IMPACT OF INTELLECTUAL CAPITAL ON THE PERFORMANCE OF LISTED DEPOSIT MONEY BANKS IN NIGERIA

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A PROJECT SUBMITTED TO THE DEPARTMENT OF ACCOUNTING AND FINANCE IN THE PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR AND SCIENCE DEGREE (B.Sc. HONS) IN ACCOUNTING COLLEGE OF HUMANITIES, MANAGEMENT OF SOCIAL SCIENCES, MOUNTAIN TOP UNIVERSITY, PRAYER CITY, OGUN STATE, NIGERIA.

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DECLARATION

I hereby declare that this project report written under the supervision of Dr. Joshua Abimbola is a product of my research work. Information and data obtained from various sources have been rightly acknowledged in the text and list of references provided. This research project report has not been previously presented anywhere for an award of any degree or certificate.

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CERTIFICATION

I certify that this work was carried out by DAWODU, Oloruntomiso Timothy (19020101032) at the Department of Accounting and Finance, Mountain Top University, Ogun State, Nigeria.

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DEDICATION

This project is dedicated to God Almighty, my rock and strong foundation

ACKNOWLEDGEMENT

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ABSTRACT

Today's high-tech, informational, and innovation-based environments have significantly changed how and where businesses are conducted around the world. The degree of financial performance of business organizations is also determined by this new technology, which of course makes use of high levels of intellectual capital. Some businesses that previously received very high ratings for their profitability and other financial performances are now receiving very low ratings simply because they have not adopted this technology with an intellectual foundation. In order to ascertain whether the variations in the financial performance indices of nine (9) highly rated deposit money banks in Nigeria could be explained by the variations in the deposit money banks' intellectual capital variables, this study compares both the intellectual capital indices and the financial performance variables using the Value-Added Intellectual Coefficient (VAIC) model. The ex-post facto research design was used in the study. It was methodically carried out using data from annual reports and accounts of the chosen Nigerian deposit money banks from 2010 to 2021. The study used the descriptive and inferential method of analysis with the SPSS statistical tool (version 26.0). The findings of the study reveals that the intellectual capital construct which includes structural capital efficiency and capital employed efficiency has a positive and significant impact on financial performance of the selected DMBs with ROA at p-value = 0.008 < 0.05, with ROE at p-value =0.000 < 0.05, and EPS at p-value = 0.052=0.05. The study recommended that the DMBs in Nigeria should identify and evaluate the role of knowledge in the company. This means that management should determine on how knowledge intensive the business is. Also banks in Nigeria should establish which aspects of their employee training programs actually enhance productivity and which are misdirected and worthless.

KEYWORDS: Intellectual Capital, Financial Performance, Nigerian Deposit Money Banks, VAIC

CHAPTER ONE
INTRODUCTION

1.1 Background to the Study

Knowledge and technological advancement are escalating globally in the last couple of decades.

Most of cases, business patterns are changing both in developed and developing economies.

Empirical research studies are revealing that a manufacturing-based economy is swapping to the

knowledge-based economy along with a technological intensive and fast-changing nature

(Canibano, 2018; Chowdhury, 2019; Hermewan, 2020). Consequently, intellectual capital (IC) is

acquired as the highest focal point than physical capital in many firms in the

modern economy especially in the service industry like banks. As a result, not only banks' value

openly depends on IC but is also used as an important tool to obtain a competitive advantage

with optimum production level (Nawaz and Haniffa, 2017; Rouf and Hossain, 2018; Kamal,

2012; El-Bannany, 2012; Madani, 2015). Therefore, the obvious expectation of this study is to

find the relationship between efficient utilization of IC and its direct influence on banks'

performance. For these reasons, the aforementioned relationship constitutes a vital fact of

realistic attention among important stakeholders of banks such as top management and

shareholders (Isanzu, 2015; Tan, 2008; Pulic, 2000).

Every stakeholder commits resources to an economic entity with the aim of obtaining fair

returns on investment. Onifade, Ajulo & Sanyaolu (2016) asserted that the reward attributable

to the stakeholders is a function of financial performance that showcases the real value of the

entity for the purpose of maximizing the stakeholders 'wealth. Financial performance is the

measurement of the results of an economic entity's policies and operations in monetary terms

with a view to determining its overall financial health over a given time frame (Gaspareto,

2004). The financial performance is normally announced through periodic financial

statements and it is targeted at producing complete and reliable information to assist the users to take an informed investment decision. Kamaruzaman, Mazlifa & Maisarah (2018) affirmed that financial statements should be capable of revealing relevant, reliable, comparable and comprehensive information. The aim of Generally Accepted Accounting Principles (GAAP) compliance is to ensure that companies prepare accurate financial statements that faithfully represent their financial positions and operating results (Temple, Ofurum & Solomon, 2016).

In the last two decades of the 20th century, an unseen revolution has been found to have taken place in the corporate world. Industrial capitalism- where business is based on tangible physical assets has transformed into a new economy called the „knowledge economy where production of goods or services and value creation depends on invisible knowledge assets (intangible assets). In this new economy, the role of knowledge assets becomes important for driving global competitiveness. It is recognized as sustainable strategic asset to acquire and maintain competitive advantages According to the importance of intangibles as the major driver of business success can be ascribed to the unique combination of two related economic forces. One is identified as business competition due to globalization of trade and the deregulation of key economic sectors like telecommunication, electricity, transportation and financial services. The second is the advent of information technology, recently exemplified by the internet. has identified four related forces that contribute to knowledge economics:

- Globalization - which has opened up new markets and new competition;
- Computerization- which acts as the principal factor for spreading of the information technology and the growth of computer networks;
- Economic disintermediation where natural resources and physical labour have been replaced by knowledge and communication as the new sources of wealth; and

- Intangibilisation - where value is created through the products and services that have no physical reality.

