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The Nexus on Effect of Intellectual Capital Accounting on Earnings Performance of Listed Deposit Money Banks in Nigeria

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ABSTRACT: This work examined the effect of Intellectual capital accounting on earnings generation of listed deposit money banks in Nigeria. The study adopted the ex-post facto research design and panel regression statistical technique, involving the use of time series and cross-sectional data. Data covered the period of eight-years (2011-2018); considering the total population of fourteen (14) listed commercial banks in Nigeria, random sampling was employed in selecting firms for this study involving eleven (11) listed deposit banks. Data were sourced secondarily from the firms' published annual financial statements. Value Added Intellectual Coefficient (VAIC) theory as developed by Pulic (1998) was adopted for this study. It was discovered from the findings that Intellectual Capital Accounting all have a positive and significant effect on gross earnings. Therefore, Intellectual Capital Accounting have a positive and significant effect on earnings generation of listed deposit money banks in Nigeria. In view of our findings managing directors of listed deposit money banks should carry out a proper implementation and regular monitoring of the systems, procedures and program (structural capital), all with an effective and efficient support from higher and middle line management, as this will ensure expansion in all frontiers of the business.

KEYWORDS: Intellectual Capital Accounting (ICA), Earnings generation (EG).

1.1 INTRODUCTION

The study of intellectual capital costs, in recent years, is an area that is now securing relevance in today's academia, knowledge economy and business. This plays a central function in the innovation, productivity, growth, performance and competitiveness of organisations. The scope of intellectual capital comprises human resources, the company's composition and processes, research and development, rights related to intellectual property and technology, as well as software and consumer networks (Zehri, Abdelbaki & Bouabdellah, 2012). Remarkably, it is no longer a debate that, in recent times, the accounting world has witnessed the gradual move from industry-based concentration to high concentration on technology that enhances the creativity, skills and expertise of people to drive firms forward. Inyada (2018), in order to buttress the aforementioned assertion, added that such a move from being industry-based, focuses on assets that are physical in nature, such as plants, factories, equipment and machinery, to the level of deploying cutting-edge technology and leveraging novel information. Moreover, that which is innovation-based focuses on talent, expertise, skill-set, creativity, experience and dedication of people in an establishment's human capital. By implication, the fundamental contrast between the two environments is the essence of their assets. Previous researches in accordance with this study have proved that the progression to ability, knowledge, expertise, skills, attitude of workers and experience (which intellectual capital is comprised of) is no doubt of greater value to an organisation. In addition to facing enormous globalised competition, there is an extensive recognition that intellectual capital is a crucial force that positions economic growth (Huang & Liu, as cited in Sharabati, Jawad, & Bontis, 2010). Moreover, in today's knowledge-based economy, common researchers have also claimed that systems, people 2 and procedures have remained indispensable assets for organisational progression. The prevalence of intangibles and knowledgeable individuals has impelled the world to confront a worldwide competition, which appears as a remarkable characteristic of every developing economy of today. That being said, the origin of intellectual capital costs is traced to Scandinavia, where, traditionally, businesses have a greater time horizon, and where there is a formidable inclination "engineering" to innovation and research (Barney, as cited in Gogan & Duran, 2014). This type of cost management is utilized mainly in Denmark, Holland, Taiwan, Sweden, Norway, China, Canada, Finland, Japan, Taiwan and, to a lesser extent, in Austria, Israel, Italy, Spain, and Australia. Organisations use performance management of intellectual capital in one way or another by realising or guessing its role in achieving competitive advantage. In summary, the management of intellectual capital costs is a set of management tools which

enables the organisation to enjoy access to the knowledge they have, but they do not operate effectively. Next to this, earnings are very important concepts that relate to the form and way in which financial resources that are readily available to an organisation are properly utilised to give rise to the overall corporate objective of an organisation. It is, therefore, crucial that the performance of an organisation is measured on a regular basis to guarantee continuity and sustainability. One particular sector considered to be knowledge-intensive and a source of rich intellectual capital concentration is the banking and financial sector. Compellingly, this sector is highly innovative, research-intensive and strongly balanced in its use of the human capital intervention. Hence, the need to manage intellectual asset is very important for every organisation within the banking sector that desires to generate and improve its earnings steadily, which, in turn, will make it stand out amongst its competitors.

1.2 STATEMENT OF THE PROBLEM

Institutions in the financial sector often boast of rich intellectual assets. However, there has been drastic intellectual asset fallout in Nigeria. And one of the reasons behind that is the challenge of inefficiency in accounting for and managing this unique asset, coupled with the rising national and global economic crisis. Also, one of the bottleneck experienced by commercial banks in Nigeria is the issue of having the most suitable intellectual capital assets needed to carry on its work efficiently and effectively. Guest, Michie, Conway, and Sheehan (as cited in Oko, Onodi, and Tapang, 2018) noted that it had been a spontaneous argument that the organisations which are best able to meet the difficulty of handling their intellectual capital cost will be those which can utilize its valuable, scarce and inimitable resources that have been acquired. Common researchers have also contested that if intellectual capital costs are properly channelled through suitable human resource practices and administration of organisational culture, financial institutions will enjoy bountiful earnings improvement (Barney & Wright, 1998). In addition to the task of accounting effectively and prudently managing intellectual capital costs, the managements of financial institutions are confronted with the challenge of how to enjoy a competitive edge in the world markets, while in search of improved productivity via encouraging the spread of high-performance in workplaces. Owing to this development and challenge, this research is set out to look at the effects of intellectual capital costs on the generation of earnings of commercial banks in Nigeria.

1.3 RESEARCH OBJECTIVE

The objective of the study is to examine the effect of intellectual capital accounting on earnings generation of listed deposit money banks in Nigeria.

1.4 RESEARCH QUESTION

To what extent does intellectual capital accounting affects earnings generation?

