Effect of Intellectual Capital on Financial Performance of Listed Fintech Companies in Nigeria

[1]**Abdulazeez E. Ismaila**
Department of Accounting, Federal University Lokoja. Kogi State.
Email.abdulazeez.ismaila@fulokoja.edu.ng
+2340806-533-5484
[2] **Suleiman A .S Aruwa**
Department of Accounting, Nasarawa State University Keffi, Nasarawa State.
aruwasas@nsuk.edu.ng
[3] **Jacob O. Ame**
Department of Accounting, Nasarawa State University Keffi, Nasarawa State
ameh@nsuk.edu.ng

Abstract
This study examines the effect of intellectual capital on the financial performance of listed fintech companies in Nigeria from 2014 to 2023. Employing an ex-post-facto research design with a cross-sectional approach grounded in positivist philosophy, the study explores the relationship between intellectual capital and financial performance. Intellectual capital is measured using Human Capital Efficiency, Structural Capital Efficiency, and Capital Employed Efficiency, while financial performance is proxied by Return on Investment (ROI).The study population comprised eight listed fintech companies in Nigeria, with a purposive sample of six listed companies in Nigeria based on data availability. Data analysis was conducted using panel regression with Stata 17. Findings indicate a significant positive relationship between Human Capital Efficiency and financial performance. Similarly, Structural Capital Efficiency significantly influences ROI. However, while Capital Employed Efficiency exhibited a positive effect, its impact on ROI was statistically not significant The results highlight the critical role of human and structural capital in driving financial performance in the fintech sector. The study underscores the need for firms to prioritize investment in intellectual capital to enhance competitiveness. Future research is recommended to explore contextual factors influencing Capital Employed Efficiency in relation to financial performance.

Keywords: Intellectual capital, financial performance and Fintech companies.

Introduction

The transition from industry-based to technology-driven economies has shifted focus towards intellectual capital, emphasizing knowledge, skills, and creativity over physical assets. Intellectual capital, comprising human and structural assets, is crucial for value creation and competitiveness

in today's economy. Companies leveraging intellectual capital experience enhanced performance and shareholder attractiveness.

In today's rapidly evolving business landscape, financial performance has emerged as a critical metric for organizational success. Companies are increasingly held accountable for their financial health, with stakeholders demanding transparency and efficiency in resource allocation. Empirical studies indicate that robust financial performance not only enhances shareholder value but also provides the necessary capital for reinvestment and growth (Chen & Cheng, 2019; For instance, firms with strong financial outcomes are better positioned to weather economic downturns, attract top talent, and engage in strategic innovations (Porter, 1985). As such, understanding the drivers of financial performance is paramount for organizations striving for sustainability and competitiveness in today's market (Graham et al., 2015; Hoskisson et al., 1999).

Utilizing intellectual capital can enhance organizational performance, as evidenced by studies conducted by Shubita (2022). To buttress this point Tran et al. (2022) state that to obtain a sustainable competitive advantage so as to improve company performance, companies must have intangible resources or intellectual capital that is capable of generating additional value for company stakeholders. Empirical research highlights that firms with high levels of intellectual capital not only experience enhanced market valuations but also achieve superior financial performance (Subramaniam &Youndt, 2005; Chen et al., 2004). In particular, human capital, structural capital, and capital employed are recognized as fundamental components of intellectual capital that contribute to a firm's ability to create and sustain value (Youndt et al., 2004). The necessity of intellectual capital in today's business world is further underscored by its capacity to foster innovation, enhance customer relationships, and streamline operations (Bontis et al., 2002; Khalique et al., 2011).

The empirical relationship between financial performance and intellectual capital is well documented, with numerous studies illustrating that effective management of intellectual capital leads to improved financial outcomes. For instance, organizations that leverage their human capital efficiently tend to report higher returns on investment and overall profitability (García-Morales et al., 2006; Chen & Huang, 2009). Similarly, the alignment of structural capital with strategic objectives has been linked to enhanced financial performance metrics, as firms are better equipped to execute their strategies effectively (Bontis et al., 2000; Bontis, 2001). Furthermore, relational capital has been shown to play a significant role in facilitating market access and customer loyalty, which are essential for achieving sustainable financial performance (Dyer & Singh, 1998; Wong & Wong, 2011).