Prusak has identified following factors that are responsible for future success:

- The globalization of the economy which increases the pressure on firms for higher levels of adaptability, innovation and speed;
- The awareness of the value of specialized knowledge, as embedded in organizational process and routines, in coping with the pressures of globalization;
- Low-cost network computing, which enables tools for working with and learning from each other.

According to intangible portion of the economy has grown due to the emergence of intangibles like services, information in specialized knowledge databases, services associated with products, emotions in the form of trust and loyalty, states that in the knowledge economy economic value comes from creating, processing, communicating and selling information content than the value added by traditional goods and services. He illustrates that American Airlines make more money from its Sabre reservation system than from their airline operations.

Similarly, Ford Motor company makes more money from financing cars than making and selling them. Intangibles, which are considered as the primary construct of knowledge economy, are inherently different from physical and financial assets. These assets non-physical sources of value creation and represent a non-physical claim to future benefits and does not have any physical and financial embodiment. For example, a patent or brand or a unique organizational supply chain that generate cost savings or competitive benefits are intangible assets with non-physical substance states that intangibles like knowledge, skills, key organizational processes,

brand, loyalty, trust and relationship networks are the driving forces of knowledge economy. Therefore, in this new economy knowledge and knowledge base assets form the foundation of the compan's capabilities. According to knowledge is today's driver of company life. In the knowledge economy many companies see themselves as learning organizations perusing the objective of continuous improvement in their knowledge assets. Therefore, in the knowledge economy it is essential that organizations will give greater recognition to their knowledge assets intangible assets/intellectual assets for survival and growth. Numerous organizations can be found as knowledge intensive like information technology, consulting firms, law farms, pharmaceutical companies, banking and finance companies and other organizations operating in the service sector which are mainly reliant on their intellectual assets for their success. However, all organizations require intellectual capital to operate and to maintain sustainability in the knowledge economy. Greater reliance on intellectual capital means it will be important for organizations to maximize the value of their intellectual capital and to enhance it continuously. Intellectual capital is vital for maintaining competitive advantage and is a valuable resource for wealth creation. The importance of intellectual capital lies in recognizing and utilizing the potential benefits of intellectual capital to open up opportunities for future growth. In this new economy organizational development comes from the maximum utilization of an organization's capabilities and competencies. Intellectual capital is one of the main assets of a company because it promotes competitive advantages which form the basis of value creation. It is not just knowledge. It consists of human, organizational and relational capital. Human capital encompasses tacit and explicit knowledge of employees. It also includes employee competencies and capabilities in terms of

structuring and applying knowledge and skills to perform certain activities. Organizational capital is the extension and manifestation of human capital in the form of codified knowledge, innovation, organizational structure, corporate culture, intellectual property, business processes, and physical and financial structure of a firm. It also provides a supportive infrastructure to human capital for their performance. Relational capital is the ability to build quality relationships with external stakeholders: customers, suppliers, investors, state, and society in general, Therefore, the IC concept represents key capabilities and strategic resources as the focus of interest of the resource and knowledge-based theory of the firm. The value of an organization is created with the interaction that takes place between these three elements and physical/tangible capital also. For instance, when individual members (human capital) interact with customers, this sort of relationship creates customer capital of the business organization and which ultimately impacts the organizational financial performance. Intellectual resources behave differently from monetary and physical resources. Monetary and physical resources are both additive in nature; that is, if one uses them, one has less left to use and if one invests in them, one has more left to use. Both follow the law of diminishing marginal returns and both are owned and controlled by the organization. The non-imitability of these capabilities and competencies makes an organization's intellectual capital valuable and strategically important. Therefore, intellectual capital is vital if organizations are to survive in highly competitive markets This study is a piece of work in the field of intangible assets or intellectual capital. It examines the effectiveness of investment in intellectual capital on the performance of banks in Nigeria. That is, the study examines the intellectual capital efficiency and its effect on the corporate financial performance of banks in Nigeria.

Financial Performance is thus crucial to any business organization's survival and continues patronage by the stakeholders in the business world. Specifically, financial performance is a natural result of business operations involving the use of both physical capital and intellectual capital. The former refers to tangible assets such as land, machinery, and monetary capital while the latter refers to intangible assets in form of knowledge, creativity, skill, innovation, corporate culture and organizational relationship with external parties which is the key value driver and competitive advantages that really determine the financial performance of any organization in this knowledge-based economy. The ownership of intangible assets especially intellectual capital has becoming more important in this modern era where technology and knowledge have significant roles in company operating activities. Research conducted by Chen and Cheng (2014), Ulum (2014; 2018), & Clarke, Seng & Rosalind (2019) investigate the relationship between intellectual capital and financial performance. The research proves a positive effect on financial performance and the results of research performed by Sunarsih & Mendra (2012), Alghifari & Juhaeni (2013), Sudibya & Restuti (2014) showed that financial performance is positively related to firm value.

