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INTELLECTUAL CAPITAL MANAGEMENT AND FIRM VALUE OF LISTED NON-FINANCIAL FIRMS IN NIGERIA: MEDIATING ROLE OF FOREIGN OWNERSHIP

Ngozi Nwadi Adimora[1] Chidiebele Innocent Onyali[2] Chinedu Jonathan Ndubuisi[3]

[1,2&3]*Department of Accountancy, Faculty of Management Sciences, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria.*

1. Email: ngoziadimora78@gmail.com
2. Email: ci.onyali@unizik.edu.ng
3. Email: cj.ndubuisi@unizik.edu.ng

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Correspondence: ngoziadimora78@gmail.com

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ABSTRACT

The study examined the mediating effect of foreign ownership on the relationship between intellectual capital and firm value of non-finance firms in Nigeria. The study specifically examined how foreign ownership mediates the effect human capital management, structural capital management, capital employed management and relational capital management on market value of shares. The study adopted the ex-post facto research design; as the goal was not to manipulate any variable but rather to establish effect and mediation. The population comprised listed non-finance firms and the sample restricted to a purposive sample of thirty-one (31) firms whose annual reports were accessible and contained the needed data for the period of 11 years from 2013-2023 which was the time scope of this study. The data were analysed using the structural equation model. The results showed foreign ownership does not significantly mediate the effect of human capital management and structural capital management on market value of shares while the effect of capital employed management and relational capital management on market value of shares were significantly mediated by foreign ownership of non-finance firms in Nigeria. The study therefore concluded that apart from human capital and structural capital management, foreign ownership significantly mediates the effect of intellectual capital of firm value of non-finance firms in Nigeria. Based on these findings, the study recommended among others that management of non-finance firms need to reverse this trend in the their human capital management through hiring qualified indigenous and experienced workers, ensuring effective training of staff as at when due.

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1. INTRODUCTION

Companies around the world are facing a slew of new opportunities and challenges as a result of increased market competition and shifting globalization dynamics. Companies must now adapt new policies and strategies in order to be successful and competitive, regardless of their

vast physical resources. Economic growth factors have shifted from the industrial economy to the knowledge economy, putting a lot of pressure on businesses to make the best use of their soft resources, such as knowledge and human capital. Thus, intellectual capital (IC) has emerged as the preeminent economic resource in the knowledge-based economy. To compete and sustain, firms must be able to exploit the knowledge embedded in their firms, employees, suppliers, and customers. Intellectual capital in the organizations is mostly recognized as an intangible asset based on knowledge (Akpan & Akinniyi, 2019). As long as intellectual capital (IC) is known as a potential resource that create economic value, it has been shown that IC can be effective in predicting the value of a company. The Resource based theory explains that companies that can effectively manage their intellectual resources can achieve competitive advantage and value added. A company who has a competitive advantage will create market perception of the company's high value because it is believed that companies that have a competitive advantage can compete and survive in the dynamic business environment (Bayrataroglu, Calisir & Baskak, 2019). Thus, to keep up with the market, management needs to create a complex platform for capturing different types of intellectual capital.

Ofurum, Onuaha, and Nwaekpe (2018) noted that intellectual capital can be measured in terms of human capital, capital employed, structural capital, and relational capital. However, in this study, intellectual capital is measured in terms of human, structural, and capital employed aspects which can be quantified to provide better information and move investors who want much more in-depth understanding. Failure to recognize these IC components in monetary terms is by implication neglecting the huge quantum of impalpable values and investments incurred by enterprises in the accessions and development of intellectual properties (Efenyumi, Okoye & Nwoye, 2022). This practice according to Ofurum, Onuaha, and Nwaekpe (2018) has not only resulted in the undervaluation of enterprises but also very often left a huge gap existing between the market and book values of firms. Chowdhury, Rana and Azim (2019) argued that the efficiency and overall profitability of corporate organizations depends greatly on the capability to recognize and quantify intellectual capital and knowledge assets in company's financial statement (Amahalu, Ezechukwu & Okudo, 2022). Hence, limitations of financial statements in explaining the value of the company pointed to the fact that the source of economic value is no longer in the form of raw material production, but the creation of intellectual capital. The greater the value of intellectual capital, the more efficient use of capital of the company, thus creating added value for the company. Cisneros, Perlines

and Garcia (2020) also added that intellectual capital is a major resource with huge potential to improve the performance and market value of the company. However, according to Dumay and Guthrie (2019), intellectual capital in affecting the value of the company are influenced by the presence of a foreign shareholder over the company's policy to control the whole action of management in running the company, including to harness and leverage on the intellectual capital of the company.

Foreign ownership, according to some researchers is believed to affect the running of the company, which in turn affects the performance of the company in achieving its corporate objectives of maximizing firm value (Dumay, Guthrie & Rooney, 2020). This is because the presences of foreign shareholders have an incentive to control management in improving the management of intellectual capital and ultimately corporate value (Dzenopoljal, Yaacoub, Elkanj & Bontis, 2017). However, ownership structure often creates agency problems because of the unification of the interests of shareholders against corporate objectives (Golacka, Jefmanska & Jefmanski, 2020). Thus, divergence of interests between managers and foreign parties can influence corporate policies that require management to be more effective and efficient in managing the company in order to increase the value of the company (Haris, Yao, Taria, Malik & Javaid, 2019). On the basis of the foregoing, this study examines the effect of intellectual capital management on firm value of listed non-finance firms in Nigeria. The study also examines the moderating effect of foreign ownership on the relationship between intellectual capital management and firm value of listed non-finance firms in Nigeria. The emergence of the knowledge economy and its preference to production economy has been argued to have ushered in a paradigm shift from a period when firms were exclusively assessed based on their physical assets (tangible assets) to an era of an all-encompassing platform that saw firms' worth being an aggregate of both tangible and intangible assets (Aprilianda & Nur, 2023). Specifically, in Nigeria, Ofurum, Onuoha and Nwaekpe (2018) argue that firms have not been able to achieve optimality in relation to their intellectual capital management, stating that firms have not been able to fully utilize their intellectual capital components. According to Suzan & Ardiansyah (2023) in the current century, the industrial development model must elaborately accommodate knowledge-based and innovation intensive companies by providing valuations models which is not achievable by the traditional techniques. They argued that intangible assets of knowledge and intellectual capital are exceedingly overwhelming conventional valuating means such as land, property and capital assets and intellectual assets is turning into the determinants and credible sources of