1.5 RESEARCH HYPOTHESIS

H_o1: Intellectual capital Accounting (ICA) has no significant effect on Earnings generation (EG).

2.1 CONCEPTUAL FRAMEWORK

2.1.1 Intellectual Capital: Concept & Components

Galbraith (as cited in Stewart, 1997) who happened to be a renowned economist in the United States first spearheaded the proposed concept of Intellectual Capital. His reference to intellectual capital, is not only as a form of standstill intangible asset, but also a kind of high powered capital without static capital formation. Bontis, Chua and Richardson (2000) also considers intellectual capital as a total arrangement of unidentifiable assets such as capabilities, resources, and competences, which increase, not only firm performance but also lead for organizational value creation. This unique asset is central to the survival of any organization and characterized with the fact that It cannot be seen (invisible); It relates closely to the experiences and knowledge of employees, also technologies and customers of an organization and that It gives better and rich opportunities for an organization (Gogan, Artene, Sarca, & Draghici, 2016)

Intellectual Capital accounting is the blend of human, structural (organizational) and customers (stakeholders) resource accounting of an organization. Meritum, 2005 analyzes human capital as the ability that employees convey with them when they are out of the firm. These abilities embody the skills, knowledge and experiences of individuals. Some of this know-how stands unique and unmistakable to the individual, while some may be conventional. Examples are creativity, expertise, innovation capacity, learning capacity, employee flexibility, loyalty, previous experience, formal training, motivation, education, teamwork capacity, tolerance for ambiguity and satisfaction. The second blend of intellectual capital is the structural capital which Bontis, Chua and Richardson (2000) defines as the software, hardware, structure, databases, trademarks, patents, and everything that assists employees' productivity. These form of capital refers to the infrastructure that supports and enables human capital to function. Saint (1996) in his submission, stated that the structural capital of an organization consists of four elements which includes systems, structure,

strategy and culture (3S & 1C). The third blend of intellectual capital is the relational or stakeholder's capital. Uadiale and Uwuigbe (2011) refers to this capital, as encompassing the external intangible assets of an organization. Examples of this category are commercial power, capacity to negotiate with financial entities, image, customer's loyalty, satisfaction of customers, links with suppliers, and environmental activities, etc (Meritum, 2005).

2.1.2 Intellectual Capital Accounting (ICA)

Gogan, and Duran (2014) sees Intellectual Capital accounting as the costs incurred in a continuous and cyclic process that coordinates the activities in identifying, evaluating, and initiating the action plan and report of intangible assets to achieve a sustainable competitive advantage.

As for Kujansivu (2008) Intellectual capital accounting encompasses the overall costs in identifying, measuring, valuing, acquiring and the disclosing of intellectual capital.

It can be deduced that there is a unique selling point a company enjoys, when it has a comprehensive accountability of its intellectual capital. Thus, agreeing that there is a positive (favourable) relationship existing between a "unique selling point" (i.e. competitive advantage) and intellectual capital. Gogan and Duran (2014) stated that the target of the intellectual capital accounting of a company is on improving its value-generating capabilities via identifying, capturing, leveraging and recycling of intellectual capital. And these values as stated by Serrat (2011) involves 3V's which involves value creation (strategically generating knowledge and its conversion into a valuable form); Value extraction (strategically transforming the created value into useful forms); and value reporting (involves an accurate consideration of the value of intellectual capital in considering the what, why, how, when, and where of qualitative and quantitative measurement, as well as its responsibility centre).

To simply put, Intellectual Capital Accounting involves leveraging on the structural & human capital together. Also, multiplying the interaction between structural & human capital (Edvinsson, 1997).

2.1.2 Earnings Generation

The earnings of a company are its net income after-tax deduction. This is referred to as the profits or bottom line of the company. Earnings are perhaps the singular most significant and closely studied information in the financial statement of a company. It clearly spells out a company's actual profitability in comparison with the estimates of analysts, competitors, its own historical performance and industrial peers. Earnings lies as the major determinant of the share price of a public company because, they can be used to increase the futuristic earnings of a company as an investment by the company, or they can be used as a reward of dividends to shareholders. Earnings are studied because they represent a direct link to company performance.

Earnings are calculated either as EBT (Earnings before taxes) which is also referred as pre-tax income or EBIT (earnings before interest and taxes). Companies with a high level of Non-current asset looks at earnings in terms of EBITDA (earnings before interest, taxes, depreciation, and amortization). Therefore, there is a direct relationship between intellectual and earnings generation.

2.1.3 Intellectual capital Accounting and Earnings generation

Ekwe (2013) stated that there is a positive and significant relationship between the growth in earnings and the Intellectual capital of banks in Nigeria. Bontis (2001) asserts that leveraging knowledge assets is the key to a firm's prosperity. Patton (2007) stated that the productivity and revenue growth of a firm lies more on the firm's intellectual capital accounting and system capabilities than on its physical assets.

Following these studies therefore, it may be argued that a firm with a high sense of intellectual capital accounting is expected to enjoy a higher productivity leading to a higher earnings generation and a solid competitive advantage.

2.2 THEORETICAL REVIEW

There are established theories in relation to intellectual capital accounting and earnings genaration.

2.2.1 Knowledge Based Postulation

This theory was propounded by Stalk (as cited in Ocheni, 2018). In his postulation, competition is based on capabilities and competencies, which are underpinned by knowledge. Knowledge acquired by firms are the Intellectual Capital, and that banks can grow their values based on knowledge acquired by accounting and harnessing its human Capital (HC), Structural Capital (SC) and Customer/Relational Capital (RC).

2.2.2 Agency Theory

This theory in relation to intellectual capital accounting lays emphasis that performance-related payment can motivate employees to achieve organizational goals. HassabElnaby, Said and Wier (2005) believes that there is a relationship between the conception of agency theory and the choice of performance indicators of a company. Given its related costs and risks, a performance indicator (whether financial or non-financial) in relation to the principal & agent performance indicators, should be included in the

performance management system as long as the indicator can add incremental information to employees' effort in work (HassabElnaby, Said, & Wier, 2005).