Despite the substantial body of literature examining the intersection of intellectual capital and financial performance, notable gaps persist that warrant further investigation. Empirically, many studies have focused on specific sectors, besides; the rise of fintech has created high pressure for the incumbents and challengers for regulators to remain stable in the society
Most studies focused mainly on Deposit Money Bank, industrial companies and conglomerate firms. Attention is now shifted to fintech industry as the industry is growing Nigeria economy significantly. Theoretical gaps also exist, as existing frameworks often inadequately capture the dynamics of intellectual capital within rapidly changing environments, particularly in technology-driven sectors (Teece, 2010). Methodologically, much of the research relies on cross-sectional data, limiting the understanding of longitudinal effects and the causality of relationships between intellectual capital and financial performance (Hsu &Sabherwal, 2012). Additionally, real-world gaps arise from the rapid pace of technological advancement, which may render previous findings

obsolete and highlight the need for ongoing research that addresses the contemporary context of fintech (Cohen &Levinthal, 1990).

Given these identified gaps, there is a compelling need for new empirical studies that rigorously explore the relationship between intellectual capital and financial performance, particularly in the context of fintech companies. As this sector continues to grow and evolve, understanding the specific role of intellectual capital in driving financial outcomes becomes increasingly vital for practitioners and scholars alike (Yin et al., 2020). New research should aim to develop frameworks that integrate empirical insights with contemporary challenges, enabling firms to better leverage their intellectual capital for financial success and competitive advantage.

The general research objective of this study is to ascertain the effect of intellectual capital on the financial performance of listed fintech companies in Nigeria, using Human Capital Efficiency, Structural Capital Efficiency, and Capital Employed Efficiency as proxies for intellectual capital and Return on Investment as the proxy for financial performance. This objective is justified by the increasing importance of intellectual capital in driving innovation and competitiveness within the fintech sector, where intangible assets play a critical role in distinguishing successful firms from their competitors. By addressing the identified empirical, theoretical, methodological, and real-world gaps, this study seeks to contribute valuable insights that can guide both academic inquiry and practical applications in the management of intellectual capital within the listed fintech companies.

Literature Review

Concept of financial performance
Financial performance is a measure of a firm's profitability and efficiency in utilizing its resources to generate income, reflecting the effectiveness of its management and operations. It is a crucial indicator of an organization's overall health, as it influences investment decisions, stakeholder confidence, and long-term sustainability (Venkatraman&Ramanujam, 1986). Common proxies used to assess financial performance include Return on Investment (ROI), Return on Assets (ROA), Return on Equity (ROE), and net profit margins (Chen et al., 2014; Ittner&Larcker, 1998). Among these, ROI is particularly significant, as it provides insight into how well a company is using its invested capital to generate profits, thus serving as a comprehensive gauge of financial efficiency (Brigham &Ehrhardt, 2013).

Concept of Intellectual Capital
Intellectual capital refers to the intangible assets of a firm that contribute to its competitive advantage and overall value creation. It encompasses the knowledge, skills, and experience of employees, the organization's processes and systems, and the relationships it maintains with external stakeholders (Stewart, 1997; Edvinsson& Malone, 1997). Intellectual capital is typically categorized into three main proxies: Human Capital, which pertains to the skills and competencies of employees; Structural Capital, which includes organizational processes and intellectual property; and Capital Employed Efficiency (CEE) deal with the importance of utilizing financial resources optimally, with research showing that firms that manage their capital resources efficiently experience enhanced financial performance (Cohen &Kaimenakis, 2007; CIMA, 2010). This multidimensional nature of intellectual capital underscores its significance as a driver of innovation and performance in today's knowledge-based economy.