company's success. However, a review of studies around the world on the effect of intellectual capital on firm value showed different results. Particularly, while the grounded framework of intellectual capital has been in place and intellectual capital being studied in many countries to provide firms competitive advantage over rivals, still there is a gap in understanding if to invest and use intellectual capital as a critical asset or not (Hermawan, Hariyanto & Biduri 2020). Furthermore, many studies have focused on the research of intellectual capital in the developed world, for instance; the studies of Pedro, Leitão and Alves (2018); was conducted using Spanish companies through a multivariate regression analysis, Kowalska, (2020) evaluated Polish listed companies and Shakina using panel regression analysis, Barajas and Molodchik (2017) drew samples from listed Russian companies through an OLS regression analysis. Hence, there have been very few studies that have used emerging developing societies especially in Sub-Saharan Africa (Nigeria in particular) as a case for evaluating the implications of intellectual capital on firm value. Furthermore, most studies on intellectual capital and firm value has been a direct relation study, thus, ignoring the mediating effect of other variables on intellectual capital. These has created a problem gap that needs to be addressed because, with rapidly changing environment filled with innovation, information and technology, firms [both in developed and developing economies] are increasingly threatened with global competition, thus making intellectual capital more important to all of them.

This study therefore seeks to address these research gaps by first ensuring the inclusion of foreign ownership as a mediating variable on the relationship between intellectual capital and firm value. The study employs a panel regression technique of within effect estimator that is capable of capturing heterogeneity effect present in the firms and a structural equation model. unlike prior studies of Hermawan, Hariyanto and Biduri (2020), and Pedro, Leitão and Alves (2018) that relied on the OLS regression. Particularly, the study examines the effect of intellectual capital management on firm value of listed non-finance firms in Nigeria. The study also examines the moderating effect of foreign ownership on the relationship between intellectual capital management and firm value of listed non-finance firms in Nigeria.

1.1 Objectives

The main objective of the study is to examine the mediating effect of foreign ownership on the relationship between intellectual capital management and firm value of listed non-finance firms in Nigeria. However, the specific objectives are to.

1. examine the mediating effect of foreign ownership on the relationship between human capital management and market value of shares of listed non-finance firms in Nigeria;
2. investigate the mediating effect of foreign ownership on the relationship between structural capital management and market value of shares of listed non-finance firms in Nigeria;
3. ascertain the mediating effect of foreign ownership on the relationship between capital employed management and market value of shares of listed non-finance firms in Nigeria;
4. evaluate the mediating effect of foreign ownership on the relationship between relational capital and market value of shares of listed non-finance firms in Nigeria.

1.2 Hypotheses

The following hypotheses will be tested in their null forms.

H_{01}: Foreign ownership has no significant mediating effect on the relationship between human capital management and market value of shares of listed non-finance firms in Nigeria.

H_{02}: Foreign ownership has no significant mediating effect on the relationship between structural capital management and market value of shares of listed non-finance firms in Nigeria.

H_{03}: Foreign ownership has no significant mediating effect on the relationship between capital employed management and market value of shares of listed non-finance firms in Nigeria.

H_{04}: Foreign ownership has no significant mediating effect on the relationship between relational capital management and market value of shares of listed non-finance firms in Nigeria.

2. LITERATURE REVIEW

2.1 Conceptual Review

2.1.1 Human Capital Management and Firm Value

Human capital is a source of innovation and improvement in an organization but has become an element that is difficult to measure. Omaliko, Mordi and Uzodimma (2023) defines human capital as a term that recognizes the people of an organization and find them to be important and essential assets who contribute to development and growth, in an equivalent way as physical assets such as machines and money. The collective attitude, skill and abilities of

people contribute to organizational performance. Human capital management ensures that knowledge, skills, and competencies in a company reflects the collective ability to produce the best solutions based on knowledge possessed by employees which translates to added value to the company. Human capital is a combination of knowledge, expertise (skills), ability to innovate in the completion of assignments, corporate values, culture, and philosophy (Onyekwelu, Okoh & Iyidiobi, 2017). Human capital represents individual's knowledge, motivation, competencies, basic resources that the organization has and abilities which employee possesses to support business performance (Haruna, 2022). Similarly, Duru, Okpe and Nwosu (2018) note that human capital denotes resources related to employees' required competencies to include knowledge, skills, and other personal attributes. In today's business environment, human capital is recognized as a companies' critical asset which acts as the creator of value. It represents a vital tool for companies' competitive advantage.

The term human capital is defined as a combination of the following four factors – genetic inheritance; education; experience; and attitudes about life and business (Matos,Vairinhos, Selig and Edvinsson, 2019). Human capital is one of the essential variables in the study of intellectual capital, and it is the dimension of intellectual capital which deals with human knowledge, and which influences a firm's value by affecting the other elements (Oppong, Pattanayak and Irfan, 2019). According to Pasban and Nojedeli (2016), human capital is recognized as the largest and the most important intangible asset in an organization that provides the goods and/or services that customers require to solve their problems. It includes the collective knowledge, competency, experience, skills, and talents of people within an organization. Human capital value is not reported to stakeholders partially owing to strict criteria for intangible assets' recognition which prevent human resources from being shown as an asset in the balance sheet (Savvides and Stengos, 2020). The information related to any activities and decisions made by key personnel that contribute to competitive advantage and "hidden" value for the companies is often not disclosed, hence analysts need to incur extra cost to seek confidential information on the "value creators" of the companies. Human capital is measured by the total expenditures that company spent on its human capital. Total salary and wage costs are indicators of a firm's human capital and human capital efficiency is calculated as the ratio of total Value Added (VA) divided by the total salary and wages spent by the firm on its employees.