2.2.2 Value Added Intellectual Capital Theory (VAIC)

As developed by Pulic (1998) this theory is considered to be appropriate for the study of Intellectual Capital Accounting and earnings generation. This is because it meets the basic requirements of contemporary economy, indicating the real value and performance of a company because, value-added has been reputed as the preferred measure of the wealth created by the activities of a company. VAIC theory provides also, a consistent and standardised basis of measure that can be used for easy comparison, both within sector industry or internationally. This theory (model) explains the total value creation efficiency of any organization. According to Kujansivu and Lonnqvist (2007) Intellectual capital efficiency is one part of the theory and the other part is the contribution of tangible assets to value creation. The essence of the theory is to determine how human, structural, and physical resources affect corporate performance and value creation. Created value is assessed as the difference between the total realized value in the market and output or value-added (VA). Ante Pulic defines VA as the sum of operating profits (P), employee costs (C), and depreciation and amortization of assets (D and A). Thus, VA=P +C +D+A. After computing VA, the model calculates HC by summing all the employee-related costs. SC is presented as the difference between VA and HC (SC=VA– HC). In this way, Pulic demonstrates that everything within VA is created by the structural component of IC, except for HC. The next step in calculating VAIC focuses on calculating the efficient usage of HC, SC, and physical capital through computing human capital efficiency (HCE), structural capital efficiency (SCE), and capital-employed efficiency (CEE). Efficiency in utilizing human resources is computed by dividing VA with salaries and other employee-related costs (HC).

In contrast, SCE represents the ratio between SC and VA. Finally, CEE ratio is calculated as the ratio between VA and invested capital (CEE). Since VAIC represents the sum of the above-mentioned efficiencies (VAIC=HCE+SCE +CEE), it is obvious that the sum of HCE and SCE represents the efficiency of IC, or intellectual capital efficiency (ICE).

VAIC model suffers from several weaknesses that must be taken into account when applying it. The first one is the fact that the model focuses on historical data from financial statements, and, therefore, it is only the measure of past IC and cannot be used as a measure of future value-creating potential. Second, the model is not able to take into account the synergy effects existing between various forms of intangible and tangible assets. This effect is one of the important drivers of Value Added (Chu, Chan & Wu, 2011). The third weakness of the model arises from the fact that by making use of data from financial statements, the VAIC model only measures the operational performance of a company in a different dimension. Also, the model neglects some important elements of IC, such as employee training and instead bases HC only on salaries and other employee-related costs. A similar drawback exists concerning SC. Besides, there exists a conceptual inconsistency with the calculation of HCE.

In line with this theory, the higher the value for HC, the better for the company. However, when computing HCE, it turns out that lower values for HC are better for HCE because, HCE=VA/HC (Stahle, Stahle and Aho, 2011). Fourth, VAIC does not take into account the existence of relational capital, as well as innovation capital. Some of the authors claim that research and development costs should also be considered as one of the measures of ICE (Chen, Cheng & Hwang, 2005).

Previous researchers have employed the VAIC theory in their researches, stating clearly there is a positive effect of VAIC and earnings generation (GR) of banks. These been supported by several previous studies such as Pulic (1998) in Austria; Mavridis and Kyrmizoglou (2005) in Greece; Kamath (2007) in India; Ekwe (2013) in Nigeria. Also, Pulic and Bornemann (1999) and a similar study conducted on Croatian banks by Pulic (2001); Mavridis (2004) used the same model to study the performance of Japanese banks; Bharathi (2010) conducted a study on the intellectual capital performance of Banking Sector in Pakistan. Mohammed and Ismail (2009) using VAIC™ to test the intellectual capital efficiency and firm's performance in Malaysian financial sectors, they found out that there is a significant and positive relationship between intellectual capital and company's performance.

Pulic (1998) VAIC model has received wide usage in the area of intellectual capital due to the inadequacies of the other valuation methods and measurement models. This theory unlike other traditional measures of corporate performance, is easy and straightforward for both internal and external users of the financial statement. Therefore, the basis of this research rests on the Value Added Intellectual Capital Theorem as developed by Pulic (1998).

2.3 EMPIRICAL REVIEW

This part of the study summarizes various studies conducted in different countries related to Intellectual Capital Accounting and earnings generation.

Ocheni (2018), conducted a research on monumental effect of intellectual capital on corporate valuation of Oil and Gas companies in Nigeria. Adopting an ex-post facto research design for the study, collection of data was gathered from the Statistical Bulletin of the Central Bank of Nigeria (CBN), National Bureau of Statistics Annual Abstract of Statistics and Journal articles. The researcher applied correlation analysis in assessing the relationship between the intellectual capital and corporate valuation in Nigeria. The findings revealed that all the intellectual capital components affects corporate valuation in Nigeria. Looking at the relationship existing among the variables studied, the study also, revealed that the strength of their relationship is very high for all the variables. In a general note, the researcher found that the impact of Intellectual capital on corporate valuation is positive. The recommendation is that the retention of intellects in Nigeria will be possible, if an enabling business-friendly environment is provided.

Inyada (2018), examined intellectual capital and bank performance in Nigeria: An empirical analysis using pragmatic models. The study had a timeframe of five (5) years and considered five (5) quoted banks out of the listed banks in Nigeria, using purposive sampling. The research design employed for the study was Ex-post facto, regression model was used for the analysis and the testing of the formulated hypotheses carried out through the instrumentality of the SPSS Version 15. Returns on Equity (ROE), Returns on Assets (ROA) and Growth in Sales (GR) was employed as the proxies for the dependent variable (i.e. financial performance), while, the independent variable is intellectual capital measured by Market to Book Value Ratio (M/B)and Value Added Intellectual Coefficient (VAIC) and. It was discovered that there is a positive and significant impact of intellectual capital on the financial performance of establishments. Also, that the relationship between structural and physical capitals on financial performance of the organizations studied is positive. The recommendation was that there should be a careful formulation and proper implementation of strategic human resources policies to x-ray the possibility of including human assets in the statement of financial position (balance sheet) of corporate entities to promote intellectual capital reporting.

