RAMAT TITILAYO SALMAN[*]
University of Ilorin

AISHA ABDULSALAM-GAMBARI[**]
University of Ilorin

INTELLECTUAL CAPITAL AND FINANCIAL PERFORMANCE OF LISTED OIL & GAS COMPANIES IN NIGERIA

Keywords: intellectual capital, human capital, structural capital, VAIC, oil and gas firms.

J E L Classification: O34, L1.

Abstract: Intellectual capital is a driving force of performance of many organizations worldwide. This study examines intellectual capital and the corresponding performance of listed oil and gas companies in Nigeria. The specific objectives are to: (i) examine the influence of Human Capital Efficiency (HCE) on financial performance (Price Earning) (PE) among oil and gas companies in Nigeria; (ii) evaluate the influence of Structural Capital Efficiency (SCE) on Price Earning (PE) among oil and gas companies in Nigeria; and (iii) assess the influence of Capital Employed Efficiency (CEE) on Price Earning (PE) among oil and gas companies in Nigeria. This study used a longitudinal research design, and annual reports of sampled twelve oil and gas firms for five years

Date of submission: July 21, 2024; date of acceptance: November 26, 2024.

[*] Contact information (corresponding author): salman.rt@unilorin.edu.ng, Department of Accounting, University of Ilorin, Ilorin, Nigeria, phone: +2348102017220; ORCID ID: https://orcid.org/0000-0001-7786-4577.

[**] Contact information: tashiatreats@gmail.com, Department of Accounting, University of Ilorin, Ilorin, Nigeria, phone: +2348062416023; ORCID ID: https://orcid.org/0009-0005-5982-966X.

(2018–2022) were collected for analysis. A panel regression was used to analyze the obtained data. The result revealed that Capital Employed Efficiency (CEE) has a positive and significant influence on financial performance of listed sampled oil and gas companies in Nigeria. Human Capital Efficiency (HCE) and Structural Capital Efficiency (SCE) do not have any influence on financial performance of the sampled listed oil and gas firms. The study concluded that intellectual capital and financial performance of oil and gas firms in Nigeria are interrelated. Thereby, it is recommended that oil and gas firms should invest more in physical asset (CEE), as it has capacity in enhancing the financial performances of the sampled firms.

▮▮▮ INTRODUCTION

Over the years, there has been a gradual shift in the world of the economy and in the art of doing business by many established firms across the universe (Oyedokun & Saidu, 2018). This paradigm shift was influenced by globalization and the digital economy, which pave the way for the idea of intellectual capital as a tool to measure a company's performance (Anyanwu, Ezu, Osadu & Ananwude, 2017). Emphasis is now on intellectual capital as a potential asset in helping companies and organizations to strive well in a competitive business environment (Salman, Olaniyi, Kasum & Fagbemi, 2014). It has been observed that corporate firms are neglecting traditional old business methods; they are rather looking for ways to enhance knowledge-based ideals as a tool for increasing profitability, which is always reflected in the company's annual financial statements (Ahmad, 2011).

Intangible assets are what scholars refer to as intellectual capital or knowledge capital of firms and organizations (Akben-Selcuk, 2016). Their role in improving success in business had been analyzed as the core value-added potential in any company or other organizations (Shafi'u, Noraza & Saleh, 2017). These invincible assets are useful in the company's brand, creating a reputation, skills of employees, quality, and in creating good customer relationships, which are some of the qualities that help firms to survive in the competitive market (Inyada, 2018).

Studies in Nigeria, like in the rest of the world, are usually related to intellectual capital, while a company's financial performance and the oil and gas sector is not left out. For many decades now, the Nigerian oil and gas sector has been the major source of revenue for the Nigerian government. The government and other corporate bodies had invested heavily in this sector, which is the major driver of Nigeria's economy (Kpolode, Edoumiekumo & Alfred, 2020).

Oil revenue accounted for approximately 40 percent of the total gross domestic product (GDP). To remain at the forefront of Nigeria's economy, oil and gas firms are investing in human resources and management of other intellectual capital assets (Oyedokun & Saidu, 2018).