Human capital indicates the company's ability to deliver the optimal solution based on the pooled expertise of its employees (Onyekwelu, Okoh & Iyidiobi, 2017). To gain a competitive advantage, firms now manage human capital by providing training programs, salaries and financial bonuses, and benefits. The more effectively a firm manages its resources, the higher the net income-generating productivity of its assets. A study conducted by Haruna (2022) demonstrated that human capital efficiency favorably impacts business success. It is considered that human capital is a crucial aspect in conducting business (Duru, Okpe and Nwosu, 2018). Human capital and intellectual capital are highly associated because each individual possesses skills and information that are essential to a company's performance. Because intellectual capital is intangible, Farooq and Ahmad (2023) noted that it is rarely included in financial reports and accounting systems. Whereas intangible assets are widely recognized by investors and are one of the most important factors for companies and shareholders to consider when making strategic decisions.

Renaldo and Putri (2023) conducted research to quantify the profitability of European organizations using return on assets, and their findings demonstrate a high correlation between corporate knowledge and profitability. According to their research, there are considerable disparities between the profit and worth of a company when both tangible and intangible assets are considered. Their findings corroborate the standard economic notion that a company's performance and profitability are determined by its resources. Each individual possesses intangible resources, such as intellectual capital, in addition to material assets. According to Mukaro, Deka and Rukani (2023), intellectual capital has a significant impact on a company's financial performance. The results indicate that intellectual capital supports intangible resources that lead to innovation in order to compete successfully in business. This procedure indirectly increases the financial performance of the organization. According to Khan and Quaddus (2018), competitive advantage has a considerable impact on the performance of a company, which is also true for intellectual capital and business strategy, which positively and significantly contribute to competitive advantage.

2.1.2 Structural Capital Management and Firm Value

Structural capital is an organization's ability to meet the company routines and structures that support employee efforts to produce optimal intellectual performance as well as overall business performance, for example: the company's operational systems, manufacturing processes, organizational culture, management philosophy and all forms of intellectual property are owned by the company (Aluwong, 2022). An individual can have a high

intellectual level, but if the organization has poor systems and procedures such intellectual capital cannot achieve optimal performance. Structural capital is the infrastructure that supports employees to create optimum performance, including the ability of the organization to reach the market, hardware, software, databases, organizational structure, patent, trademark, and all the ability of organizations to support employee productivity (Ahmed and Tamanna, 2023). The concept of the existence of structural capital allows the creation of intellectual capital and be a liaison / processing of human resources into intellectual capital. Structural capital is the expertise or 'know-how' that belongs to the firm's property after the contribution induced by human skill (Haruna, 2022). Structural capital is what belongs to the firms, including innovative capital, relational capital, and organizational infrastructure, etc. (Duru, Okpe & Nwosu, 2018). Similarly, Ali (2015) mentioned that structural capital encompasses the enabling structures that allow the organization to exploit the intellectual capital. The structure ranges from tangible items offered by an organization such as patents, trademarks, and databases, to complete intangible success such as culture, transparency, and trust among employees. This capital is resulted from the products or systems that firm has created over time and will remain with the enterprise when people leave (Leo-see, 2018). Thus, organizations that possess strong structural capital will have a supportive culture that permits their employees to try new things, to learn and to practice them (Xu and Liu, 2020). Further, structural capital represents the competitive intelligence, formulas, information systems, patents, policies, processes, that result from the products or systems the firm has created over time. Structural capital also includes all nonhuman storehouses of knowledge in the organizations, databases, organizational charts, process manuals, strategies, routines, and anything whose value to the company is higher than its material value (Omaliko, Mordi and Uzodimma, 2023).

Some examples of structural capital established by employees' competencies are organizational systems, cultures, procedures, as well as widespread use of information technology and organizational learning capacity. Structural capital is measured as the remaining value of value-added after it's been subtracted from human capital figures. This implies that there is a proportionate inverse relationship between human capital and structural capital in the value creation process attributable to the entire intellectual capital base. The less human capital participates in value creation; the more structural capital is involved (Aluwong, 2022). Firms with proper infrastructure will assist employees in carrying out their duties, so enhancing the performance and value of the business. It is the company's investment in intangible assets that do not include human capital. A business requires structural support, the

provision of resources and networks to its people, and the promotion of their responsibilities (Nawaz and Haniffa, 2017). Scholars conclude that structural capital provides the foundation for the transformation of all other intellectual capital components and tangible assets into outputs (Riseman & Susanti, 2023). In addition to human capital, structural capital is also a component of the company's knowledge (Aluwong, 2022). Structural capital consists of the intellectual capital components that remain with the company even if other intellectual capital components are lost (Ahmed & Tamanna, 2023). The collection of structural capital includes both tangible and intangible components. It consists of the firm's investments in its hardware, database or charters, process manuals, procedures, cultures, and intellectual property (Begum, Ashfaq, Asiaei & Shahzad, 2023).

Structural capital plays a crucial role in enhancing the performance of enterprises by facilitating the exploitation of human resources, and businesses are now focusing on building structural capital. Human capital merges with structural capital and creates the basis for relational capital, hence strengthening customer loyalty to a company's products. Previous research conducted by Dada (2022) indicates that structural capital has a strong favourable effect on corporate performance. Companies that can effectively manage organizational resources will create a competitive advantage by utilizing the company's ability and the structure that supports employee efforts to generate optimal intellectual capital, indicating that improvements in the company's utilization of intellectual capital owned by the company can increase profits and investor confidence. According to Omaliko, Mordi and Uzodimma (2023), the management of structural capital efficiency would boost the financial performance of an organization. Prior research indicates that structural capital efficiency positively impacts financial success. Akpan and Akinniyi (2019), Ofurum, Onuoha and Nwaekpe (2018), and Dumay, Guthrie and Rooney (2020) suggested that structural capital value added has a favourable effect on the performance of a company. A corporation is required to have the organizational capacity to create conditions that encourage personnel to maximize the management of intellectual capital and other resources.