In recent times, the stakeholders have been worried over apparent low returns due to nondisclosure of intellectual capital in the annual reports. This worrisome phenomenon is concretized from the simple fact that intellectual capital in knowledge economy is viewed as key value drivers for competitive advantage and efficient financial performance (Hermans & Kauranen, 2005). Deposit money banks enhance their ability to create value from business activities in terms of revenue growth and return on investment basically through intellectual capital (Ahuja & Ahuja 2012). It is plausible that the inadequate disclosure and improper treatment of intellectual capital investments that are either immediately expensed in the

financial statements or arbitrarily amortized may have created the phenomenal gap (Micah, Ofurum & Ihendinihu, 2012). Consequently, the book values of firms with significant amounts of intellectual capital investments are unrelated to the market values (Amir & Lev, 1996; Brennan, 2001; Lev, 2001; Holland, 2003). The disclosure principle in accounting requires that financial statements present relevant and reliable information devoid of misleading the users in making an investment decision.

A sufficient number of studies have stated that IC is playing an augmented domination role to create corporate value addition (Chen et al., 2019; Maji and Goswami, 2016; Al-Musali and Ismail, 2014). However, it is not easy to find the relationship between the IC and the bank performance because of the lack of universally well-accepted measuring techniques of IC, thus every quantitative measure is facing a huge challenge to establish a vivid relationship between IC and firm's performance as well as banks' performance (Rouf and Hossan, 2020; Clarke et al., 2011; Zambon, 2004). Accordingly, very few quantitative studies have found whether IC has effects on banks' performance. In today's global economy, particularly in the service industry, where knowledge and information are very crucial to their very existence and survival, intellectual capital is gradually assuming the characteristic of product. In the process, a company's workforce has evolved into arguably the biggest competitive differentiator for organizations in virtually all industries especially the service-oriented industry in which banks fall.

Obviously, little research attention has been devoted to understanding the link between intellectual capital and organizational performance in Nigeria. The problem that confronts businesses, users of accounting information, standard setters, and regulators is how to best understand and communicate the difference between the value of a company, usually expressed

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as market prices of their shares and the accounting book value of that company (Pourkiani, Sheikhy & Daroneh 2014). Till date, few scholars have focused on the effect of intellectual capital on organizational performance in the Nigerian banking sector. This is surprising given that scholars (Ruta, 2009, Yang & Lin, 2009) argue that intellectual capital development is the hidden value that is not reflected in organizational financial statements but has the potential to contribute to organizational profitability and competitive advantage. Bontis and Fitz-enz (2002) classified intellectual capital into four elements human capital, customer capital, innovation capital, and process capital. Each element could directly influence performance. Moreover, there may exist a cause-effect relationship among human capital and other elements of intellectual capital (Bontis and Fitz-enz, 2002). That is, human capital, the most fundamental intellectual capital element, that affects other three elements, and then, these three elements, in turn, affect performance. Based on the above development, this study intended to investigate the effect of intellectual capital on the performance of Nigeria's banks.

1.2 Statement of the problem
Various scholars have argued on the extent to which the intellectual capital can enhance firms' performance. However, the idea of intellectual capital is much stronger than its concrete form in the companies' statements. Academia for the past two decades has been drawn into the web of an unending debate concerning the place of intangible assets in corporate value creation. In their separate study, Lev and Sougiannis (1996), and Amir and Lev(1996) claim that financial reporting which mainly assesses the tangibles of corporations is to some extent losing relevance especially in the industrial sector that are dominated by knowledge-intensive and innovative organizations. Further to this, Swartz (2006) in Sofian, Rasid and Mehri *(*2013) argue that Intellectual Capital(IC), together with information from financial statements can explain the market value of firms(share prices). In his submission, Jelsis (2007) avers that the benefits of

managing Intellectual Capital is that it increases the market value of organisations, improves better communication optimizes utilization of potentials, increase value creation ability, better image, enhance customers' satisfaction, motivating employees and indeed enhances most business processes.

Intellectual Capital is been identified by many to have the capacity of feeling the crucial gap that exists between company book value and market value. To this extent, companies unarguably require a reliable, accurate and adequate measure of firms' valuation which would have incorporated all the components of IC and sufficiently demonstrate its true impact on company's value and which will narrow the gap between book and market values (Vafei, *et al*, 2011; Banimad, *et. al.,* 2012; Berzkalne and Zelgalve, 2013; Szlavik, 2012; Stewart, Bullen and Eyler; Lev, 2001; Cezair, 2008). Highlighting the place of Intellectual Capital in corporate valuation, (Bontis, 2001; Lev, 2001; Lev and Zarowin, 1999) argued that if it did not exist in organisations, then stock prices would not have reacted to actions such as changes in management, an element that is not recognized in financial statements as assets. Rastogi, (2000); Lev and Radhakrishan, (2003) aver that Intellectual Capital is both invisible and intangible and as such the value of knowledge cannot be captured well by any traditional measure. In view of the fore going, scholars of financial and corporate reporting in their various studies have both theoretically and empirically examined the impact of Intellectual Capital on firms' valuation but results have rather than resolve the issues remain inconsistent and produced mixed outcomes.

The above studies though have affirmed and reaffirmed the ability of intellectual capital to have positively influence corporate valuations, some empirical results still negate the assertion or could not establish any statistical relationship between IC and firms' value. Ferraro and Veltri, (2011); and Mehnralian, Reseakh, Akhavan, and Sadeh (2012); Gottfredson, (1997);

Jensen, (1998) found no statistically significant relationship between IC and organizational performance. Again, analysis by Tarideh (2013) indicates no relationship between IC and corporate value. Firer and Williams (2003) used the Value-Added Intellectual Coefficient (VAIC) to measure IC and commercial performance in Africa and submits no significant correlation on profitability, productivity,y and market value.