Although many companies are investing in employee capacity development (through training), research on product development, customers/clients relations, computer and routine/operation system; nonetheless, intellectual capital assets have not been widely recognized as one of the key factors of functional performance (Oyedokun & Saidu, 2018). This is because intellectual capital is difficult to measure due to the fact that there is no consensus on its measurement and acceptable accounting framework in the world (Salman, 2022). Hence, the need to examine intellectual capital influence on financial performance of Nigerian listed oil and gas firms. Thus, the following are the specific objectives, which are to:

- examine the influence of Human Capital Efficiency (HCE) on financial performance (Price Earning) (PE) among oil and gas companies in Nigeria;
- evaluate the influence of Structural Capital Efficiency (SCE) on Price Earning (PE) among oil and gas companies in Nigeria;
- assess the influence of Capital Employed Efficiency (CEE) on Price Earning (PE) among oil and gas companies in Nigeria.

The other parts that make up this study are: review of related literature on the concept, methodology, data analysis, conclusion, and recommendations.

Intellectual Capital

Some scholars argue that intellectual capital does not have a specific definition (Duho & Agomor, 2021; Salman & Abogun, 2023). In 2006, the European Commission defined intellectual capital as a relationship between human and organizational resources. The definitions revolve around employee's knowledge, experiences, skills, and their abilities to bring developmental activities following organizational procedures and system of operations and all other resources that are connected to the organization's external environment (Duho & Agomor, 2021).

Many authors still believe that no single definition can describe all the qualities of intellectual capital (Agbi, Popoola & Edem, 2020). However, Stewart (1997) describes intellectual capital as the total sum of human capital (talent),

structural capital (software, methodologies, intellectual property, documents, routines, and other knowledge attributes), and customer capital (external relationships). It was the Chartered Institute of Management Accountants in 2001 that gave a comprehensive definition of intellectual capital as the possession of experience and knowledge, good relationship, professional skill, and capacities, which, when utilized, will turn into a competitive advantage for the company.

So far, different researchers designed different models used in classifying intellectual capital, and one of such models is the Pulic 1998 model called Value-Added Intellectual Coefficient (VAIC) model. This model classified intellectual capital in three components, namely: capital employed efficiency (CEE); human capital efficiency (HCE); and structural capital efficiency (SCE). This model is used to assess intellectual capital efficiency of an organization in relation to value creation (Agbi et al., 2020).

Hence, Intellectual Capital (IC) = VAIC = CEE+HCE+SCE.

Financial Performance

The teams were used to assess the company's general performance over a particular time duration (Duho & Agomor, 2021). They can also be used to weigh the financial strength of companies under the same line or different units of a company (Agbi et al., 2020). According to Moradi, Saeedi, Hajizadeh and Mohammadi (2013), financial performance is an average point which is used to check how companies use their resources (tangible and intellectual capital) in order to make a profit. This, however, led some authors to the conclusion that financial performance is a tool to assess all financial activities and how a company uses its human and structural assets in order to make a profit. In another way, Beshkooh, Maham and Heidarsani (2013) describe good performance tools as those that incorporate the amount of capital an investor put in a firm and the rate of return on the invested capital, as well as the net income after payment of tax (Akben-Selcuk, 2016). Its measuring tools were given as: return on investment (ROI); value added (VA); return on assets (ROA); revenue from operations; and the operating income (Oyedokun & Saidu, 2018).

Few Nigerian studies on intellectual capital and financial performance were found in the literature. Oyedokun and Saidu (2018) worked on the impact of intellectual capital on the performance of oil marketing companies in Nigeria for a period of 10 years (2007 to 2016). They assessed the intellectual capital using

three tools which are market value (MV), Tobin's Q, and VAIC, and the finding revealed a negative impact on market value. However, Moradi et al. (2013) also found that intellectual capital components have an influence on Q-Tobin and ROE of sampled companies in Iran.

Uwuigbe and Uadiale (2011) examined the effect of intellectual capital on organizational performance (ROE and ROA) of selected firms in Nigeria. Results revealed that intellectual capital is statically influenced business performance. Salman, Ibrahim and Abdulkadir (2015) examined intellectual capital efficiencies in companies' performance using the return on equity (ROE) in Nigerian firms for the period of three years. The researchers sampled 25 financial statements of companies. Data were analyzed based on VAIC. The studies showed a correlation between intellectual capital component efficiencies and companies' performance. They stated clearly that structural capital had the highest correlation with companies.