Oko, Onodi, and Tapang (2018), examined the effect of intellectual capital management on revenue generation of listed deposit money banks in Nigeria. Employing a descriptive research design for the study and considering all the twenty-one commercial banks in Nigeria. Secondary means was adopted to gather data, covering a period of six years (ranging from 2011-2016) and analysed using percentages and ratios. Multiple regression was employed in the analysis of data and testing the hypotheses. The study revealed that the effect of Human Capital Efficiency (HCE) and Structural Capital Efficiency (SCE) on revenue growth is both significant and positive; but the effect of Intellectual capital management (ICM) on revenue growth is positive and not significant. Following the findings, it was recommended that deposit money banks in Nigeria should concentrate on investing much in human capital to enjoy an accelerated boost in the revenue generated.

Camfield, Giacomello and Sellitto (2018), undertook a study on the impact of intellectual capital on performance in Brazilian companies. With focus on the Rio Grande do Sul Quality Award in 2004 and 2017, the data collected for the study was carried out via electronic-mail and supported by the Qualtrics software. A sample of 72% of the Brazilian companies that received Quality award of the Gaucho Quality and Productivity Program in 2004 and 70.5% in 2017 were investigated. The findings showed that intellectual capital is continually an essential (important) asset and that with regards to the changes in the influence of intellectual capital on organizational performance between 2004 and 2017, the findings further revealed that intellectual capital, through human, structural and client (relational) capital, in a practical way has the same level of influence and impact on the organizational performance.

Apiti, Ugwokwe and Chikezie (2017), examined the intellectual capital management and organizational performance in Nigeria. The design adopted for the research was ex-post facto and secondary data from annual reports of four (4) selected companies were employed. The use of Pearson moment correlation coefficient was employed to ascertain the relationship in existence between intellectual capital and the reported financial performance of an organization, and also linear regression was employed to ascertain the impact of intellectual capital on organizational reported financial performance. The research findings revealed that the relationship which exists between intellectual capital and the firm's financial performance is significant and that a well-organized management of intellectual capital will have an impact on the reported financial performance of firms.

Onyekwelu., Okoh, and Iyidiobi (2017), examined the effect of intellectual capital on the financial performance of banks in Nigeria. An ex-post facto research design was adopted to ascertain the extent to which intellectual capital indices affect the financial performance of three Nigerian banks, by employing the Value Added Intellectual Coefficient (VAIC) also. The data for the study were gathered from the published annual financial statements of the three banks and analysis carried out using regression. The findings of the study indicates that the effect of Intellectual Capital on banks' financial performances is positive and significant and a further indication reflects that those banks with high Intellectual Capital reflects a high financial performance. It was recommended that Nigerian banks are to invest drastically in the development of their human capital, which is core in driving firm's performance.

Dzenopoljac, Yaacoub, Elkanj and Bontis (2017), examined the impact of Intellectual capital on corporate performance: Evidence from the Arab region. The research was aimed at filling a gap in the intellectual capital (IC) literature, by ensuring an insight into the relationship between Intellectual Capital and corporate performance among Arab companies and also, to challenge the validity of Value Added Intellectual Coefficient (VAIC) as a measure of the contribution of Intellectual Capital on performance. About

hundred publicly traded Arab companies were selected by Forbes Middle East and also ranked as top performers in terms of assets, market value, profits and sales. The methodology included assessing the impact of IC components on company profitability, market performance, efficiency, and earnings for a period of five (5) years ranging from 2011 and 2015. The hypotheses were tested through the use of descriptive statistics, normality tests, correlation matrix, and multiple regression models. The findings revealed that market performance was majorly influenced by human capital, profitability and earnings were significantly affected by structural and physical capital; and efficiency was determined primarily by physical capital.

Smriti and Das (2017), researched on the impact of intellectual capital on business performance: Evidence from Indian pharmaceutical sector. Data of 121 listed pharmaceutical and drug companies situated in Bombay stock exchange of India Pharmaceutical sector for the period 2005 -2016 were considered for the study and used in analyzing the relationship between intellectual capital (i.e. Human Capital, Structural Capital and Relational Capital) with business performance measures (i.e. Profitability, productivity, market valuation). Correlation and regression were conducted for the variables representing the performance of the companies and Intellectual Capital. The research analysis showed a varied relationship between the Intellectual Capital (IC) performance of a company and its conventional performance indicators. The findings revealed that the performance of a company's IC can explain profitability, but not productivity and market valuation in India. Also, the structural and relational capital were important factors, which impact majorly on the profitability of the firms over the period of study.

Kurfi, Udin, and Bahamman (2017), conducted a study on the impact of intellectual capital on the financial performance of listed Nigerian food products companies. The research was carried out for a five-year period ranging from 2010 to 2014 by adopting Pulic model of Intellectual capital (IC) known as value added intellectual coefficient (VAIC). The study was descriptive in nature and data gathered through secondary source. Regression models are used to test the hypotheses of the study where the results showed that there was a positive significant influence of IC on financial performance. Specifically, the results showed that structural capital (SC) and capital employed (CE) influence the financial performance of Nigerian food products companies. Based on the resource-based theory, the results prove that companies can enhance financial performance by emphasising on IC especially in food products companies. It was recommended that local policy makers, business leaders and governments to pay more attention to the cultivation of IC as a strategic asset to sustain in a knowledge-based economy.