Various research findings have illustrated that intangibles like knowledge, information, and information technology are prime resources in the knowledge economy. Companies have moved away from the industrial age to information but they are still notable to identify measure and manage intellectual capital in their organizations. To create value for the organization, intellectual capital needs to be identified, measured, and valued and should be attached to the strategy and goals of the company. However, it is difficult to measure since it is intangible and non-physical in nature. In the knowledge, economy companies are still following the traditional accounting model, which is invented for companies operating in an industrial economy. Financial statements of the companies prepared following the traditional accounting model cover most of the physical and financial assets of the organizations but may ignore intangible assets. But the growing gap between the market value and book value of the companies has motivated the researchers to examine the reason behind it. This gap may be largely justified due to the absence of intangible assets from financial statements.

Competition at a cross-border scale compels domestic companies to adjust their competitive position by achieving sustainable financial performance. In the knowledge-intensive industries

Intellectual Capital (IC) generally represents the critical resource in the value creation process. Traditional measures of company performance, which are based on conventional accounting principles, are unsuitable in the new economy. But such measures are the main basis of decision

making. The conventional performance measurement techniques may lead managers, investors, and other stakeholders to make inappropriate decisions when companies have large portion of their investment in intangible assets. Therefore, it needs to investigate if conventional financial performance measurement techniques are influenced by intellectual capital performance. However, it can be argued that it is difficult to quantify the value of the intangible assets and it is also more problematic to consider any return from these assets. The present study is a modest attempt to examine whether or not intellectual capital performance is related to corporate financial performance of banks in Nigeria.

The study, therefore, seeks to empirically examine the import of intellectual capital on Banks performance.

1.3 Objectives of the Study
The general objective of this study is to ascertain the effect of intellectual capital on financial performance of banks in Nigeria. The study's specific objectives are:

  i.   To determine the impact of Intellectual Capital (IC) on Return of Asset (ROA).

  ii.   To investigate the impact of Intellectual Capital (IC) Return of equity (ROE).

  iii.   To examine the effect of Intellectual Capital (IC) on Earnings Per Share (EPS).

  iv.   To determine the relationship between Intellectual Capital (IC) and the financial performance of banks in Nigeria.

1.4 Research Question
Some questions which this study seeks to answer are as follows:

  i.   How does Intellectual Capital (IC) affect Return on Assets (ROA)?

  ii.   To what extent does Intellectual Capital (IC) affect Return on Equity (ROE)?

  iii.   What significance do Intellectual Capital (IC) have on Earnings Per Share (EPS)?

iv. What is the relationship between Intellectual Capital (IC) and financial performance of Banks?

1.5 Research Hypotheses

This study hinges on the following hypothesis:

Hypothesis 1

H_{01}: There is no significant impact of intellectual capital on Return on Assets of listed DMBs in Nigeria.

Hypothesis 2

H_{02}: There is no significant impact of intellectual capital on Return on Equity of listed DMBs in Nigeria.

Hypothesis 3

H_{03}: There is no significant impact of intellectual capital on earnings per share of listed DMBs in Nigeria.

Hypothesis 4

H_0: Intellectual capital has no relationship with the financial performance of listed DMBs in Nigeria.

1.6 Significance of the Study

This research is critical for Nigerian listed companies because it is a way of enhancing financial performance in corporate entities including listed DMBs in Nigeria as it translates to higher quality organizational processes, products, services, and social effectiveness. When management service quality improves, it has an impact on the citizens who benefit from the services as a whole.

1.7 Scope of the Study

This study will cover the analysis of the impact of intellectual capital on the performance of banks in Nigeria. In this research, the following listed DMBs were considered which includes Access bank, GTB, Fidelity, First Bank, Union bank, UBA, Wema, Zenith, Sterling for 12 years.

1.8 Organization of the Study

This study begins with the first chapter which introduces the topic. The second chapter talks about the review of relevant literatures including conceptual, theoretical and empirical review. The third chapter which is the theoretical framework and methodology discusses about the mode of accomplishing the objectives of the study. The results obtained in the third chapter would be analyzed in the fourth chapter using statistical tools. The results derived would later be interpreted and inferences would be drawn from the concluding chapter.

1.9 Definition of Terms

Capital Employed Efficiency (CEE): It generally refers to the capital utilized by the company to generate profits. The figure is commonly used in the Return on Capital Employed (ROCE) ratio to measure a company's profitability and efficiency of capital use.

Earnings Per Share (EPS): Is calculated as a company's profit divided by the outstanding shares of its common stock. The resulting number serves as an indicator of a company's profitability. It is common for a company to report EPS that is adjusted for extraordinary items and potential share dilution. The higher a company's EPS, the more profitable it is considered to be.

Financial Performance (FP): Financial performance is a subjective measure of how well a firm can use assets from its primary mode of business and generate revenues. The term is also used as a general measure of a firm's overall financial health over a given period.

Human Capital Efficiency (HCE): Measures the value added by the Human Resources of an organization. Value Added Intellectual. Coefficient (VAIC) is a method used to measure the value creation Efficiency of a company by using its accounting-based figures.