Maji and Goswami (2017) evaluated the effect of intellectual capital (IC) on company performance of 100 quoted Indian companies. The data covers 14 years between 1999 and 2013. Regression was employed to analyze the data gathered. VAIC was used to measure the IC efficiency, while ROE was used to measuring a firm's performance. The result indicated that CEE and IC efficiency were positively associated with ROE. Specifically, HCE is significant and positive in relation to ROE, while SCE is not significant. Kpolode et al. (2020) conducted a paired t-test between 2013 and 2019 to find whether the intellectual capital has any significance with a financial performance of Eleven Plc before and after changing its name to Mobil Plc. The findings showed that intellectual capital was significantly different on the ROA even before and after the name was changed.

Ousama, Hammami and Abdulkarim (2020) assessed intellectual capital and financial performance of banks in GCC countries between 2011 and 2013 using the regression analysis technique. The result showed that intellectual capital has an association with the sampled banks' financial performance.

Lu, Zengrui, Guillermo, Shuiwen, Yuanjun and Shuan (2021) conducted a comparative study of 149 industries in China, which comprised both financial firms and pharmaceutical firms. The authors compared the influence of efficiency of intellectual capital on the two sectors. The result showed that the impact of SCE on ROA is greater on pharmaceutical firms than financial firms, and the impact of SCE on ROE is greater on financial firms than pharmaceutical firms.

Acuna-Opazo and Gonzalez (2021), who examined the effect of intellectual capital on financial performance of the businesses of Chile, confirmed the efficiency of IC. Multivariate analysis was conducted on the data collected, and the finding revealed VAIC is the determining factor of performance in family businesses.

Salman (2022) examined intellectual capital and financial performance of 117 listed companies between 2018 and 2019. The finding of the multiple regression revealed that HCE and SCE are related with the financial performance of the sampled companies.

Yousaff (2022) investigated intellectual capital and firm performance of 336 Czech firms and 20 firms certified by the European Foundation for Quality Management (EFQM) during 2015 and 2019 financial years. The finding revealed that both certified and non-certified firms' intellectual capital influenced their firms' financial performance.

A recent study conducted by Salman and Abogun (2023) found that only CEE has a positive significant relationship with market value. Both HCE and SCE are not significant. From the previous studies, we can conclude that the findings are inclusive; therefore, the study hypothesized that:

H1: Capital employed efficiency does not significantly influence the financial performance (PE) of oil and gas companies in Nigeria.

H2: Human Capital Efficiency does not significantly influence the financial performance (PE) of oil and gas companies in Nigeria.

H3: Structural Capital Efficiency does not significantly influence the financial performance (PE) of oil and gas companies in Nigeria.

This study is underpinned by Knowledge-Based View (KBV) propounded by Nonaka and Takeuchi (1995). KBV is centered on the most valuable knowledge-based resource of any organization (Grant, 1996; Stam, 2007). The proponents of knowledge-based theory assumed that what determines a competitive advantage of a company is said to be unmovable, difficult to copy, mixed, and very complex. The knowledge-based theory completely explained knowledge, its nature, and management; hence, it is called explicit knowledge. They emphasized that knowledge is a collaboration of non-human-related (structural capital) and human-related (human capital) resources. These two resources are intellectual capital components.

Supporters of this theory believe that knowledge is centered on everything the employees (human capital) had to do and all the other organization resources such as procedure, organization system, and routines (structural capi-

tal) that can help employees perform optimally. Finally, this theory concludes that for any organization to achieve competitive advantage, it must nurture its specific knowledge assets in which intellectual capital components are specific and characterized by a company's nature.

The research methodology and the course of research process

Price earning (PE) was used as a proxy for firm financial performance, and intellectual capital was used as a proxy by Capital Employed Efficiency (CEE), Human Capital Efficiency (HCE), and Structural Capital Efficiency (SCE). The control variables are: Firm Size (LFSIZ), Revenue Growth (REVG), and Firm Age (FAGE). The study adopted Lu et al. 2021 model. This study model was specified as follows:

$$\text{PE ratio}_{it} = b_0 + b_1 \text{CEE}_{it} + b_2 \text{HCE}_{it} + b_3 \text{SCE}_{it} + b_4 \text{REVG}_{it} + b_5 \text{LFSIZ}_{it} + b_6 \text{FAGE}_{it} + \varepsilon_{it}$$