Dost, Badir, Ali, and Tariq (2016), carried out a study on the impact of intellectual capital on innovation generation and adoption. The paper was on the purpose of measuring the separate and interrelated effects of three aspects of intellectual capital (human, social and organizational capital) on innovation generation and adoption. Data were collected from 318 respondents of chemical firms. The study used multiple regression analysis to analyze the influence of human, organizational and social capital on innovation generation and adoption. The results suggested that organizational capital exerts significantly positive impact on innovation adoption. In the same vein, social capital exerts significantly positive impact on both innovation generation and adoption. Moreover, interaction of social capital further strengthens the influence of organizational capital on innovation adoption. Contrary to hypotheses, human capital does not exert significant influence on innovation generation. However, interaction of social capital further strengthens the impact of human capital on innovation generation.

Onyekwelu and Ubesie (2016), conducted a study on effect of intellectual capital on corporate valuation of quoted pharmaceutical firms in Nigeria. The study adopted the panel research design as used time series and cross-sectional data. Data covered a ten- year period (2004-2013). Simple random sampling was employed in selecting firms for this study. Data were sourced from the firms' annual financial statements using content analysis approach. Market valuation data were sourced from the Nigerian Stock Exchange. Intellectual capital (Independent variable) was measured using Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE) and Capital Employed Efficiency (CEE). Market to book value ratio (M/BV) and Earnings per share (EPS). The study adopted the Value Added Intellectual Coefficient (VAIC) model as developed by Pulic (1998) to examine the effect of Intellectual Capital on firms' values. Multiple regression correlation analysis was used on the data at 5% level of significance. E-view statistical tool version 8.0 was used in the analysis. The results reveal that human capital efficiency has a positive and significant effect on Market/Book value. SCE has a negative and insignificant effect on M/BV; CEE has negative and significant effect on M/BV; positive and insignificant effect on EPS. In view of our findings, the study recommends that companies should invest substantial part of their earnings on human capital via knowledge development as such investments are capable of stimulating the value creation potentials of their staff and can get investors place higher premium on them.

Gogan, Artene, Sarca and Draghici (2016), carried out a research on the impact of intellectual capital on organizational performance. The aim of this research is to investigate the relation between the intellectual capital and the organizational performance in four companies operating in the distribution of drinking water, between 2010 and 2014. The research was based on the correlation method. In order to collect data for the research a literature review was done, while additional information was gathered. The collection of data for the research was based on a questionnaire, which was applied in four drinking water distribution companies

(from the Mehedinti, Timis, Caras Severin and Dolj counties in Romania). The results obtained from this study showed that there is a significant relationship between the intellectual capital and organizational performance.

Kamath (2015), carried out a study on Impact of Intellectual capital (IC) on financial performance and market valuation of firms in India. Thirty firms from S&P BSE SENSEX index which consists of 30 firms from across various manufacturing and service sectors. The analysis was carried for a period from financial year 2008-2009 to 2012-2013. Multiple linear regression analysis was used to study the impact of IC on financial performance and market value of these select firms. The paper also used the VAICTM methodology to evaluate the data and found that the financial performance and market value is indeed influenced by the IC of the firms. This result is crucial for firm's management and policy makers to make IC disclosure and reporting mandatory in firms accounting statements as the stakeholder can get the real picture of the true value of the firm.

Bchini (2015), carried out a study on Intellectual capital and value creation in the Tunisian manufacturing companies. The data for this study were collected through a survey conducted face to face (using a Likert scale of five (5 points)), with 104 Tunisian manufacturing companies chosen from the database constructed by the agency for the promotion of Tunisian industry "A.P.I.". Also, both questionnaire and exploratory interviews were conducted with managers from five companies. The survey instrument consists of ideas generated from the literature and interviews which were then pre-tested with ten managers having expertise in intellectual capital and value creation. ANOVA tests were also carried out in order to examine the non-response bias possible in the questionnaire collected. Following this, three interviews were conducted with three leaders of three companies asking them to express their opinions by completing the draft questionnaire. Their comments were taken into account and integrated into the design of the final questionnaire. The respondents were mainly managers or leaders and controllers. The findings reveal the existence of a positive and statistically significant relationship between the components of intellectual capital and value creation in Tunisian manufacturing companies.

Ali (2015), carried out the study to examine the effect of intellectual capital component on the financial performance of deposit money banks in Nigeria. The study was conducted using the descriptive research design. Secondary source of data was employed using a purposive sampling technique to select a sample of eight banks from the total population of banks listed on the Nigerian stock exchange for eight-year period, 2006 – 2013. Correlation and Multi-linear regression technique were used for data analysis. The result revealed that intellectual capital component (HCE, SCE & CEE) have positive and significant effect on the financial performance of deposit money banks in Nigeria.

Ekwe (2014), carried out the study on intellectual capitals and financial performance indices of deposit money Banks in Nigeria: A Comparative Assessment. The study adopted the ex-post facto research design. It was systematically conducted using longitudinal time series data generated from the Nigeria Stock Exchange and from annual reports and accounts of the selected banks in Nigeria spanning from year 2000 to 2012. The study adopted the Duncan multiple range test (DMRT) of ANOVA across the six selected banks in Nigeria for the test of the hypotheses and the SPSS statistical software version 17.0 was used for the data analysis. From the analyses, the results revealed that there were significant deviations in both the financial performance indicators and in the intellectual capital variables among the six banks studied. Also, banks with high intellectual capital records high financial performance and therefore recommends that all banks should embrace this new intellectually based technology in order to enhance their financial performances, returns to their different stakeholders as well as in their service delivery to their customers.