Return on Assets (ROA): Refers to a financial ratio that indicates how profitable a company is in relation to its total assets.

Return on Equity (ROE): Is a measure of financial performance calculated by dividing net income by shareholders' equity. Because shareholders' equity is equal to a company's assets minus its debt, ROE is considered the return on net assets. ROE is considered a gauge of a corporation's profitability and how efficient it is in generating profits.

Structural Capital Efficiency (SCE): This is the supportive non-physical infrastructure that enables human capital to function.

CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

The purpose of this chapter is to describe the conceptual and analytical assessment of various literatures on Impact of intellectual capital on the performance of listed banks in Nigeria. The sections in this chapter will work to achieve the core objectives and know the impact of intellectual capital. For this research plan, a review of this chapter will however be presented.

2.1 Conceptual Review

2.1.1 Intellectual Capital and Firm's performance

All resources that determine the value of an organization's competitiveness are referred to as intellectual capital. The organization focuses on knowledge-based assets to increase efficiency and maintain good financial performance. In the digital economy, intellectual capital is the most valuable organizational asset, and an organization's success will be determined by how well it manages its knowledge rather than how well it allocates physical and financial resources (Bontis, 1998).

Intellectual capital is a component of strategic management that is used to create value for an organization's loyal customers, employees, and investors. In literature, it is further categorized into human, structural and customer capital. Human capital is a combination of innate legacy, education, experience, and attitude toward life and business; structural capital, in the form of managerial procedures, is a serious connection that allows intellectual capital to be dignified at the organizational level; and customer or relational capital is a combination of assets used by businesses in relating to their past, present, and potential customers, as well as their network of suppliers or research and development partners, in a positive way (Brannstrom & Giuliani,

2009). Customer capital primarily refers to the company's potential for intangible assets outside of the organization.

Firms' performance is the capability of organizations to meet its stakeholder's needs and its own needs of survival and growth (Abualoush, Masa'deh, Bataineh, & Alrowwad, 2018). According to Apiti, Ugwoke and Chiekezie (2017), organizational performance is an outcome of firm economic activities which can emanate from three definite areas which are; product market performance; shareholder returns and lastly is the financial performance. The focus of this research is on financial performance, which is defined as a company's ability to generate profit over a set period of time. Profitability is an important indicator of a company's success. Return on Investment (ROI), Return on Assets (ROA), Profit after Tax (PAT), and Return on Equity are examples of metrics that can be used to measure the efficiency with which a company's operations are carried out (ROE). Investors, stakeholders, and the economy at large all care about a company's financial performance. Investor's value their returns on investment, and high-performing companies enjoy the loyalty of their stakeholders (Selvam, Gayathri, & Vansanth, 2016). Return on assets is a financial measure that signifies the management efficiency in using the existing resources in order to increase the profitability level of the firm. It's also known as earning power, which indicates how profitable a company has been in utilizing its assets effectively and efficiently (Apiti, Ugwoke & Chiekezie, 2017).

Knowledge-based organizations are more likely to outperform those with low levels of knowledge-based human capital. The positive relationship between various forms of intellectual capital efficiency and firm performance measures was documented in the research work of Kharal et al., (2014), which looked at the effect of IC on the performance of 12 oil and gas companies in Pakistan from 2005 to 2013. Moreso, Kariuki (2014) used a cross-sectional survey

design to investigate the relationship between corporate reputation, IC, culture, and performance of 50 Nairobi Stock Exchange companies in Kenya from 2009 to 2012. The findings revealed a strong link between IC and performance, with corporate reputation having an impact on the relationship, and culture having no moderating effect. Al-Shubiri (2013) also discovered a strong positive relationship between IC and company productivity and profitability.

2.1.2 Components of Intellectual Capital

As stated previously, Thomas Stewart pioneered a study under the title IC "Intellectual Capital: The New Wealth of Organization" in 1997, while Skandia, a Swedish financial services company, is regarded as the first large company to begin modeling and measuring its knowledge assets. Based on Sveiby's work with Kaplan and Norton's Balanced Score Card, Leif Edvinsson, Skandia, and Pat Sullivan pioneered this study, which led to the development of the first'Skandia Supplement on IC in 1994. Edvinsson and Sullivan (2000) proposed three types of IC: human, structural, and relational capital. This nomenclature has received widespread acclaim and has been adopted by authors such as (Bahman, et al, 2012; Berzkalne and Zelgave, 2014; Oba et.al, 2014; Chen, et.al 2005; Ruta, 2009; Puntilo, 2009; Kamath, 2007, 2010; Ahangar,2011)

Human Capital (HC): Refers to the economic value of a worker's experience and skills. Human capital includes assets like education, training, intelligence, skills, health, and other things employers value such as loyalty and punctuality. Measures the value added by the Human Resources of an organization. Human capital refers to the fact that people invest in themselves through education, training, or other activities, which increases their future income by increasing+ their lifetime earnings.

Structural Capital (SC): This is the supportive non-physical infrastructure that enables human capital to function. Intellectual property such as patents, copyright, and trademarks; processes,

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methodologies, models; documents and other knowledge artifacts, computer networks and software; administrative systems, and so on are all examples of structural capital. It includes knowledge, corporate culture, intellectual procedure, process, philosophy, systems, database systems, and contracts, and it explains the procedures and systems that employees develop and use to be productive, effective, and innovative.

i. Organizational capital consists of the organization's philosophy and systems for leveraging its capability.

ii. Process capital refers to the methods, procedures, and programs used to implement and improve the delivery of goods and services.

iii. Innovation capital consists of intellectual property such as patents, trademarks, and copyrights, as well as intangible assets, according to Edvinsson and Malone (1997). Patents, trade secrets, copyrights, and trademarks are examples of intellectual property rights. Intangible assets include all of the other skills and theories that an organization employs.