2.1.3 Capital Employed Management and Firm Value

Capital employed, also known as funds employed, is the total amount of capital used for the acquisition of profits by a firm or project. Capital employed can also refer to the value of all the assets used by a company to generate earnings. Capital employed is the tangible assets parts of capital and contain both physical and financial assets. The physical parts represent fixed and raw materials, while the financial part includes other existing assets after employees

leave (Haruna, 2022). According to Ovechkin, Boldyreva and Davydenko (2020) capital employed refers to physical and financial capital like book value of net assets. In this study capital employed is the difference between total assets and intangible assets while Capital employed efficiency is calculated as the ratio of value added to capital employed. Capital employed refers as the amount of capital used in current and fixed assets of the firm. It is the same fund shareholders' capital or long-term liabilities plus equity or loan capital. In terms of assets, it is equal to the working capitals and fixed asset. Therefore, the capital uses summarize asset values led to the company's ability to create income and it is also known as operating assets. The money is often funded through two methods shareholder equity financing and net debt. It is an asset in the long direct control manager and typically includes accounts receivable, inventory and plant and equipment (Onyekwelu & Ubesie, 2016).

Physical capital provides the guarantee for the smooth operation of companies (Asiaei & Jusoh, 2017). Capital employed efficiency was found to positively influence financial performance of Korean manufacturing firms (Xu & Wang, 2018). Employed capital efficiency (ECE) includes the customer, physical and financial dimensions of IC, and CEE is the value-added efficiency created by employed capital (Smriti & Das, 2018). Hermewan et al. (2020) investigated the relationship between IC and financial capital in absence of other variables of IC and found more challenging to specify relationship because capital employed in complementary than casual. Maji and Goswami (2016) found that ECE has a significant positive effect on both types of companies by comparing the use of IC in traditional and knowledge-based firms. In another study, Pedro, Leitao and Alves (2018) described financial capital as tangible capital, also mentioned without tangible capital, IC cannot exist and is not possible to create bank value. Moreover, physical assets play a vital role in improving profitability in BRICS economies, which include China, Russia, South Africa, India and Brazil (Kowalska, 2020).

2.1.4 Relational Capital Management and Firm Value

Relational capital means external links with suppliers and customers of the organization, which allows it to buy and sell goods and services in an efficient and effective manner (Sumedrea, 2013). According to Tutun and Som (2019) relational capital represents the ability of an organization to interact positively with business community members to motivate the potential for wealth creation by enhancing human and structural capital. Relational capital is a relatively young concept in literature, and was often treated by authors as an intangible resource of enterprises (Cano Vieira, Briones-Pañalver and Cegarra-Navarro, 2015). In the

initial stage of defining and studying the relational capital, the interest was focusing on customer relations (Agostini, Nosella, & Soranzo, 2016) There are theoretical approaches which define relational capital as a set of partnerships based on trust, shared behaviour and values (Szudrowicz, 2020). Other authors present definitions centered on the network and systemic nature of relational capital. This network applies to both customers and suppliers, employees and business partners, institutions and competitors (Still, Huhtamäki and Rusell, 2015). García-Merino, García-Zambrano and Rodriguez-Castellanos (2014) presented a broader approach to the definition, recognizing that relational capital is a network of all connections between an enterprise and the economic environment. Relational capital in this context is understood as potential knowledge enabling quick access to resources needed by a given organization. The internal dimension of relational capital includes relations between employees, while the external dimension concerns all stakeholders. Internal relational capital is defined as a set of the intellectual property of an organization, work processes and methods, executive procedures, databases, communication and information infrastructure Szudrowicz, 2020). In addition, the internal relational capital of an organization is primarily relational resources created by stakeholders who also constitute the organization, creating an atmosphere of trust within the organization. On the other hand, external relational capital is perceived as a structure serving to maintain proper relations with the environment, including the system of searching for recipients, sales networks, research and development projects, customer bases, the company's brand and reputation, and strategic partnerships.

The concept of relational capital acquires a new meaning when one takes into the account technological changes and the current possible pace of information exchange between entities. It turns out that relational capital is the ability to create a network of connections, not a set of already existing relationships. Such an approach was proposed by Still, Huhtamäki & Rusell (2015). An important aspect of defining relational capital is also its quality, defined by Camagni and Capello (2013) as the intensity of cooperation of entities between which the relationship takes place. Other researchers emphasize that the quality of relational capital depends on three factors: trust, the level of transparency of relations between entities and the frequency of interactions (Liu, Ghauri and Sinkovics, 2010) or on trust, responsibility and respect between the subjects of the relationship (Chen, Huang & Davison, 2017).

2.1.5 Intellectual Capital Management, Foreign Ownership and Firm Value

The information on intellectual capital investments could not be reported as an asset in the statement of financial position, but only exposed as an expense in the income statement, could

result in a poor decision making on the part of the stakeholders to value the efficiency of intellectual capital towards performance and firm value (Zavertiaeva 2016). Therefore, it is suggested that firms must have a good and reliable governance to assist in ensuring that investments in intellectual capital be seen as more efficient by the stakeholders for the purpose of decision making regarding firm performance. From the aspect of intellectual capital, corporate governance should be responsible to form, develop and obtain benefits from intellectual capital to make it more efficient (Mahfoudh & Ku-Nor-Izah 2014). One element of corporate governance that can be linked directly to the efficiency of intellectual capital is the ownership structure of the firms because ownership that can control firms' operation can influence the stakeholders' perception regarding the intellectual capital. The present study focused on the existence of foreign ownership in firms that is expected to influence the relationship between intellectual capital efficiency and firm value. When foreigners have a stake in firms in the form of controlling shareholdings, they will have the right to put several influential representatives on the firms' Board of Directors (BOD) (Romlah & Zaleha 2016).