Pourmozafari, Heyrani, and Moeinadin (2014), carried out a study on the examination of the relationship between intellectual capital and financial performance according to the modulating role of competitive advantage. The research design adopted was ex-post facto in nature and the study examined 45 companies listed on Tehran Stock Exchange through 225 answered questionnaire from 300 sent questionnaires by managers, conducted in the period ranging from 2012-2013. Additionally, data related to the performance was collected from information of companies listed on Tehran stock exchange and finally, data analysis, hypotheses testing were done using structural equations, and factor analysis was done using LISREL software as well as multiple regressions. The results of the research indicated that there was a positive significant relationship between intellectual capital and competitive advantage, but competitive advantage does not modulate the impact of intellectual capital on the financial performance.

Al-Musali and Ismail (2014), conducted a research on Intellectual capital and its effect on financial performance of banks: Evidence from Saudi Arabia. The sample of the study consisted of all commercial banks listed in Saudi stock exchange (Tadawel) which are 11 commercial banks. Data were collected from the annual reports of the commercial banks for the period 2008-2010. The total number of observations was 33. Linear regression model was adopted to analyse the hypothesis and control variable (Bank size) was introduced. Value-added intellectual coefficient (VAIC) methodology was used in investigating the impact of IC on financial performance. The result revealed that IC performance of Saudi banks is low and it is positively associated with bank financial performance indicator, it also showed a significant positive association between VAIC and both financial performance indicators (Return on Equity and Return on Asset) of commercial banks for the years 2008-2010.

Iranmahd, Moeinaddin, Shahmoradi, and Heyrani (2014), carried out a study on "The effect of intellectual capital on cost of finance and firm value" data was gathered from 84 manufacturing companies listed on Tehran Stock exchange for an eight-year period. And the result showed that the value added of capital applied, value added of intellectual capital, and the value added of intellectual capital coefficient negatively influence weighted average cost of capital, yet they had no effect on enterprise value.

Ekwe (2013), conducted out a study on relationship between intellectual capitals and growth in revenue of deposit money banks in Nigeria. The study adopted the ex-post facto research design. It was systematically conducted using longitudinal time series data generated and computed from the annual reports and accounts of the selected banks in Nigeria spanning from year 2000 to 2011. Multiple regression analysis method was adopted for the test of all the hypotheses. The SPSS statistical software (version 17.0) was used for the data analysis. The results showed that there was a positive and significant relationship between components of VAIC and the growth in revenue of the banks in Nigeria. From the findings, it was established that indeed there is a positive and significant relationship between intellectual capital and growth in revenue of banks in Nigeria.

Sharabati, Nour, and Shamari (2013), conducted a research on the impact of intellectual capital on Jordanian telecommunication companies' business performance. The study surveyed the managers at JTC companies. Practical data were used in the empirical analysis collected from 84 managers out of about 500 managers, by means of a questionnaire. Statistical techniques such as descriptive statistics, t-test, ANOVA test, correlation and multiple regressions were employed. To confirm the suitability of data collection instrument, a Kolmogorov-Smirnov (K-S) test, Cronbach's Alpha and factor analysis were used. The results showed a positive significant effect of Intellectual capital on JTCs' BP. The results also indicated that RC is positively and significantly affect JTCs' BP, while SC and RC do not significantly affect JTCs' BP. The Empirical results also indicated that there are strong inter-relationships and interactions among the three components of IC. It was recommended that research should be carried out that compare results with other organizations and industries under similar assessment and measurement.

Sumedrea (2013), carried out a study on intellectual capital and firm performance: A dynamic relationship in crisis time. The VAIC model was used in analyzing the structure of the intellectual capital and its influence on the economic performances. Regression was employed in analyzing the hypotheses and the result obtained was that, in crisis time, the development of companies is influenced by the human and structural capital, while profitability is additionally linked to the financial capital.

Asare, Onumah and Simpson (2013), carried out a study on exploring the disclosure of intellectual capital in Ghana: Evidence from listed companies. The study examined the Intellectual capital disclosure of twenty-five (25) companies listed on the Ghana Stock Exchange (GSE) over a five-year period (2006-2010) through content analysis of their corporate annual reports. The methodology was primarily exploratory, data gathered were analysed via content analysis. The study revealed that the intellectual capital disclosure (ICD) level in annual reports in Ghana is quite high and descriptively reported and though disclosure of IC is improving but at a relatively marginal rate. Therefore, looking at the trend of ICDs by the companies, the study recommends the need for accounting regulatory bodies and oversight agencies (local and global) to develop specific standards or guidelines on identifying, measuring and reporting IC.

Uadiale and Uwuigbe (2011), carried out a study on intellectual capital and business performance: Evidence from Nigeria. The study is explanatory, using a sample of thirty-two audited financial statements of quoted companies in Nigeria, analyses were carried out with the aid of the Statistical Package for Social Sciences, (SPSS Version 17.0) and a Pearson correlation analysis was performed on the dependent and independent variables in order to determine the degree of relationship between them. The results showed that intellectual capital has a positive and significant relationship with the performance of business organizations in Nigeria and based on the findings, the study recommended that corporate entities in Nigeria should invest in Human, Structural and Customer Capital in order to increase their performance.

Wasim, Chaudhary, Hafeez and Ayesha (2011), carried out a research on intellectual capital performance and its impact on corporate performance: An empirical evidence from Modaraba sector of Pakistan. Twelve (12) Modaraba companies were considered, the study examined the performance of three main components of VAIC™ i.e. Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE) and Capital Employed Efficiency (CEE) and its impact on corporate performance by employing the predictive analysis. The empirical results revealed that one of the important components to strengthen the IC performance is Human Capital Efficiency (HCE) which means investing more to boost the employees productive would increase the human efficiency of employees. The results show that HCE has significant relation at ($P<0.1$) with financial performance (ROE and EPS), SCE at ($P<0.1$) and ($P<0.05$) with financial performance (ROE) and (EPS) respectively. Whereas CEE had substantive effect with ROE and ROI at ($P<0.05$) and with (EPS) at ($P<0.1$) respectively.