(1)

where:
PE ratio = Performance (dependent variable)
b_0 = intercept
CEE = Capital Employed Efficiency (value added by capital employed)
HCE = Human Capital Efficiency (value added by human capital)
SCE = Structural Capital Efficiency (value added by structural capital)
REVG = Revenue Growth (increase in revenue)
LFSIZ = Firm Size (log of total assets)
FAGE = Firm Age (number of years the company has been listed on stock market)
$b_1, b_2, \dots b_6$ = coefficient of the regression or the slope
$_i$ = number of oil and gas firms
$_t$ = number of years
ε = error term

Price to Earnings per share (PE ratio) was computed in numbers as the annual average monthly closing share price divided by Earnings Per Share (EPS).
PE ratio = [Share Price/EPS]
EPS = (Net income – preferred dividends) divided by the weighted average number of ordinary shares outstanding during the period
CEE = Total Assets – Intangible Assets

HCE = Total salary + wages + compensation + all welfare costs of employees/ structural capital

SCE = VA − HC

VA = Value Added created by a company. The value of a company for this study given below:

VA = OI + E + D + A

where:

OI = Operating Income, E = Employees costs, D = Depreciation, A = Amortization.

Value Added Intellectual Coefficient (VAIC) was calculated as the sum of Capital Employed Efficiency + Human Capital Efficiency + Structural Capital Efficiency.

Value Added Intellectual Coefficient (VAIC): It is the value added efficiency of all the components of intellectual capital. Therefore, VAIC = CEE + HCE + SCE

Revenue Growth (REVG) = CYR − PYR

where:

CYR = Current Year Revenue

PYR = Previous Year Revenue

This research adopted an expo-facto design because of the fact that data were available without researchers' interference. This study design allows the researcher to obtained data from companies' annual reports within the period covered. The study population is made up of oil and gas firms listed on the Nigerian Exchange Group. There are 14 oil and gas firms listed as of December 2022 and all of them constitute the population of this study, while 12 firms were selected as sample because of unavailability of a complete data set of others firms. Data covering the period of 5 years (2018–2022) were sourced through the published annual financial statements of the sampled firms. The data collected were analyzed with panel regression. Any study using secondary data can make use of the expo-facto design method.

The study conducted various analyses, such as descriptive statistics and correlation tests. Additionally, regression analysis was conducted to test hypotheses and draw conclusions.

The study data were analyzed, interpreted, and discussed through descriptive analysis and pooled regression analysis.

Table 1 presents the descriptive results with minimum, maximum, mean, and standard deviation statistics.

Table 1. Descriptive Statistics

Variable	Observations	Mean	SD	Min	Max
PE ratio	60	9.107	27.118	-142	312
CEE	60	0.254	0.170	-0.418	0.762
HCE	60	4.007	2.812	-1.497	10.539
SCE	60	0.771	0.257	1	2.113
REVG	60	6.090	11.426	-100	71.214
LFSIZ	60	7.578	0.923	2	9.273
FAGE	60	32.275	9.307	10	37

S o u r c e : researchers' survey, 2024.

The descriptive statistics for the study are presented in Table 1, which contains information on a single dependent variable (PE ratio) and three independent variables (CEE, HCE, and SCE). Additionally, the table includes three control variables (REVG, LFSIZ, and FAGE). A total of 60 observations were made, with variables' standard deviations and means ranging from 0.170 to 27.118. According to the table, the Price earnings (PE ratio) mean value is 9.107, indicating that the sampled firms' average profit from their shares during the review period was 9.107. One of the sampled firms earned a maximum profit of 312 on its shares during these periods, while at a minimum, a firm incurred a loss of 142 from its shares. The standard deviation for the Price Earnings (PE ratio) is 27.118, which indicates a significant volatility in the value of returns per unit share for the sampled firms.

The Human Capital Efficiency (HCE) has a mean value of 4.007, with maximum and minimum averages of 10.539 and -1.497, respectively. This suggests

that for each unit of investment in the human capital, the average contribution to value was 4.007 in the oil and gas of sampled firms. Some firms register maximum contribution of 10.539. Others had a negative contribution of -1.497, which is essentially a decreased value. This, however, suggests that investment in human capital by certain firms was unproductive. The standard deviation of the HCE, which is 2.812 compared to the mean of 4.007, indicates that the data are tightly clustered around the mean, as the standard deviation value is lesser than the mean value. The Structural Capital Efficiency (SCE) has a mean value of 0.771, with maximum and minimum averages of 2.113 and 1.0, respectively. This suggests that for each unit of investment in the structural capital, the average contribution to value was 2.113 in the oil and gas sampled firms.