Human Capital Efficiency
Human Capital Efficiency (HCE) refers to the effective utilization of an organization's human resources to achieve maximum productivity and value creation. It emphasizes the importance of employee skills, knowledge, and experience in contributing to the firm's overall performance (Klein et al., 2015). HCE can be measured through various indicators, such as employee training and development initiatives, employee satisfaction and engagement levels, and the extent to which human resources are aligned with organizational goals (Sullivan, 1999). High levels of HCE typically correlate with improved organizational performance, as skilled and knowledgeable employees drive innovation, enhance operational efficiencies, and foster positive customer relationships (Becker, 1993).

Structural Capital Efficiency
Structural Capital Efficiency (SCE) refers to the effectiveness with which an organization utilizes its structural resources, including processes, systems, and organizational frameworks, to enhance operational performance and achieve strategic objectives. It encompasses the formal structures, culture, and intellectual property that facilitate the organization's functioning (Bontis, 1998). High levels of SCE indicate that a firm has well-defined systems in place to support its human capital, enabling efficient decision-making, knowledge sharing, and innovation (Youndt et al., 2004). Structural Capital Efficiency is critical for firms seeking to optimize their operational capabilities and drive financial performance through effective resource management.

Capital Employed Efficiency
Capital Employed Efficiency (CEE) refers to the effectiveness with which a firm utilizes its capital resources to generate returns. It measures how efficiently a company employs its capital, encompassing both equity and debt, to achieve financial performance objectives (Higgins, 2012). CEE is crucial for understanding how well a firm manages its assets to maximize profitability and minimize wastage, providing insights into operational efficiency and investment decisions. High levels of CEE typically indicate that a firm is effectively leveraging its capital base to generate returns, contributing to overall financial performance (Cohen &Kaimenakis, 2007).

Empirical Literature
Abdulazeez and Emmanuel (2024) analysed the Effect of Intellectual Capital on Financial Performance of Corporate Group of Firms in Nigeria. They used the Nigerian Stock Exchange fact book and the internet to gather information on a sample of ten listed corporate group firms that were listed on the Nigerian Exchange Group throughout ten-year period (from 2014 to 2023.The study used an ex-post facto research design. The data was analysed using the Multiple regression Method. Based on the analysis of intellectual capital and its impact on corporate group firms performance in Nigeria, it is evident that intellectual capital plays a pivotal role in enhancing corporate performance within these industries, as it was positively and significantly impacted by the explanatory variables, capital employed efficiency, human capital efficiency, and structural capital efficiency.

Afzia Tariq et al. (2023) explored the significance of human capital in enhancing the financial performance of banks in Pakistan, particularly Return on Assets (ROA). However, a limitation of the study is its reliance on the Value Added Intellectual Coefficient (VAIC) model, which has been critiqued for its inability to capture all facets of intellectual capital, particularly its dynamic

components (Stahle et al., 2011). Moreover, the study does not thoroughly examine how variations in organizational culture or industry regulations may influence the human capital and financial performance relationship.

Sani Bala et al. (2023) examined the oil and gas sector in Nigeria presents strong evidence of the positive impact of human capital on financial outcomes, but it is somewhat limited by its focus on only Net Profit Margin (NPM) and Return on Equity (ROE) as dependent variables. The exclusion of other financial performance indicators like Return on Assets (ROA) or Tobin's Q, which are commonly used in intellectual capital research, limits its comprehensiveness. Additionally, the study would benefit from a comparative analysis of human capital's effects across other industries for broader insights.

Fitri (2023) examined whether financial technology moderates intellectual capital and firm performance. The study used secondary data obtained from the Indonesian stock exchange with a sample of banking companies listed on the Indonesian stock exchange. The dataset comprises a total of 230 observations. A panel data random effect regression model was applied to analyze the data. This study shows that intellectual capital moderated by financial technology has a significant effect on company performance. The reviewed study was carried out in Indonesia and at variance with the current study as the current study is in Nigeria. Because of the geographical location of the study is a limitation, as culture and geographical setting differs, the finding there cannot be applied here. In light of the above reason, the present study is based on the effect of intellectual capital on the financial performance of fintech companies in Nigeria.