2.3 SUMMARY/GAP IN LITERATURE

The literature is broken into three segments; the first aspect captures the various concepts surrounding the research. The second aspect looked at theories surrounding the research (i.e. VAIC™, Knowledge based theory and Agency theory), but this research

adopts the Value Added Intellectual Coefficient theory, as it is best appropriate for the study. The third aspect captures the empirical review, which involves the review of previous researchers in the aspect of Intellectual capital from 2000 to 2018.

Review of empirical studies on the effect of Intellectual capital costs indicates that most of the researchers centred on linking Intellectual Capital on Performance, (i.e. financial, business or corporate as it applies) with no emphasis on earnings generation as a spear head. Except for Ekwe (2013); Iranmahd *et al*. (2014); Bchini (2015); Oko *et al*. (2018) who had a different view in looking at Intellectual Capital on revenue growth/productivity, firm's value and revenue generation respectively. This study tends to take a different view from previous, by handling the empirical aspect of Intellectual capital accounting on earnings generation with particular emphasis on earnings (gross earnings) generated by the banks as dependent variable, by testing the VAIC components (HCE, SCE and CEE) on earnings. As this aspect of earnings alone (proxied by gross earnings of the banks) has not been covered by previous researches. This research also fills a gap by employing the use of Panel data analysis (combining both Ordinary least square and Generalised least square) as against the use of just multiple regression employed by previous researchers who have handled this area especially in Nigeria (Ekwe, 2013, 2014; Oko *et al*.2018; Ocheni, 2018). Also, the scope of research spans to 2018 which had not been previously covered by other researchers. In view of this development, the researcher tends to fill such gap.

3.1 RESEARCH METHODOLOGY AND DESIGN

This study employs the ex-post facto research design. This design is suitable for the purpose of this research, because it is not possible to directly manipulate or control any of the independent variables. As the events have already taken place and therefore, the research is being conducted after the fact. The study is aimed at evaluating the effect of Intellectual Capital Accounting on Earnings generation of listed deposit money banks in Nigeria.

3.2 AREA OF THE STUDY

The area of this study covers precisely the commercial banking sector in Nigeria with particular reference to banking firms listed in the Nigerian Stock Exchange (NSE) market. The study ex-rays the published annual reports data on Intellectual capital accounting and earnings generation.

3.3 POPULATION OF THE STUDY

The target population for this study composed all fourteen (14) listed deposit money banks in the Nigerian Stock Exchange (NSE), Factbook 2018.

3.4 SAMPLE SIZE

Eleven (11) commercial banks were selected to make up the sample for this study, these includes; First Bank of Nigeria, First City Monument Bank, Guaranty Trust Bank, Diamond (Access) Bank, Access Bank, United Bank for Africa, Zenith Bank, Union Bank, Fidelity Bank, Wema Bank and Ecobank. The selection of these banks was influenced by the fact that they are rated tops by the stock exchange, considering also their coverage, customer base, earnings, net income & total assets following the report of the corporate finance institute (www.corporatefinanceinstitute.com/resources/careers/companies/top-banks-in-nigeria).
The selection of Eleven (11) commercial banks is in line with Balsley and Clover (1988); Ogolo (1996) who supports that a sample size of not less than 10% of the population is reasonable enough for any study.

3.5 METHOD OF DATA COLLECTION

Data for this research were gathered mainly from secondary sources, which is the most suitable for this work. Since the work is based on the effect of Intellectual Capital Accounting on earnings generation of listed deposit money banks in Nigeria. For the purpose of this work, the annual report as published by the selected commercial banks was of great assistance to the researcher.

3.6 METHOD OF DATA ANALYSIS

The statistical technique employed in analysing the data is the Panel data regression. Panel regression is very relevant, since different firms and data spanning different years were employed. The specified model in each hypothesis guided the analysis. All the hypotheses were tested at 5% level of significance to determine whether to accept or reject the null hypothesis.

3.7 MODEL SPECIFICATION

Based on the hypotheses of this study, the following models were derived to carry out the analysis. The model is a modification of Wasim et al. (2011);

$$\mathbf{LOGE_{it} = \beta_0 + \beta_1 ICA_{it}\ (HCA+SCA+CEA)\ \mu_{it}}$$

Where:

LOGE = Log of Gross Earnings
ICA= Intellectual Capital Accounting
HCE = Human Capital Accounting
SCE = Structural Capital Accounting
CEA = Capital Employed Accounting
β_0 = Constant
μ_{it} = Stochastic error term
i = Cross section
t = Time

4.0 RESULTS & DISCUSSION

4.1 Test of Hypotheses

H_0: Intellectual Capital Accounting has no significant effect on gross earnings.
H_1: Intellectual Capital Accounting has a significant effect on gross earnings.

Table 4.2.1: Estimates of the Panel Random Effect (Model 1)

Dependent Variable: LOGE
Method: Panel EGLS (Two-way random effects)
Date: 27/09/19 Time: 18:51
Sample: 2011 2018
Periods included: 8
Cross-sections included: 11
Total panel (balanced) observations: 88
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	11.10739	0.0631925	175.7700	0.0251
HCE	0.019436	0.0085235	2.280000	0.0000

	Effects Specification	
	S.D.	Rho
Cross-section random	0.091058	0.0145
Period random	0.136978	0.0328
Idiosyncratic random	0.737893	0.9527

Weighted Statistics

R-squared	0.057000	Mean dependent var	0.149327
Adjusted R-squared	0.046000	S.D. dependent var	0.747833
S.E. of regression	0.748077	Sum squared resid	39.17336
F-statistic	5.200000	Durbin-Watson stat	1.296268
Prob(F-statistic)	0.025100		

Table 4.2.2: Estimates of the Panel Random Effect (Model 2)