Members on the BOD that represent controlling or foreign shareholdings usually have the power to decide on critical decision making of the firms (Le & Moore, 2023). The critical decision making that involves IC efficiency would eventually affect firm value. In general, there is two opposite views on the influence of foreign ownership that can become a moderator in the association between intellectual capital efficiency and firm value. Under the stakeholder theory, there is two stakeholder views regarding firms being owned or controlled by foreigners. The first view is the helping hand view and the second is the grabbing hand view (Han, Ding & Zhang, 2022; Romlah & Zaleha 2016). If the stakeholder sees foreign ownership in the role of assisting the firm, it is expected that the association between intellectual capital efficiency and firm value will be strengthen, supporting the helping hand view. On the other hand, if stakeholder sees foreign ownership in the role of taking advantage negatively on the firms' wealth, the association between intellectual capital efficiency and firm value will be weaken, supporting the grabbing hand view.

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2.1.7 Conceptual Framework

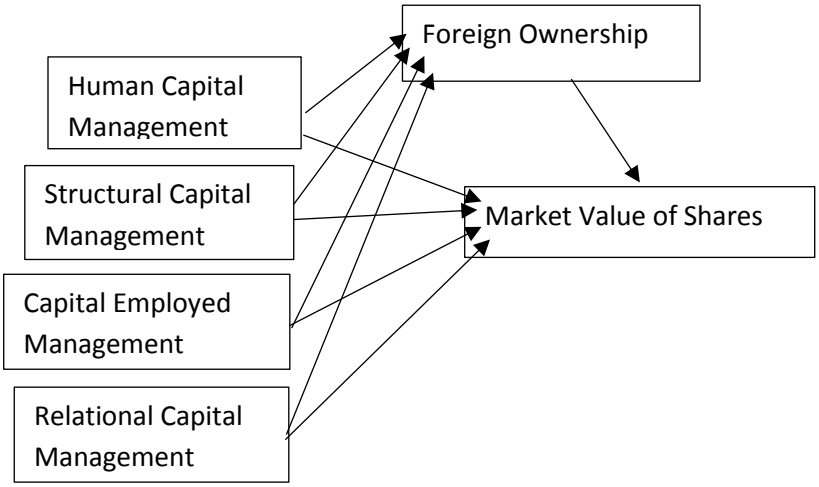


Figure 1: Diagrammatic Representation of Conceptual Framework

3. MATERIAL AND METHOD

Ex-post facto research design has been employed in this study. The *ex-post facto* research design was adopted for this study since the study made use of historical data for the analysis. The population of this study is made up of all the non-finance firms that are listed on the floor of the Nigerian Exchange Group during an 11-year period between 2013 and 2023. As of 31st December 2023, there were 81 non-finance companies listed on the floor of the Nigerian Exchange Group. Particularly, this study draws the final sample size through a procedure of purposive non-probability sampling technique which takes cognizance of availability, data of listing, presence of foreign ownership and accessibility of relevant information (data) needed for the study. First, the study deselected ten (10) firms that listed on the Nigerian Exchange Group after year 2013 which connotes the start period for this study. Secondly, the study deselected the six (6) firms in the conglomerate sector as there was no presence of foreign ownership in the sector. This was done to ensure a balanced panel data structure via a homogenous periodic scope necessary for the estimation process.

The study also deselected thirty-four (34) firms lacking complete information in relation to data requirements needed for the estimation. Hence, the final sample size consists of thirty-one (31) listed non-finance firms. This study employed secondary data collection technique. Secondary data collection is the gathering of information already researched and presented by other scholars or data obtained from other sources. These secondary sources include Audited annual reports of the related quoted companies on the Nigerian Stock Exchange website. Descriptive statistics was computed such as the mean, median, standard deviation, minimum,

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maximum values statistics. This was used to describe the nature of data and also aid data visualization. The structural equation modelling was used to validate the hypotheses. In this study, the specified models are built to capture the mediating effect of foreign ownership on the relationship between intellectual capital management and the value of listed non-finance firms in Nigeria. Thus, the study modified the models specified by Omaliko, Mordi amd Uzodimma (2023) to suit the variables employed in this study. Their model was stated as CSG = f(HCE, RCE, SCE); Where CSG is Corporate Sustainability Growth, HCE is human capital employed, RCE is relational capital employed and SCE is structural capital employed. The model was modified thus:

$MAVS_{it} = \beta_0 + \beta_1 HCCM*FOBO_{it} + \beta_2 SCCM*FOBO_{it} + \beta_3 CEEM*FOBO_{it} + \beta_4 RCCM*FOBO_{it} + \varepsilon_{it}$ …… Eqn 1

Where:

MAVS	=	Market Value of Shares
HCCM	=	Human Capital Management
SCCM	=	Structural Capital Management
CEEM	=	Capital Employed Management
RCCM	=	Relational Capital Management
FOBO	=	Foreign Ownership
β_1- β_4	=	Slope Coefficient
ε	=	Error term
i	=	i^{th} firm
t	=	time period

Table 1. Operationalization/ Measurement of Variables and Apriori Expectation

S/N	Variables	Measurement	Apriori Sign
Dependent Variable			
1	Market Value of Shares	Total outstanding shares multiplied by the current price per share	
Independent Variables			
2	Human Capital Management	Revenue minus cost of revenue divided by staff cost	+
3	Structural Capital Management	Revenue minus cost of revenue and staff cost divided by revenue minus cost of revenue	-

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4	Capital Employed Management	Capital Employed Efficiency in numbers is computed as Revenue minus cost of revenue divided by total asset minus intangible asset.	+
5	Relational Capital Management	Marketing cost/value added Value added = total revenue (total cost-staff cost)	+
6	Foreign Ownership	Foreign institutional ownership in dummy is measured as "1" when the shares ownership concentration of all the block foreign institutional shareholders is 5% and above controlling interest and "0" otherwise	+

4. RESULT AND DISCUSSIONS

4.1 Data Analysis

The descriptive statistics of the main independent variables utilized in the study are presented in Table 4.1 below; the table shows the number of observations, mean, standard deviation, minimum and maximum values of the variables. The description helps in showing the nature of the data.