Onoriode (2022) evaluated the effect of human capital development cost on the firm financial performance of listed manufacturing companies in Delta State, Nigeria, between the 2014 -2018 financial years. A longitudinal research design was adopted, and the data collected were analyzed using descriptive and inferential statistics. Secondary data were gathered from annual reports and audited accounts of these firms that were selected using a stratified sampling technique. The results revealed a significant influence and positive relationship between human capital investment, welfare cost, and financial performance of listed manufacturing companies. The study concluded that human capital development improves the financial performance of companies.

Lambe et al. (2021) examine the effect of human resources on the financial performance of listed oil and gas firms in Nigeria, from 2011 to 2020. The study adopted Expo facto research design and employed a purposive sampling technique in selecting 12 companies from the population of 14 listed oil and gas firms in Nigeria. Opened system, expectancy, and human capital theories were used in the study. Return on assets (ROA) is the proxy for financial performance, while human resources were proxied by employee remuneration, training and development cost, and medical and health expenses. A panel regression model with the aid of the statistical tool E-views version 10 was used for the data analysis. The study concluded that training and development costs positively and significantly influenced the financial performance of listed oil and gas companies in Nigeria.

Fatima et al, (2020) investigate the intellectual capital (IC) information reported in the annual reports and market value of the companies listed on the Qatar Stock Exchange. The study is based on a panel data for six years from 2010-2012 and 2016-2018. The regression model is based on Ohlson's model, which has been modified by including IC information. The study found that there is a significant relationship between IC information and firm market value. This study is recent

but however, intellectual capital was not examined based on the various components of human capital, structural capital and capital employed.

Theoretical Framework
The relationship between intellectual capital and financial performance can be examined through several theoretical frameworks. One of the most pertinent is the Resource-Based View (RBV), which posits that unique resources and capabilities, including intellectual capital, are crucial for achieving competitive advantage and superior financial performance (Barney, 1991). The RBV suggests that firms with valuable, rare, and inimitable resources such as skilled employees, efficient processes, and strong customer relationships will outperform their competitors (Grant, 1991). Numerous studies support this framework, demonstrating that effective management of intellectual capital leads to enhanced organizational performance (Teece, 2010; Spender, 1996). The Dynamic Capabilities Framework provides insight into how firms can adapt and renew their resources and capabilities in response to changing market conditions (Teece et al., 1997). This framework suggests that firms with strong dynamic capabilities, including the ability to leverage intellectual capital effectively, are more likely to achieve sustained competitive advantage and financial performance (Eisenhardt & Martin, 2000). Empirical studies have shown that organizations with robust dynamic capabilities can effectively harness their intellectual capital to navigate uncertainty and drive financial success (Ambrosini & Bowman, 2009; Winter, 2003).

Among the various theoretical frameworks, the Resource-Based View (RBV) is the most relevant for this study. This framework emphasizes the role of unique resources, such as intellectual capital, in achieving competitive advantage and enhancing financial performance. The RBV provides a solid foundation for understanding how firms can leverage their intangible assets to improve operational efficiency, innovate, and ultimately achieve superior financial outcomes (Barney, 1991). Moreover, the empirical support for the RBV in various industries, including fintech, highlights its applicability in explaining the relationship between intellectual capital and financial performance (Grant, 1991; Spender, 1996).

"The justification for selecting the RBV as the theoretical framework lies in its comprehensive approach to analyzing the interplay between a firm's resources and its performance outcomes by focusing on the unique attributes of intellectual capital, the RBV aligns with the objectives of this study, which aims to explore how different dimensions of intellectual capital influence financial performance in listed fintech companies. Additionally, the RBV encourages a more understanding of how firms can strategically manage their intangible assets to achieve sustained competitive advantage, thereby providing valuable insights for both practitioners and scholars in the field of Accounting, finance and management.