Dependent Variable: LOGE
Method: Panel EGLS (Two-way random effects)
Date: 27/09/19 Time: 18:52
Sample: 2011 2018
Periods included: 8
Cross-sections included: 11
Total panel (balanced) observations: 88
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.99263	0.074455	147.6400	0.0000
SCE	0.270908	0.076042	3.560000	0.0006

	Effects Specification	
	S.D.	Rho
Cross-section random	0.332320	0.2546
Period random	0.499908	0.5761
Idiosyncratic random	0.270990	0.1693

Weighted Statistics

R-squared	0.128600	Mean dependent var	0.042958
Adjusted R-squared	0.118500	S.D. dependent var	0.347633
S.E. of regression	0.260646	Sum squared resid	4.755526
F-statistic	12.69000	Durbin-Watson stat	1.937436
Prob(F-statistic)	0.000600		

Table 4.2.3: Estimates of the Panel Random Effect

Dependent Variable: LOGE
Method: Panel EGLS (Two-way random effects)
Date: 27/09/19 Time: 18:52
Sample: 2011 2018
Periods included: 11
Cross-sections included: 8
Total panel (balanced) observations: 88
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	11.082160	0.0609801	181.73000	0.0000
CEE	0.6324641	0.1996545	3.1700000	0.0021

	Effects Specification	
	S.D.	Rho
Cross-section random	0.165672	0.1420
Period random	0.249220	0.3214
Idiosyncratic random	0.322059	0.5366

Weighted Statistics

R-squared	0.104500	Mean dependent var	0.097658
Adjusted R-squared	0.094100	S.D. dependent var	0.347896
S.E. of regression	0.319815	Sum squared resid	7.159702
F-statistic	10.03000	Durbin-Watson stat	1.501652
Prob(F-statistic)	0.002100		

From the table 4.5.1 of the random effect estimate, R-square value is recorded as 0.0570, which suggested 5.7% of the variation in the dependent variable (LOGE) is explained by the independent variable, while 94.3% of the variation remained unexplained. This remaining percentage could be caused by other factors or variables not included in the model. The Durbin-Watson statistic of 1.2963 were recorded, which indicates there is evidence of positive autocorrelation of the residuals in the model.
The t-statistic of 2.28 and p-value of 0.0000, which is less than 0.05, indicates that the test is statistically significant at 5% level. The null hypothesis is rejected, and concluded that human capital efficiency has a significant effect on gross earnings.

From the table 4.5.2 of the random effect estimate above, R-square value is recorded as 0.128600, which suggested 12.86% of the variation in the dependent variable (LOGE) is explained by the independent variables, while 87.14% of the variation remained unexplained. This remaining percentage could be caused by other factors or variables not included in the model. The Durbin-Watson statistic of 1.9374 were recorded, which indicates there is no evidence of autocorrelation of the residuals in the model since the Durbin-Watson statistic is close to 2.
The t-statistic of 3.560 and p-value of 0.0006, which is less than 0.05, indicates that the test is statistically significant at 5% level. The null hypothesis is rejected, and concluded that structural capital efficiency has a significant effect on gross earnings.

From the table 4.5.3 of the random effect estimate above, R-square value is recorded as 0.10450, which suggested 10.45% of the variation in the dependent variable (LOGE) is explained by the independent variables, while 89.54% of the variation remained unexplained. This remaining percentage could be caused by other factors or variables not included in the model. The Durbin-Watson statistic of 1.5017 was recorded, which indicates there is evidence of positive autocorrelation of the residuals in the model since the Durbin-Watson statistic is less than 2.0
The t-statistic of 3.170 and p-value of 0.002, which is less than 0.05, indicates that the test is statistically significant at 5% level. The null hypothesis is rejected, and concluded that capital employed efficiency has a significant effect on gross earnings.

4.3 DISCUSSION OF FINDINGS

From the estimated model result, it can be seen that the coefficient of HCA is positive and significant at 5 percent level. This result implies that human capital accounting has a significant effect on gross earnings. This result is in line with the findings of Omole, Bamidele, and Odumeru (2017), Rahim, Atan, and Kamaluddin (2017), Onyekwelu, Okoh, and Iyidiobi (2017) and Ali (2015) who found a positive and significant relationship between human capital efficiency and earnings.

The coefficient of SCA is positive and significant at 5 percent level. This result is in line with the findings of Iyanda (2018), Smirti and Das (2017), Ali (2015) and Ekwe (2013) which reveals a significant relationship between structural capital efficiency and profitability.
The result of the coefficient of CEE in hypothesis three shows that the coefficient is positive and significant at the 5 percent level. This result indicates that capital employed efficiency affects gross earnings. The result aligned with the findings of Ali (2015), Kurfil, Udin and Bahamman (2017) and Oko, Onodi and Tapang (2018) who reported a positive and significant relationship between capital employed efficiency and earnings growth.

5.0 CONCLUSION

The study examined the effect of intellectual capital accounting on earnings generation of listed deposit money banks in Nigeria. Generally, it can be seen from the study that intellectual capital accounting has a positive impact on earnings generation of listed deposit money banks in Nigeria. A detailed analysis confirms that though the explanatory variables (HCA, SCA, CEE) all have positive and significant effect on earnings generation proxy by gross earnings of the banks under study.

5.1 RECOMMENDATIONS

a) A critical analysis of intellectual capital accounting should be carried out by commercial banks to pinpoint areas where value added investment is needed, all by improving the working condition of the personnel.

b) Chief Executives of commercial banks should carry out a proper implementation and regular monitoring of the systems, procedures and program (structural capital), all with an effective and efficient support from higher and middle line management, as this will ensure expansion in all frontiers of the business.

5.3 SUGGESTION FOR FURTHER STUDIES

Having considered this study on effect of intellectual capital accounting on earnings generation of listed commercial banks in Nigeria; future researchers may consider the need to broaden n the focus of this study to include the combination of companies in different sectors, as this will serve to enrich the data and awareness of the of adjusting to an economy that is knowledge based.

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