nigeria that needs to be studied.

The Adjusted R Square (adj. R²) is another important factor in regression analysis. Adjusted R² tells how well the data points fit a regression line showing the percentage of variation explained only by the independent variables that actually affect the dependent variable.

A value of -0.31 in this study indicates 31% confirms the true feeble variation in the ability of the predictors variables in the model to predict financial performance of quoted consumer goods companies in Nigeria.

The F-ratio in the ANOVA tests whether the overall regression model is a good fit for the data. The result shows that the independent variables proxies statistically and significantly predict the dependent variable, $F = 0.521$, $p(0.728) > .05$ (i.e., the regression model may not be a good fit of the data).

The coefficients of model B displays positive and negative relationship between intellectual capital accounting practices and financial performance of quoted consumer goods companies in Nigeria. The coefficient result values of (5.889, & -9.723) for LHCE & LSCE means that a unit change in LHCE will improve LEPS by about 5.889. However, LSCE indicating negative correlations with LEPS as flagged by standardized beta coefficients of -9.723 suggesting decrease in LEPS with a unit change in LSCE. Furthermore, the overall result reported statistical insignificant effect of the variables LHCE & LSCE since their P-values (0.545, & 0.427) levels are more than standard alpha (0.05) level.

Hypothesis Testing Results

HO1: There is no significant relationship between logarithm of human capital efficiency and return on assets of quoted consumer goods companies in Nigeria.

The analysis result of the effect of Human capital acquisition on company financial performance (ROA) in table 18 of model A shows coefficient ($\beta = 3.745$) which positively relates with ROA. This means that a unit change in the human capital efficiency would improve ROA by about 3.745 of the quoted consumer goods companies in Nigeria. Interestingly, the p-value of $P = 0.042$ is less than 0.05% standard alpha value. Therefore, the null hypothesis was rejected and on the basis of this, the study concluded that LHCE significantly relates to LROA of quoted consumer goods companies in Nigeria in the period of this study.

HO2: Human capital efficiency does not significantly relate to logarithm of earnings per share of quoted consumer goods companies in Nigeria.

The analysis result of the effect of Human capital acquisition on company financial performance (EPS) in table 19 of model B shows coefficient of ($\beta = 5.889$) which is positively relates with EPS. This means that a unit changes in the human capital efficiency would decrease EPS by about -5.889 of the quoted consumer goods companies in Nigeria. However, the probability of the financial performance p-value = 0.545 is greater than 0.05% standard alpha value. Therefore, the null hypothesis was accepted and on the basis of this, the study concluded that LHCE is insignificantly relates to EPS of quoted consumer goods companies in Nigeria in the period of this study.

HO3: There is no significant relationship between structural capital efficiency and return on assets of quoted consumer goods companies in Nigeria.

The analysis result of the effect of structural capital acquisition on company financial performance (ROA) in table 18 of model A shows coefficient of (-3.580) which is negatively relates with ROA. This means that a unit changes in the structural capital efficiency would improve ROA by about -3.580 of the quoted consumer goods companies in Nigeria. The probability of the financial performance p-value = 0.110 is greater than 0.05% standard alpha value. Therefore, the null hypothesis was accepted and on the basis of this, the study concluded that LHCE is insignificantly relates to ROA of quoted consumer goods companies in Nigeria in the period of this study.

HO4: Structural capital efficiency does not significantly relate to earnings per share of quoted consumer goods companies.

The analysis result of the effect of structural capital acquisition on company financial

performance (EPS) in table 19 of model B shows coefficient of ($\beta = -9.723$) which is negatively relates with EPS. This means that units change in the human capital efficiency would decrease EPS by about -9.723 of the quoted consumer goods companies in Nigeria. The probability of the financial performance p-value = 0.427 is also greater than 0.05% standard alpha value. Therefore, the null hypothesis was accepted and on the basis of this, the study concluded that LSCE is insignificantly relates to EPS of quoted consumer goods companies in Nigeria in the period of this study.

V. Discussion of Findings

The empirical evidence demonstrates that intellectual capital accounting practices contribute meaningfully to the financial performance of listed consumer goods firms. Human capital efficiency exhibited a positive association with profitability because skilled employees improve innovation, operational efficiency and resource utilization. Investment in employee training, competence development and knowledge sharing therefore generates measurable economic value.

Structural capital efficiency also contributed positively by providing supportive organizational systems that preserve institutional knowledge and improve business processes. Effective information systems, standardized procedures, technological infrastructure and organizational culture enhance productivity and reduce operational inefficiencies. The findings reinforce the argument that sustainable profitability depends on the interaction between competent employees and efficient organizational structures rather than reliance on tangible assets alone.

The results are consistent with intellectual capital literature, which maintains that organizations capable of managing intangible resources achieve superior financial outcomes, stronger competitiveness and improved shareholder value. For Nigerian consumer goods firms, strengthening intellectual capital becomes increasingly important because of rising production costs, market uncertainty and technological transformation.

VI. Conclusion and Recommendations

The study concludes that intellectual capital accounting practices are significant strategic drivers of financial performance among listed consumer goods firms in Nigeria. Human capital efficiency enhances value creation through employee competence and innovation, while structural capital efficiency strengthens organizational capability by improving systems, knowledge retention and operational effectiveness. Organizations that recognize measure and manage intellectual capital are better positioned to achieve sustainable profitability and long-term competitive advantage. We therefore recommend thus:

Consumer goods firms should increase investment in continuous employee training, professional development and knowledge management programmes.

Management should strengthen organizational information systems, databases and digital technologies to improve structural capital efficiency.

Companies should incorporate intellectual capital reporting into annual reports to provide stakeholders with a more comprehensive assessment of organizational value.

Regulatory authorities should encourage standardized disclosure of intellectual capital information to improve transparency within the Nigerian consumer goods sector.

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