Table 2: Summary statistics of variables

Variable	Obs	Mean	Std. Dev.	Min	Max
HC	341	4.328766	13.13111	-45.70218	223.7292
SC	341	.3169455	3.788759	-45.63888	8.989346
CE	341	.1501231	.1964939	-2.130491	.6567387
RC	341	.562939	.3965468	-.7175288	2.352658
FO	341	.4340176	.4963555	0	1
MARKETVS	341	45.65094	100.36	.01	679.93

Source: STATA 15 Outputs, 2024

The Obs. column (i.e., observations) shows the number of observations included in the analysis of the independent variables of the study as three hundred and forty one (341). The Mean is a measure of central tendency which calculates the average of a set of observations; while, the Standard Deviation (SD) is a measure of the average distance between the values

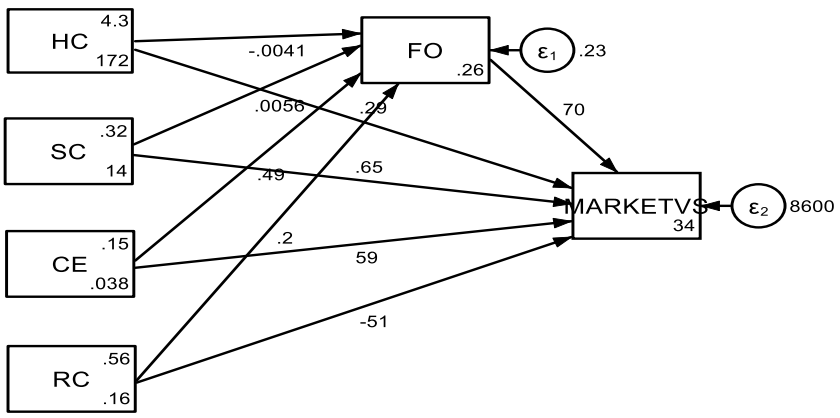
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of the data in the set and the mean. A low SD indicates that the data points tend to be very close to the mean; a high SD indicates that the data points are spread out over a large range of values.

The mean value for human capital management is 4.33, with a SD of 13.13 that shows that the values are spread out over a large range of values. The minimum value is -45.70 and the maximum value is 223.73. The mean value for structural capital management is 0.32, with a SD of 3.793 which shows that the values are spread out over a large range of values, a minimum value of -45.64 and a maximum value of 8.99. The mean value for capital employed management is 0.15, with a SD of 0.20 which shows that the values are spread out over a small range of values, a minimum value of -2.13 and a maximum value of 0.66. The mean value for relational capital management is 0.56, with a SD of 0.40 which shows that the values are spread out over a small range of values, a minimum value of -0.72 and a maximum value of 2.35. The mean value for foreign ownership is 0.43, with a SD of 0.50 which shows that the values are spread out over a small range of values, a minimum value of 0 and a maximum value of 1. The mean value for market value of shares is 45.65, with a SD of 100.36 which shows that the values are spread out over a very large range of values, a minimum value of 0.01 and a maximum value of 679.93.

4.2 Testing of Hypotheses

Figure 2: SEM diagram



Source: STATA 15 Outputs, 2024

Figure 2 shows the path analysis diagram of structural equation model. The paths concerning the human capital management in the diagram are: firstly, the human capital management to

foreign ownership path that has a coefficient of -0.0041 and variance of 0.23; the second path is the foreign ownership to market value of shares path that has a coefficient of 70.0 and a variance of 8,600; and the third path is the human capital management to market value of share path that has a coefficient of 0.29 and variance of 8,600. The indirect path which is the mediating path shown as human capital management to foreign ownership multiplied by foreign ownership to market value of shares has a coefficient of -0.287 (-0.0041 x 70).

The paths concerning the structural capital management in the diagram are: firstly, the structural capital management to foreign ownership path that has a coefficient of 0.0056 and variance of 0.23; the second path is the foreign ownership to market value of shares path that has a coefficient of 70.0 and a variance of 8,600; and the third path is the structural capital management to market value of share path that has a coefficient of 0.65 and variance of 8,600. The indirect path which is the mediating path shown as structural capital management to foreign ownership multiplied by foreign ownership to market value of shares has a coefficient of 0.392 (0.0056 x 70).

The paths concerning the capital employed management in the diagram are: firstly, the capital employed management to foreign ownership path that has a coefficient of 0.49 and variance of 0.23; the second path is the foreign ownership to market value of shares path that has a coefficient of 70.0 and a variance of 8,600; and the third path is the capital employed management to market value of share path that has a coefficient of 59 and variance of 8,600. The indirect path which is the mediating path shown as capital employed management to foreign ownership multiplied by foreign ownership to market value of shares has a coefficient of 34.3 (0.49 x 70).