Methodology
This research adopts a quantitative approach to examine the relationship between intellectual capital and financial performance among listed fintech companies in Nigeria. ex post facto research design using cross-sectional data and annual reports and audited accounts of listed fintech industries in Nigeria 2014 – 2023, to explore the effect of independent variables (Human capital, Structural capital and Capital employed efficiency) on the dependent variables (financial performance). The population for this study consists of eight listed fintech companies in Nigeria. six companies selected are; Airtel Africa PLC, Briclinks Africa PLC, Chams Holding Company

PLC, CWG PLC, E-Transact International PLC and MTN Nigeria Communications PLC using purporsive sampling technique. The sources of data for this study is Secondary, which were extracted from the annual reports and accounts of the listed fintech companies in Nigeria, using audited financial statements the data is for 10 years from 2014 - 2023 to ensure reliability and validity.

The econometric regression model specified is:

$$ROI_{it} = a + \beta_1 HCE_{it} + \beta_2 SCE_{it} + \beta_3 CEE_{it} + \varepsilon_{it}$$

Where

ROI= Return on Investments

HCE = Human Capital Efficiency

SCE = Structural Capital Efficiency

CEE = Capital Employed Efficiency

β_1 to β_3 Coefficients to be estimated

E =Error term

It=Individual firm at time t

Table 1: Variable measurement

Variables	Measurement	Appriori Expectation	Justification
RO1	Ratio of net profit to total assets	Positive	Donaldson B (1914) ,Eric T(2018) and Sunil G (2020)
HCE	Measured by ratio of total staff cost	Positive	Rudez and Mihalic, (2007); Laing et al ,(2010); Mehralian G et al, (2012); Ekwe, (2012)
SCE	Measured by the Ratio of Structural Capital to value Added	Positive	Blessing (2023), Gholamipour and Arabani, (2014); Chizari et al,(2015); Isanzua, 2015 Shafi'u et al. ,(2017); Smriti and Das, (2017)
CEE	Ratio of value added to capital employed	Positive	Tefera, 2018), Mehralian G et. al, (2012), Chizari et al. (2015), Shafi'u et al.(2017)
Value Added	Measured as output less input	Positive	Pulic (1998), Onoriode (2022

Researcher's Computation, 2024

Results and Discussions

Descriptive Statistics

Table 2: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min
ROI	60	9.149	5.338	.016
HCE	60	5.482	2.888	.051
SCE	60	5.003	2.776	.007
CEE	60	4.472	2.782	.092

Stata output, 2024

The descriptive statistics presented in Table 2 provides an overview of the financial performance (ROI) and the three proxies of intellectual capital (HCE, SCE, and CEE) for the six listed

companies with 66 observation analysed. The mean ROI is 9.149, with a standard deviation of 5.338, indicating a relatively wide variation in the financial performance of the firms within the sampled. The minimum ROI recorded is 0.016, while the maximum is 19.578, suggesting that some companies perform significantly better than others. This variability points to differences in operational efficiency, market strategies, and the impact of intellectual capital across the firms.

For the independent variables, Human Capital Efficiency (HCE) has a mean of 5.482 and a standard deviation of 2.888. The range of HCE values, from a minimum of 0.051 to a maximum of 9.945, suggests that while some firms are effectively leveraging their human resources, others are not. Structural Capital Efficiency (SCE) indicates a mean value of 2.776 indicating significant investment in organizational structure and processes. The minimum and maximum value stands at .007 and 5.003 respectively.

Finally, Capital Employed Efficiency (CEE) has a mean of 4.472 and a standard deviation of 2.782, with values ranging from 0.092 to 9.946. The differences in these proxies reflect the diverse approaches firms take in managing their intellectual capital, which could directly influence their financial outcomes.

Matrix of Correlations

Table 3

Variables	(1)	(2)	(3)	(4)	(5)
(1) ROI	1.000				
(2) HCE	-0.021	1.000			
(3) SCE	-0.031	-0.047	1.000		
(4) CEE	0.067	-0.190	0.180	1.000	

Stata output, 2024

Table 3 presents the correlation matrix, which reveals the relationships between the dependent variable (ROI) and the independent variables (HCE, SCE, and CEE). The correlation coefficients show that ROI has a slight negative correlation with both HCE and SCE, with values of -0.021 and -0.031, respectively, suggesting that there is no substantial linear relationship between these proxies of intellectual capital and financial performance. However, the correlation between ROI and CEE is positive at 0.067, indicating a weak positive relationship, though statistically significant, these correlations suggest that while there may be some relationship between ROI and the independent variables, it is not strong, warranting further examination through regression analysis.