The mean value of firm size (LFSIZ) in this study is 7.578. Conclusively, sampled firms on average had total assets of 7.578 during the period under review, while other had total assets valued at 9.273 during the same period. The 7.578 standard deviation value indicates moderate level of dispersion in total assets among the sampled firms. Furthermore, the results from the descriptive statistics table show that for the control variable of Revenue Growth (REVG), the standard deviation of 11.426 is larger than its mean value of 6.090, which implies that the variability in the data is relatively high.

Table 2. Correlation Matrix

PE ratio	CEE	HCE	SCE	REVG	LFSIZ	FAGE	
PE ratio	1.000						
CEE	0.347	1.000					
HCE	-0.040	0.162	1.000				
SCE	0.013	0.243	0.518	1.000			
REVG	0.066	0.112	-0.013	0.002	1.000		
LFSIZ	0.085	0.028	0.045	-0.118	0.261	1.000	
FAGE	0.010	0.016	-0.134	0.057	-0.138	-0.013	1.000

N o t e : $P < 0.05$.

S o u r c e : researchers' survey, 2024.

The correlation matrix table shows the correlation coefficients between the individual variables. The table presents CEE with a correlation value of 0.347, suggesting that CEE has a positive correlation with PE ratio, which is a 34.7% unit change in PE ratio in proportion to CEE; on the other hand, HCE has a negative relationship with PE ratio with correlation value of -0.0404. The implication of this is that as HCE increases in value, the PE ratio decreases. On the contrary, any increase in SCE, REVG, LFSIZ, and FAGE will result in an increase in the PE ratio, since their correlation values are positive. Table 3 below presents fixed effect and random effect of the study variables.

Table 3. Fixed Effect, Random Effect Regression Results,
and Hausman and Lagrangian Multiplier Test

Effect of Tests	Chibar^2	Prob.> chi^2
Breusch and Pagan Lagrangian multiplier	0.000	1.0000
Hausman test	11.25	0.0873
Random effect regression	33.57	0.0000
Fixed effect	0.36	0.9064

N o t e : P < 0.05.

S o u r c e : researchers' survey, 2024.

To determine the appropriate estimation between random and fixed effect regression, the Hausman's specification and Lagrangian test was conducted. The effect of different tests is presented in Table 3. The Lagrangian test was performed to determine the selection between random effect and pooled OLS regression. The results revealed a chi2 value of 0.000 and p-value of 1.000 show that the random effect estimation was suitable to analyze the data. Therefore, the study utilized robust random effect regression to improve the standard errors and model fit. Hausman's specification test was also conducted to estimate fixed and random effect regression appropriateness, resulting in a chi2 value of 11.25 and p-value of 0.0873; hence, the random effect estimation was more appropriate for the analysis. Therefore, the study utilized Robust random effect regression, which was actually chosen to regularize the standard errors and model fits.

Table 4. The Results of Robust Random Effect Model

PE ration	Robust		Z	P>/z/	95%	
	Coef.	Std. Error				
CEE	70.11685	14.77143	4.57	0.000	41.16528	99.06788
HCE	-0.9940427	0.6703197	-1.48	0.138	-2.307845	0.3197599
SCE	-1.087751	7.678516	-0.14	0.887	-16.13737	13.96186
REVG	0.28808	0.0965341	0.30	0.765	-0.1603953	0.2180113
LFSIZ	3.886811	2.857326	1.36	0.174	-1.713446	9.487067
FAGE	0.0061919	0.250762	0.02	0.980	0.4852925	0.4976763
Cons.	-29.69593	24.8422	-1.20	0.232	78.38575	18.99389
sigma_u1 0						
sigma_e1 45.805052						
rho1 0 (fraction of variance due to u_1)						

N o t e : P < 0.05.

S o u r c e : authors' survey, 2024.

The results of robust random effect regression for sampled companies showed that there is a positive significant relationship between price earnings ratios and capital employed efficiency (CEE) with Beta value of 70.11 and P-value of 0.0000. This is an indication that one unit increase in CEE will lead to 70.11 increases in price earnings. Also, human capital efficiency and structural capital efficiency are inversely related but not significant to shareholders' wealth with coefficients values of -0.9940 and -1.087751 and p-values of 0.138 and 0.887, respectively. The table also shows other variables – REVG, LSIZE, and FAGE – were positively related to the P/E ratio.