The paths concerning the relational capital management in the diagram are: firstly, the human capital management to foreign ownership path that has a coefficient of 0.2 and variance of 0.23; the second path is the foreign ownership to market value of shares path that has a coefficient of 70.0 and a variance of 8,600; and the third path is the relational capital management to market value of share path that has a coefficient of -51 and variance of 8,600. The indirect path which is the mediating path shown as relational capital management to foreign ownership multiplied by foreign ownership to market value of shares has a coefficient of 14 (0.2 x 70)

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Table 3: Structural Equation Model for Hypotheses Testing (Direct Effect)

```
Endogenous variables

Observed:  FO MARKETVS

Exogenous variables

Observed:  HC SC CE RC

Fitting target model:

Iteration 0:   log likelihood = -4552.9825
Iteration 1:   log likelihood = -4552.9825

Structural equation model                       Number of obs     =        341
Estimation method  = ml
Log likelihood     = -4552.9825
```

	OIM Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Structural						
FO						
HC	-.0040637	.0023655	-1.72	0.086	-.0087	.0005726
SC	.0056494	.0070399	0.80	0.422	-.0081486	.0194474
CE	.4931638	.1458565	3.38	0.001	.2072903	.7790373
RC	.1977482	.0829949	2.38	0.017	.0350813	.3604151
_cons	.2644623	.047897	5.52	0.000	.1705858	.3583388
MARKETVS						
FO	69.89521	10.52655	6.64	0.000	49.26355	90.52687
HC	.2915357	.4618023	0.63	0.528	-.6135802	1.196652
SC	.6543607	1.369753	0.48	0.633	-2.030305	3.339026
CE	59.30017	28.8237	2.06	0.040	2.806756	115.7936
RC	-50.73452	16.26672	-3.12	0.002	-82.6167	-18.85235
_cons	33.50392	9.717766	3.45	0.001	14.45745	52.55039
var(e.FO)	.2275953	.0174301			.1958731	.2644549
var(e.MARKETVS)	8599.83	658.6091			7401.189	9992.595

```
LR test of model vs. saturated: chi2(0)   =      0.00, Prob > chi2 =      .
```

Source: STATA 15 Outputs, 2024

Table 3 shows the same result as Figure 4.1 except that it include the number of iteration done to have a converge and also produced the log likelihood. It also showed the p-value of the various paths. The iteration was only once and had a log likelihood of 4552.98. The p-value showed that capital employed and relational capital have significant direct effect on market value of shares (0.040 and 0.002 respectively) while human capital and structural capital have non-significant direct effect on market value of shares (0.528 and 0.633 respectively).

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Table 4: Structural Equation Model for Hypotheses Testing (Indirect Effect)

Indirect effects

	OIM Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Structural						
FO						
HC	0	(no path)				
SC	0	(no path)				
CE	0	(no path)				
RC	0	(no path)				
MARKETVS						
FO	0	(no path)				
HC	-.2840314	.1707806	-1.66	0.096	-.6187552	.0506925
SC	.3948662	.4956388	0.80	0.426	-.576568	1.3663
CE	34.46978	11.44033	3.01	0.003	12.04716	56.89241
RC	13.82165	6.163118	2.24	0.025	1.742163	25.90114

Source: STATA 15 Outputs, 2024

Table 4 shows the indirect effect which is the mediating effect of the structural equation model. In our analysis, capital employed and relational capital have significant indirect effect on market value of shares (0.003 and 0.025 respectively) while human capital and structural capital have non-significant indirect effect on market value of shares (0.096 and 0.426 respectively).

Table 5: Structural Equation Model for Hypotheses Testing (Total Effect)

Total effects

	OIM Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Structural						
FO						
HC	-.0040637	.0023655	-1.72	0.086	-.0087	.0005726
SC	.0056494	.0070399	0.80	0.422	-.0081486	.0194474
CE	.4931638	.1458565	3.38	0.001	.2072903	.7790373
RC	.1977482	.0829949	2.38	0.017	.0350813	.3604151
MARKETVS						
FO	69.89521	10.52655	6.64	0.000	49.26355	90.52687
HC	.0075043	.4886386	0.02	0.988	-.9502098	.9652184
SC	1.049227	1.454238	0.72	0.471	-1.801026	3.89948
CE	93.76996	30.12951	3.11	0.002	34.7172	152.8227
RC	-36.91287	17.14421	-2.15	0.031	-70.5149	-3.310842

Source: STATA 15 Outputs, 2024

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Table 5 shows the total effect that is the direct effect of the independent variables on the dependent variable and the indirect effect via the mediator variable. In our analysis, capital employed and relational capital have significant total effect on market value of shares (0.002 and 0.031 respectively) while human capital and structural capital have non-significant total effect on market value of shares (0.988 and 0.471 respectively).

4.2 Hypotheses Testing Decisions

4.2.1 Hypothesis One

Since the p-value 0.096 for the indirect effect is higher than the margin of error of 0.05, we therefore accept the null hypothesis which states that foreign ownership does not significantly mediate the effect of human capital management on market value of shares of non-finance firms in Nigeria.

The study also found that foreign ownership does not significantly mediates the effect of human capital management on market value of shares. Prior studies on human capital management have mixed results on different dependent variables. Prior studies in line with our finding include: Haruna (2022) that found that human capital efficiency have no impact on the performance of multinational companies in Nigeria; Ningtyas and Kartika (2022) found a non-significant effect on firm value; Agomor, Onumah, and Duho (2022) found that human capital does not significantly affect market value; Uagbale-Ekatah, Udeh, and Ofurum (2022) found that human capital has negative and insignificant effect on earnings per share; Tran, Dinh, Hoang, and Vo (2022) found an insignificant effect on firm performance. On the contrary: Renaldo and Putri (2023) found a positive significant effect on firm value; Suharman, Hapsari, Hidayah and Saraswati (2023) found that human capital directly impacts the value chain and firm performance; Farooq and Ahmad (2023) found that human capital is significantly related to profitability; Tiwari, Vidyarthi, and Kumar (2023) found that human capital has a strong positive impact on bank productivity; Omaliko, Mordi and Uzodimma (2023) found a Significant and positive association between human capital efficiency and sustainability growth.

4.2.2 Hypothesis Two

Since the p-value 0.426 for the indirect effect is higher than the margin of error of 0.05, we therefore accept the null hypothesis which states that foreign ownership does not significantly mediate the effect of structural capital management on market value of shares of non-finance firms in Nigeria.