Table 4: Breusch–Pagan/Cook–Weisberg Test for Heteroskedasticity

Assumption:		Normal		error		terms
Variable:	Fitted		values		of	roi
H0:		Constant				variance
chi2(1)		=				0.00
Prob> chi2 = 0.9474						

Stata output, 2024

The results from Table 4 show the outcomes of the Breusch–Pagan/Cook–Weisberg test for heteroskedasticity, which is essential for assessing the validity of the regression model's

assumptions. The null hypothesis states that there is constant variance in the error terms. The chi-square statistic is 0.00 with a corresponding p-value of 0.9474. Since the p-value is substantially greater than the conventional alpha level of 0.05, we fail to reject the null hypothesis. This indicates that the assumption of constant variance holds, suggesting that heteroskedasticity is not a concern in this dataset. Therefore, the regression analysis can proceed with the confidence that the residuals do not exhibit variability that could affect the robustness of the results.

Table 5 Variance Inflation Factor (VIF)

VIF	1/VIF
1.070	0.935
1.040	0.964
1.030	0.968
1.050	

Stata   output,   2024

Table 5 presents the results of the Variance Inflation Factor (VIF) analysis, which is utilized to assess multicollinearity among the independent variables. The VIF values for HCE, SCE, and CEE are 1.070, 1.040, and 1.030, respectively. These values are all below the common threshold of 10, indicating that multicollinearity is not a significant issue in this analysis. This suggests that the independent variables are sufficiently independent of one another, which is crucial for ensuring that the regression coefficients are stable and can be interpreted reliably. Low multicollinearity helps in maintaining the integrity of the estimated relationships between the independent variables and the dependent variable.

Table 6 Hausman specification test

	Coef.
Chi-square test value	6.654
P-value	.084

Stata   output,   2024

The Hausman test results shown in Table 6 provide insights into the appropriateness of the chosen model for the panel regression analysis. The chi-square test value is 6.654, with a p-value of 0.084. In this context, the null hypothesis indicates that the random effects model is consistent and efficient, while the alternative hypothesis suggests that the fixed effects model is preferable. Since the p-value of 0.084 is greater than the typical significance level of 0.05, we fail to reject the null hypothesis. This implies that the random effects model is a suitable choice for this analysis, suggesting that unobserved individual effects are not correlated with the explanatory variables, thereby validating the method chosen for this study.

Regression Results

Table 7

ROI	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
HCE	.078	.01	7.43	0.00	.057	.098	***

SCE	.043	.011	4.08	0.00	.022	.063	***
CEE	.106	.155	0.68	.494	-.197	.409	
Constant	3.289	.968	3.40	.001	1.391	5.186	***

Mean dependent var	9.149	SD dependent var	5.338
Overall r-squared	0.616	Number of obs	66
Chi-square	99.258	Prob> chi2	0.000
R-squared within	0.624	R-squared between	0.609

*** p<.01, ** p<.05, * p<.1

Stata output, 2024

Table 7 presents the regression results, which detail the relationships between the independent variables (HCE, SCE, CEE) and the dependent variable (ROI). The coefficients for HCE and SCE are 0.078 and 0.043, respectively, both with p-values of 0.000, indicating statistically significant positive relationships with ROI. This suggests that increases in Human Capital Efficiency and Structural Capital Efficiency are associated with improvements in financial performance. In contrast, the coefficient for CEE is 0.106, but the p-value of 0.494 indicates that this relationship is not statistically significant. The overall R-squared value of 0.616 suggests that approximately 61.6% of the variance in ROI can be explained by the independent variables in the model, which indicates a reasonably strong fit. The chi-square value of 99.258 with a p-value of 0.000 further supports the model's significance, confirming that the independent variables collectively contribute to explaining financial performance in the context of the listed fintech companies in Nigeria. The constant term is significant at 0.001, indicating a baseline ROI even in the absence of the independent variables. Overall, the results underscore the importance of HCE and SCE in enhancing financial performance, while the impact of CEE remains unclear and merits further investigation.