Capital Employed (CE)

It generally refers to the capital utilized by the company to generate profits. The figure is commonly used in the Return on Capital Employed (ROCE) ratio to measure a company's profitability and efficiency of capital use. Capital employed can give a snapshot of how a company is investing its money. However, it is a frequently used term that is at the same time very difficult to define because there are so many contexts in which it can be used. All definitions generally refer to the capital investment necessary for a business to function.

Capital investments include stocks and long-term liabilities. It also refers to the value of assets used in the operation of a business. In other words, it is a measure of the value of assets minus

current liabilities. Both of these measures can be found on the balance sheet. A current liability is the portion of debt that must be paid back within one year. In this way, capital employed is a more accurate estimate of total assets.

Customer Capital (CC)

This Represents an organization's potential as an outcome of ex-firm intangibles (Bontis, 1999) and defines the value of relationships with suppliers, allies, and customers, which are classified as brand equity and customer loyalty (Stewart,1997). He contends that brand equity defines a quality promise for which a customer agrees to pay a premium price, and that the value of brands is measurable in financial terms, whereas customer loyalty accounts for a measurable and depicted base of customers. It is the knowledge embedded in relationships with customers, suppliers, industry associations, or any other stakeholder that influences the life of the organization (Oba et al, 2013; Banimadh et al, 2012; Salman et al, 2012; Edvinsson and Malone) (1997).

2.1.3 Intellectual Capital as knowledge assets

During the last two centuries, the shift from a traditional economy (land, labor, and finance) to a knowledge-intensive economy has resulted in service-based industries taking a larger share of the value creation process, particularly in developed societies. Intellectual Capital (IC) is widely recognized as an innate attribute acquired by a company that propels it forward on the path of value creation, value addition, and value sustainability. Many definitions have been proposed to this end by various scholars and researchers. The concept generally emanated from a describing the 'dynamic effects of individuals: the 'Intellect' (Sveiby,1998) (Sveiby,1998). The first such definition of IC is credited to Thomas Stewart, a pioneer of the concept, who defined Intellectual Capital (IC) as "the sum of everything everyone in your company knows that gives your

company a competitive edge in the marketplace" in an article titled "Brain Power-How Intellectual Capital is Becoming America's Most Valuable Asset" in 1991. He went on to say that knowledge is what transforms raw materials and increases their value. He claimed that in order for knowledge to be labeled as 'IC,' it must be able to generate wealth. This definition of Intellectual Capital is very similar to Edvinsson and Sullivan's (1996) definition, which defines it as "knowledge that can be converted into value." IC was packaged by Laurence Prusak of Ernst and Young (later IBM consulting) as intellectual material that had been formalized, captured, and leveraged to produce a higher-valued asset.

As defined by Salman, et al., IC is a type of knowledge, intellect, and brain activity that uses knowledge as a source of value creation (2011). According to Shaikh (2004); Phsavat and Kanchana,(2007), employee knowledge capabilities, creativity and innovation, organizational structure, or relational issues can be recognized as IC due to the convention of employee implicit knowledge into explicit knowledge of the organization.

According to Roos et al. (1997) and Bontis et al. (2000), IC is defined as a set of intangible assets such as resources, competences, and capabilities that improve not only firm performance but also lead to the creation of organizational value. There is no universal definition for intellectual capital, according to Tawyn and Tollington (2012), and the cause-and-effect relationship between IC and value creation is at best indirect.

Milost (2013), as proposed by Edvinsson (2013), defines Intellectual Capital (IC) as "derived insights about head value, future earning capabilities based on Human Capital, Structural, and Relational Capital." When Stewart (1997) defined IC as "a set of knowledge, information, intellectual property, and expertise that can be used for the purpose of creating wealth," he provided a very broad definition. IC was defined by Roos et al. (2013) as the sum of a company's

members' knowledge and practical translations of that knowledge. "Invisible Assets" (Itami, 1987), "Core Competence" (Hamel and Prahalad, 1990), "Knowledge assets" Stewart(1997), "intangible resources" (Haanes and Lowendahi,1997), and "intangible assets" (Sveiby, 1997), according to Milost(2013). However, for obvious reasons, the term "intangible assets" appears to be more popular and acceptable, especially since its adoption by the International Accounting Standard Committee through the publication of IAS 38 and other related standards.

Intellectual Capital (IC) is defined by Edvinsson and Malone (2013) as a company's knowledge, applied experience, information technology customer relationships, and professional skills that give it a competitive advantage in the market. The term "intellectual capital" is defined by Brooking (1998) as "the sum of intangible assets that enable a company to function."