. The study also found that foreign ownership does not significantly mediates the effect of structural capital management on market value of shares. Prior studies on structural capital management have mixed results on different dependent variables. Prior studies in line with our finding include: Bananuka, Tauringana and Tumwebaze (2023) that found structural capital element to insignificant effect on sustainability reporting practices; Haruna (2022) that found that structural capital efficiency have no impact on the performance of multinational companies in Nigeria; Ningtyas and Kartika (2022) found a non-significant effect on firm value; Agomor, Onumah, and Duho (2022) found that structural capital does not significantly affect market value; Rahman and Liu (2022) reported that structural capital has no significant impact on profitability and productivity; Dada (2022) reported that structural capital has no significant impact on performance of non-financial companies quoted in Nigeria. Conversely: Renaldo and Putri (2023) found a positive significant effect on firm value; Suharman, Hapsari, Hidayah and Saraswati (2023) found that structural capital directly impacts the value chain and firm performance; Farooq and Ahmad (2023) found that structural capital is significantly related to profitability; Awwad and Qtaishat (2023) reported that structural capital positively impact the financial performance of commercial banks.

4.2.3 Hypothesis Three

Since the p-value 0.003 for the indirect effect is lower than the margin of error of 0.05, we therefore reject the null hypothesis which states that foreign ownership significantly mediates the effect of capital employed management on market value of shares of non-finance firms in Nigeria.

The study also found that foreign ownership significantly mediates the effect of capital employed management on market value of shares. Prior studies on capital employed management have mixed results on different dependent variables. Prior studies in line with our finding include: Renaldo and Putri (2023) that found a positive significant effect of capital employed on firm value; Suharman, Hapsari, Hidayah and Saraswati (2023) found that capital employed directly impacts the value chain and firm performance; Farooq and Ahmad (2023) found that capital employed is significantly related to profitability; Tiwari, Vidyarthi, and Kumar (2023) found that capital employed has a strong positive impact on bank productivity; Omaliko, Mordi and Uzodimma (2023) found a Significant and positive association between capital employed efficiency and sustainability growth; Awwad and Qtaishat (2023) reported that structural capital positively impact the financial performance of commercial banks. On the other hand: Ningtyas and Kartika (2022) found a non-significant effect on firm value;

Agomor, Onumah, and Duho (2022) found that capital employed does not significantly affect market value; Uagbale-Ekatah, Udeh, and Ofurum (2022) found that capital employed has negative and insignificant effect on earnings per share; Dada (2022) reported that capital employed has no significant impact on performance of non-financial companies quoted in Nigeria.

4.2.4 Hypothesis Four

Since the p-value 0.025 for the indirect effect is lower than the margin of error of 0.05, we therefore reject the null hypothesis which states that foreign ownership significantly mediates the effect of relational capital management on market value of shares of non-finance firms in Nigeria.

The study also found that foreign ownership significantly mediates the effect of relational capital management on market value of shares. Prior studies on relational capital management have mixed results on different dependent variables. Prior studies in line with our finding include: Renaldo and Putri (2023) that found a positive significant effect of relational capital on firm value; Suharman, Hapsari, Hidayah and Saraswati (2023) found that relational capital directly impacts the value chain and firm performance; Farooq and Ahmad (2023) found that relational capital is significantly related to profitability; Tiwari, Vidyarthi, and Kumar (2023) found that relational capital has a strong positive impact on bank productivity; Omaliko, Mordi and Uzodimma (2023) found a Significant and positive association between relational capital efficiency and sustainability growth; Awwad and Qtaishat (2023) reported that relational capital positively impact the financial performance of commercial banks. On the other hand: Ningtyas and Kartika (2022) found a non-significant effect on firm value; Agomor, Onumah, and Duho (2022) found that relational capital does not significantly affect market value; Uagbale-Ekatah, Udeh, and Ofurum (2022) found that relational capital has negative and insignificant effect on earnings per share; Dada (2022) reported that relational capital has no significant impact on performance of non-financial companies quoted in Nigeria.

Finally, prior studies did not use foreign ownership as a mediator. Other variables such as competitive advantage, external governance, corporate governance, financial performance, income diversification and auditor characteristics were used. Awwad and Qtaishat (2023) used competitive advantage as a mediator and found that competitive advantage mediates the relationship between intellectual capital and financial performance; Ahamad, Al-Jaifi and

Ehigiamusoe (2023) using external governance as a mediator found that it positively mediates the impact of intellectual capital on financial efficiency; Van, Vo, Hoang, and Tran (2022) revealed that the inclusion of corporate governance as a mediating factor affects the relationship between intellectual capital and a firm's performance in Vietnam; Ningtyas and Kartika (2022) found that financial performance does not mediate the relationship between intellectual capital and firm value; income diversification was used as a mediator by Githaiga (2022) and found that while income diversification enhanced the impact of structural capital efficiency on bank performance, it also reduced the effect of human capital efficiency and did not mediate the impact of capital employed efficiency on bank performance; Rahman and Liu (2022) found that auditor characteristics played an important mediating role in the connection between IC and corporate performance.

CONCLUSION AND RECOMMENDATION

Extant literature showed that the rise of the knowledge economy and its preference over the production economy brought about a paradigm shift in which businesses were no longer solely evaluated on the basis of their tangible assets; instead, they were evaluated on an all-encompassing platform that considered their worth as the sum of their intangible and tangible assets. Several studies have taken turns to examine the effect of intellectual capital on various performance indices in different industries. Some even introduced a moderator/mediator variable. This study however examined the mediating role of foreign ownership on the effect of intellectual capital on firm value of non-finance firms in Nigeria. This study found that foreign ownership significantly mediates the effect of capital employed and relational capital on market value of shares while foreign ownership does not mediate the effect of human capital and structural capital on market value of shares. This study therefore concluded that foreign ownership mediates the effect of intellectual capital on firm value of non-finance firms in Nigeria; significantly for capital employed and relational capital and non-significantly for human capital and structural capital. The study thus recommended that firms need to reverse this trend in their human capital management through hiring qualified indigenous and experienced workers, ensuring effective training of staff as at when due.

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