Discussion of findings

The findings from the regression analysis reveal a significant positive relationship between Human Capital Efficiency (HCE) and financial performance, as measured by Return on Investment (ROI), with a coefficient of 0.078 and a p-value of 0.000. This aligns with prior research indicating that effective management of human capital is crucial for enhancing organizational performance. For instance, Becker (1993) emphasizes that investments in employee training and development lead to higher productivity and profitability, which aligns with the findings of this study. Similarly, Chen & Huang (2009) found that firms with robust human resource practices achieve superior financial outcomes due to increased employee engagement and efficiency.

The positive association between Structural Capital Efficiency (SCE) and financial performance is also significant, with a coefficient of 0.043 and a p-value of 0.000. This is consistent with research by Bontis et al. (2000), who found that strong structural capital facilitates improved operational efficiencies and innovation, directly impacting financial performance. Moreover, Wang & Chang (2005) argue that firms with well-defined processes and efficient organizational structures are better positioned to leverage their intellectual capital, resulting in enhanced financial returns. These findings suggest that organizations that prioritize structural capital development can significantly enhance their financial performance.

The analysis indicates that Capital Employed Efficiency (CEE) does not significantly affect ROI leading to the acceptance of the null hypothesis (H03) with a coefficient of 0.106 and a p-value of

0.49. This implies that the efficiency of capital employed does not have a significant impact on the financial performance of listed fintech firms in Nigeria. This result aligns with the findings of Chen et al. (2017), who noted that physical capital's impact on firm performance is less significant compared to other forms of capital. The lack of significant impact of CEE on ROI suggests that physical capital, while necessary, may not be the primary driver of financial performance in fintech firms in Nigeria. This finding is consistent with the study by Nassar (2016), which found that intellectual capital, rather than physical capital, is the key determinant of firm performance. Efficient utilization of intellectual capital components, such as human and structural capital, appears to have a more substantial impact on profitability and overall performance.

Theoretical frameworks that support these findings include the Resource-Based View (RBV), which posits that unique resources and capabilities, such as human and structural capital, are vital for achieving competitive advantage and superior financial performance (Barney, 1991). The RBV emphasizes that firms that effectively leverage their intangible assets, such as skilled employees and efficient processes, can enhance their financial outcomes. Additionally, the Knowledge-Based Theory (KBT) underlines the significance of knowledge and intellectual capital in driving innovation and organizational performance (Nonaka& Takeuchi, 1995). These theories reinforce the study's findings that emphasize the importance of HCE and SCE in influencing financial performance.

Conclusion and Recommendations

The study's findings underscore the significant impact of Human Capital Efficiency and Structural Capital Efficiency on the financial performance of listed fintech companies in Nigeria. The analysis of intellectual capital and conglomerate performance in Nigeria highlights the critical role of HCE and SCE in driving corporate success. Moving forward, integrating intellectual capital metrics into performance evaluation frameworks will be essential for accurately assessing and enhancing firm competitiveness in the knowledge economy.

Based on the findings, the following recommendations are proposed for fintech companies aiming to improve their financial performance:

i. Enhance Education and Training Programs**:** Implement comprehensive education and training programs aimed at enhancing the skills and capabilities of the workforce. Emphasis should be placed on continuous learning, knowledge transfer, and capacity building in both technical and soft skills to improve Human Capital Efficiency (HCE).

ii. Strengthen Intellectual Property Rights (IPR) Protection**:** Strengthen the legal framework for intellectual property rights protection to safeguard innovations and encourage investments in R&D. Enhancing IPR enforcement will incentivize conglomerates to invest in developing and commercializing intellectual assets, thereby enhancing Structural Capital Efficiency (SCE).

iii. Facilitate Access to Funding and Incentives**:** Provide financial incentives such as tax incentives, grants, and subsidies to support conglomerates' investments in intellectual capital development. Facilitate access to venture capital and financing options specifically tailored for innovative ventures and intellectual property-intensive industries.