2.2 Theoretical Review

2.2.1 Intellectual Capital theory
The theory of intellectual capital draws its roots from both management and macroeconomic theory. The intellectual capital theory is a new prominent theory which is based on the premise that, in the contemporary circumstances, intangible assets not disclosed in the balance sheet are very important for the firm's operations, since they can significantly increase the value of assets or the market value of the firm (Kolaković, 2003). This theory is based on the belief that the wealth of the firm depends on the human, structural and relational capital, and value is created by converting one form of capital into another form (Kolaković, 2003). The origins of the concept of intellectual capital in the 20th century are associated with Taylor and his book "The Principles of Scientific Management" from 1911, in which he writes about knowledge, experience and skills of employees (Taylor, 1911). Sometime later, the idea of intellectual capital has also been found in the works of Chamberlin (1933) and Robinson (1933), who emphasized that firm's

capabilities, technical knowhow, trademarks, brands, patents, etc. are key to the business success. Further progress in the economic theory was done by Schumpeter (1934) "who emphasized the recombination of knowledge as a necessary precondition for the appearance of new innovative products" (Rađenović & Krstić, 2017b). Elements of the theory of intellectual capital can be found in Simon's "Administrative behaviour", who believed that intellectual capital was limited only by a bounded rationality of employees in a firm, i.e. human cognitive capacities (Kolaković, 2003, p. 928). A significant contribution to the development of the theory of intellectual capital gives Penrose in her "The theory of the growth of the firm" from 1959, in which she points out that the unique intangible intellectual resources and unique capabilities of the firm are the key determinants of business performance (Krstić, 2014). At the same time, she emphasizes the importance of management in using available internal resources, i.e. their experience and skills in converting resources into products that will meet the needs of the consumers, thus contributing to the exploitation of market opportunities. Otherwise, the term intellectual capital is originally linked to Machlup (1962), who coined it to highlight the importance of knowledge for growth and development of firms and national economies (Rađenović & Krstić, 2017a). A special contribution to the development of the theory of intellectual capital gave Polanyi (1966) by differentiating the explicit and implicit knowledge and emphasizing that the success of a firm could be achieved only through their interaction. Inevitable place in the development of the concept of intellectual capital certainly belongs to Romer (Romer, 1990), who made a significant contribution to the endogenous growth theory. In addition to Romer, many other authors, who independently studied intangible assets, are important for the emergence of the concept of

intellectual capital. Namely, there are three different schools which in their own way contributed to the development of the theory of intellectual capital (Kolaković, 2003):

i.   The "Japanese school" led by Itami, who in the 1980s studied the contribution of invisible assets in the case of Japanese firms, and stressed the importance of intangible assets for the modern firms thus prompting the significant research of intangible assets worldwide. Within this school it is important to mention Nonaka and Takeuchi (Nonaka & Takeuchi, 1995) who dealt with the issue of knowledge management and described how Japanese firms innovate their business by implementing and disseminating explicit and implicit knowledge, thereby highlighting that organizational knowledge cannot be created by firms, but only individuals who work in them.

ii. The resource-based theory, which starting from the positions of Penrose (1959), Rubin (1973), Wernerfelt (1984), Barney (1991) and Rumelt (1997), put an emphasis on resource efficiency, with special attention to the management of intangible intellectual resources, and strategies for the use of existing resources. Also within this group following contribution could be added:

- Nelson and Winter (1982), in the context of evolutionary theory, who viewed the firm as a "warehouse" of knowledge, with special emphasis on organizational routines that allow the interaction of explicit and implicit knowledge;

- Prahalad and Hamel (1990), in the context of core competence theory, who, as the core competencies of a firm, viewed intellectual property, know-how and distribution network;

- Teece (1986), who looked at technological innovation as a source of value and showed the detailed steps necessary for the commercialization of knowledge through innovations.

iii. The study of human capital, which began back in 1776 with the known work of Adam Smith "Wealth of Nations" and ends in the 1960s when the theoretical and empirical basis of human capital, as an integral part of intellectual capital, were designed (Sweetland, 1996). In fact, Smith wrote in detail about the importance of knowledge and skills of employees in the production process, especially emphasizing that learning and education represent investments in people (Nerdrum & Erikson, 2001, стр. 128). Almost a century later, in 1890, Marshall argued that the most valuable capital is the one invested in

people, but none of them had used the term human capital. A significant contribution to the formulation of the modern theory of the human capital was given by Mincer (1958; 1962), Schultz (1961) and Becker (1962) who viewed human capital as an independent category of capital, which analogous to conventional capital possesses economic and production characteristics. Becker (2009) even believes that people are the most valuable

However, the development of the theory of intellectual capital has in recent years been guided by the ideas and thoughts of influential authors and practitioners, including Kaplan and Norton (1992), Sveiby (1997), Stewart (1997), Edvinsson and Malone (1997), Brooking (1997) and many others (Harris, 2000; Viedma Marti, 2007). The increased difference between the market and book value of the firms encouraged the academic and business community to consider the concept of intellectual capital as a key determinant in the process of creating value for shareholders, managers and society as a whole. It is the contributions of influential practitioners

that have laid the foundations of the way intangible factors determine the success of the firm, i.e. the foundations of the "standard theory of intellectual capital" (Andriessen, 2001). However, the huge   interest of researchers and practitioners to study the intellectual capital, resulted in numerous improvements to the standard theory of intellectual capital and its further development in the future (Harris, 2000; Andriessen, 2001; Viedma Marti, 2007). resource that increases business opportunities.