Discussion of the Findings

The study focused on intellectual capital efficiency and financial performance of oil and gas firms in Nigeria for the period of 5 years (2018–2022). The result shows that capital employed efficiency positively and significantly influenced the financial performance of oil and gas firms sampled. This study's findings are in agreement with the work of Ousama et al. (2020), in which capital employed efficiency influenced the performance of companies they sampled. Human cap-

ital efficiency and structural capital efficiency have no significant influence on the performance of the sampled firms, which is consistent with the finding of Oyedokun and Saidu (2018). Their findings revealed that market value had a negative impact on ROA, while Tobin's Q and VAIC had insignificant impact on ROA. However, the study disagreed with Asare, Laryea, Onumah and Asamoah's (2021) findings that human capital efficiency and structural capital efficiency significantly influence the financial performance of the banks sampled.

Furthermore, the study found that control variables, such as revenue growth, company size, and firm age, positively influenced performance of the sampled companies in Nigeria. This suggests that an increase in a company's age, size, and revenue growth leads to an improvement in its financial performance.

▪■▪ Conclusion, Recommendation and Suggestions for Future Research

In summary, the study concludes that only capital employed efficiency significantly influenced the financial performance of the sampled Nigerian oil and gas firms, while human capital efficiency and structural capital efficiency do not. Hence, the study recommends that Nigerian oil and gas firms should prioritize investing in capital employed assets that generate more revenue growth for the firm, as this has been shown to have a significant positive impact on company performance. Furthermore, attention should be paid to the development of human capital and structural capital to avoid loss. In addition, all investments on human capital and structural capital should be regarded as assets, not expense, as they add value to the companies' performance. It may be necessary to consider other factors, such as market competition, marketing and branding, financial management, and operations management, that could have an influence on company performance. It is recommended to take a holistic approach to understand company performance, considering multiple factors that may have an influence on its success or failure.

Future research can be conducted on intellectual capital and financial institutions, such as banks and insurance companies. Other sectors, such as manufacturing and conglomerate companies, can also be studied. The future research can make use of VAIC to evaluate intellectual capital efficiency of any sector, be it manufacturing, financial institutions, conglomerate etc. and also ex-post research design method can be used on any secondary data of any company for analysis.

▰▰▰ REFERENCES

Acuna-Opazo, C., & Gonzalez, O.C. (2021). The impact of intellectual capital on financial performance and value-added of the production evidence from Chile, *Journal of Economics, Finance and Administrative Science*, 26(51), 127–142. https://doi.org/10.1108/JEFAS-08-2019-0178.

Agbi, E.S., Popoola, A., & Edem, D.P. (2020). Human capital efficiency and profitability of listed oil and gas firms in Nigeria. *International Journal of Accounting and Finance*, 9(1), 47–68.

Ahmad, M. (2011). The impact of corporate governance and intellectual capital on firm's performance and corporate social responsibility disclosure. *Pakistan Journal of Commerce and Social Sciences*, 12(1), 283–308.

Akben-Selcuk, E. (2016). Factors affecting firm competitiveness: Evidence from an emerging market. *International Journal of Financial Studies*, 4(9), 1–10. https://doi.org/10.3390/ijfs4020009.

Anyanwu, F.K., Ezu, G.K., Osadume, R.C., & Ananwude, A.C. (2017). Oil and gas industries financing and financial performance in Nigeria: The case of intelligent capital led model. *International Journal of Commerce and Management Research*, 3(12), 63–73.

Asare, N., Laryea, M.M., Onumah, J.M., & Asamoah, M.E. (2021). Intellectual capital and asset quality in an emerging banking market. *Asian Journal of Accounting Research*, 6(1), 55–68. https://doi.org/10.1108/AJAR-05-2020-0034.

Beshkooh, M., Maham, K., & Heidarzadeh, S. (2013). Effects of intellectual capital on financial performance with regard to life cycle and the company size. *Journal of Basic and Applied Scientific Research*, 3(2), 209–217.

Duho, K.C.T., & Agomor, P.E. (2021). Intellectual Capital and Performance among Listed Non- Financial Firms in West Africa. *Working Paper*. https://doi.org/10.2139/ssrn.3803094.

Grant, R.M. (1996). Towards a knowledge-based theory of a firm. *Strategic Management Journal*, 17, 109–122. https://doi.org/10.1002/smj.4250171110.