Encourage fintech companies to develop and implement clear strategies for managing intellectual capital. This includes identifying and valuing intellectual assets, establishing robust intellectual asset management practices, and integrating intellectual capital considerations into corporate governance frameworks.

References

Abdulazeez, I. E., & Emmanuel, E. (2024). The effect of intellectual capital on the performance of corporate group firms in Nigeria. *Nigerian Journal of Accounting and Finance, 16*(1), 182-203. https://www.nijaf.com.ng

Afria Tariq et al, (2023).An empirical study of the impact of intellectual capital on business performance. *Journal of information and knowledge management vol10 No1*

Anis, O., &Younis, A. (2019). The impact of capital structure on firm performance: Evidence from Tunisia. *The Journal of Risk Finance*, 20(2), 153-166.

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17(1), 99-120.

Becker, G. S. (1993). Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education. *University of Chicago Press*.

Bontis, N., Chua, W., & Richardson, S. (2002). Intellectual Capital and Business Performance in Malaysian Industries. *Journal of Intellectual Capital*, 3(3), 85-100.

Chen, Y., & Chen, W. (2017). The impact of capital structure on firm performance: Evidence from Chinese manufacturing firms. *Emerging Markets Finance and Trade*, 53(6), 1327-1340.

Chen & Cheng, (2019). The influence of intellectual capital on new product development performance: The manufacturing companies of Taiwan as an example. *Total Quality management, vol. 17 No.10, PP 1323-1339.*

Cohen, W. M., &Kaimenakis, N. (2007). The role of human and organizational capital in determining firm performance: Evidence from the Greek manufacturing sector. *International Journal of Human Resource Management*, 18(9), 1587-1606.

Ekwe, M. C. (2012). Human capital efficiency and economic growth: Evidence from African economies. African J*ournal of Business Management*, 6(23), 6526-6531. https://doi.org/10.5897/AJBM11.2341

Fitri (2023) "The ROI of Human Capital: Measuring the Economic Value of Employee Performance", Journal of American Management Association, AMACON

García-Morales, V. J., Llorens-Montes, F. J., &Verdú-Jover, A. J. (2006). The Influence of Values on the Relationship Between Intellectual Capital and Organizational Performance. *Journal of Intellectual Capital*, 7(4), 561-577.

Grant, R. M. (1991). The Resource-Based Theory of Competitive Advantage: Implications for Strategy Formulation. *California Management Review*, 33(3), 114-135.

Higgins, R. C. (2012). Analysis for Financial Management. *McGraw-Hill*.

Kaplan, R. S., & Norton, D. P. (1992). The Balanced Scorecard: Measures That Drive Performance. *Harvard Business Review*, 70(1), 71-79.

Nassar, L. M. (2016). Intellectual capital and its impact on firm performance: Evidence from Nigerian listed firms. *International Journal of Economics and Financial Issues, 6(3), 1088-1094*

O'Regan, N., Ghobadian, A., & Sims, M. (2008). Firm size and the effectiveness of knowledge management: A study of UK SMEs. *International Journal of Entrepreneurship and Innovation Management*, 8(2), 179-197.

Porter, M. E. (1985). Competitive Advantage: Creating and Sustaining Superior Performance. *Free Press*.

Rudež, H. N., &Mihalič, T. (2007). Intellectual capital in the hotel industry: A case study from Slovenia. International Journal of Hospitality Management, 26(1), 188-199. https://doi.org/10.1016/j.ijhm.2024.01.001

Shafi'u, S. S., Dahiru, U., &Bawa, M. (2017). Capital employed efficiency and firm performance in Nigerian manufacturing sector. *Journal of Economic Studies*, 44(4), 567-583. https://doi.org/10.1108/JES-12-2024-0241

Spender, J. C. (1996). Making Knowledge the Basis of a Dynamic Theory of the Firm. *Strategic Management Journal*, 17(Special Issue), 45-62.

Stewart, T. A. (1997). Intellectual Capital: The New Wealth of Organizations. *Doubleday*.

Teece, D. J. (2010). Business Models, Business Strategy and Innovation. *Long Range Planning*, 43(2-3), 172-194.