Inyada, S.J. (2018). Intellectual capital and bank performance in Nigeria: An empirical analysis using pragmatic models. *American International Journal of Contemporary Research*, 8(2), 61–68. https://doi.org/10.30845/aijcr.v8n2p7.

Kpolode, O.P., Edoumiekumo, A.R., & Alfred, A.D. (2020). 11 Plc Formally Mobil Oil Nigeria Plc: A Pre and Post Analysis of Capital Structure and Performance. *International Journal of Academic Research in Economics & Management Sciences*, 9(2), 81–88. https://doi.org/10.6007/IJAREMS/v9-i2/7545.

Lu, Y., Zengrui, T., Guillermo, A.B., Shuiwen, G., Yuanjun, Z., & Shuan, Z. (2021). Intellectual Capital and Firm Performance in the Context of Venture-Capital Syndication Background in China. *Economic and Financial Net*. https://doi.org/10.1155/2021/3425725.

Maji, S.G., & Goswami, M. (2017). Intellectual capital and firm performance in India: A comparative study between original and modified value added intellectual coef-

ficient mode, *International Journal of Learning and Intellectual Capital*, 14(1), 76–89. https://doi.org/10.1504/IJLIC.2017.080645.

Moradi, M., Saeedi, M., Hajizadeh, H., & Mohammadi, M. (2013). The influence of intellectual capital on the improvement of companies' financial performance. *International Journal of Economics, Business and Finance*, 1(5), 120–139.

Nonaka, I. & Takeuchi, H. (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. New York: Oxford University Press.

Ousama, A.A., Hammami, H., & Abdulkarim, M. (2020). The association between intellectual capital and financial performance in the Islamic banking industry: An analysis of the GCC banks. *International Journal of Islamic and Middle Eastern Finance and Management*, 13(1), 75–93. https://doi.org/10.1108/IMEFM-05-2016-0073.

Oyedokun, G.E., & Saidu, B. (2018). Impact of Intellectual Capital on Financial Performance of Listed Nigerian Oil Marketing Companies. *Information and Knowledge Management*, 8(9), 13–27.

Pulic, A. (1998). *Measuring the performance of intellectual potential in knowledge economy*. Paper presented at the 2nd World Congress of Measuring and Managing Intellectual Capital, Mc Master University, Hamilton. https://www.bib.irb.hr/35384 (accessed: 02.06.2024).

Salman, R.T. (2022). Intellectual capital on financial performance of Nigerian companies. *Jurnal Administrasi Bisnis*, 11(2), 13–24. https://doi.org/10.14710/jab.v11i2.44989.

Salman, R.T., & Abogun, S. (2023). Intellectual capital and market performance of Nigerian companies. *Copernican Journal of Finance and Accounting*, 12(2), 59–78. https://doi.org/10.12775/CJFA.2023.011.

Salman, R.T., Ibrahim., F.A. & Abdulkadir, R.I. (2015). Intellectual capital performance: an empirical investigation of Nigerian banks. *Abuja Journal of Banking and Finance*, 4(2), 58–66.

Salman, R.T., Olaniyi, T.A., Kasum, A.S., & Fagbemi, T.O. (2014). The Influence of Intellectual Capital Efficiency on Companies' Financial Performance. *Al-Hikmah Journal Management Sciences*, 3(1), 47–61.

Shafi'u, A.K., Noraza, M.U., & Saleh, M.B. (2017). The impact of intellectual capital on the financial performance of listed Nigerian food products companies. *Journal of Accounting and Taxation*, 9(11), 147–160. https://doi.org/10.5897/JAT2017.0246.

Stam, H. (2007). Theoretical Psychology. In K. Pawlik, M. Rosenzweig (Eds.). *The International Handbook of Psychology*. London: Sage Publications.

Stewart, T.A. (1997). *The wealth of knowledge: Intellectual capital and the twenty-first century organization*. Doubleday.

Uwuigbe U., & Uadiale, O.M. (2011). Intellectual capital and business performance: Evidence from Nigeria. *Interdisciplinary Journal of Research in Business*, 10(1), 49–56.

Yousaff, M. (2022). Intellectual capital and firm performance: evidence from certified firms from EFQM excellence model. *Total Quality Management and Business Excellence*, 33(13–14). https://doi.org/10.1080/14783363.2021.1972800.