2.2.2 Knowledge-Based Theory

The Knowledge-Based theory underpins this study. The Knowledge-Based theory was propounded by Stalk in 1992. The theory assumes that the competitive ability of any firm is based on capabilities and competencies which are driven by knowledge. According to Marr and Schiuma (2004), organizational capabilities are based on knowledge and since knowledge is a resource that forms the foundation of company capabilities, the ownership of specific knowledge provides organization with specific capabilities. They noted that the possession of knowledge enables specific capabilities and hence, only the management of the knowledge will help an organization identify, maintain and refresh its competencies in the short and long run (Surdarsanam et. al., 2013). This study can therefore be related to this theory as the knowledge acquired by firms are the intellectual capital and the firms can enhance their performance based on the knowledge by harnessing its Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE) and Capital Employed Efficiency (CCE).

A sustainable competitive advantage is based on the knowledge of a firm as one of the main components of intellectual capital (Hunter, 2002). Competitive capability is largely dependent on the capability of an organization to develop, differentiate, adopt and disseminate its knowledge

base. Knowledge in an organization is a resource on which a firm can build and maintain the core competencies that, if being adopted, enable it to survive and prosper in a competitive world (Hunter, 2002, p. 8). As proponents of the theory of knowledge stand out Leonard-Barton (1992), Grant (1996), Spender (1996) and Liebeskind (1996). The knowledge-based theory puts emphasis on knowledge as a resource which is difficult to imitate, which differentiates and creates a competitive advantage (Leonard-Barton, 1992). The knowledge-based view of the firm distinguishes four dimensions of set of skills: knowledge and skills of employees, technical systems, management systems and values and norms associated with different types of personalized and embedded knowledge, as well as, the processes of knowledge creation and control. In addition, Grant highlights the fact that knowledge is "the critical input in the production and the primary source of value" (Grant, 1996). According to Spender (1996) organization is seen as a lasting alliance between independent entities that create knowledge, regardless of whether they are individuals, teams, or other organizations, with the material resources subordinated to the provided services. This suggests that in the constantly changing environment, the most successful firms are those which produce original knowledge, spread it within the organization and quickly transform it into innovative products.

Liebeskind (1996) believes that firms as institutions have a key role in creating and sustaining a competitive advantage by protecting useful and valuable knowledge. In particular, given that the intellectual property rights are insufficiently regulated, but also expensive to propose and implement, firms are able to use a range of organizational arrangements that are not available on the market to protect the value of knowledge. Hence, firms can in many ways prevent the expropriation of knowledge, and reduce the visibility of knowledge and its products, thus protecting them from imitation. In this way a firm can achieve the "possession

rights" which are also valuable, if not more valuable, than the limited property rights of knowledge required by the law (Liebeskind, 1996, p. 94). Therefore, the uniqueness, which is the key to competitive advantage, actually depend on the adoption of the various protective arrangements by firms. If the core knowledge is a main strategic asset of an organization, then its main tasks are to improve the existing knowledge and to create a new core knowledge (Viedma Marti, 2007). At the same time, creation and improvement of core knowledge require the capabilities of organizational learning, including the corresponding structure of learning and information systems, where the valuable knowledge can only be obtained through a systematic and repeated comparison to the processes and core competencies of "world class" competitors in the same business segment.

2.2.3 Resource-Based Theory

The resource-based theory has taken a prominent place in economic theory in the late 20th century, when the focus of strategic research of the sources of competitive advantage shifted from industry, i.e. external environment to the specific characteristics of the organization i.e. internal environment (Spanos & Lioukas, 2001). The central premise of the resource approach is that the competitiveness of an organization is based on its resources and capabilities (Peteraf & Bergen, 2003). The development of the resource-based theory of the firm is primarily focused on establishing a connection between resources and competitiveness, as well as examining the impact of these connections on creating sustainable competitive advantage and improving firm's performances (Krstić & Sekulić, 2016). The resource-based theory of the firm observes a strategy as an instrument for the alignment of resources and capabilities of a firm with the requirements of the external environment (Rađenović & Krstić, 2017). The resource-based theory starts with two assumptions in the analysis of the sources of competitive advantage (Barney, 1991, p. 101): First, firms within

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a particular industry or group can be heterogeneous in terms of strategic resources they control; second, these resources need not be perfectly mobile between firms, and thus heterogeneity can be long-lasting. The resource model of the firm examines the implications of these two assumptions in the analysis of the sources of sustainable competitive advantage. Therefore, the heterogeneity of resources determines the heterogeneity between firms. Namely, firms possess different resources and do not use them equally successful, and as a result different firms have different efficiency performances. The resources of a firm include all assets, capabilities, organizational processes, characteristics of a firm, information, knowledge, etc., which it controls and which enable it to create and implement strategies to improve efficiency and effectiveness (Daft, 2010). It can be said that internal resources are the strength of the firm, which it uses for defining and implementing strategies. The resources of a firm can be classified into three major categories (Barney, 1991):

- Material resources (physical capital), related to technology used in a firm, plant and equipment, geographical location, and access to raw materials.

- Human resources (human capital), related to the training, experience, judgment, intelligence, relationships and insight of the individual managers and employees in a firm; and

- Organizational resources (organizational capital), related to the formal structure of reporting in a firm, formal and informal planning, controlling and coordinating systems, as well as informal relationships between groups within the same firm, and with other external firms.

A firm has a competitive advantage when implements a strategy of value creation that is not at the same time applied by any current or potential competitors, and it achieves a sustainable

competitive advantage when apart from this criterion, the competitors are not able to replicate the advantages of this strategy (Barney, 1991). Due to the fact that a firm is a set of different resources that affect the performance of a particular firm through interaction with other resources, and the direction of this causal link is vague, it is difficult to determine how individual resources contribute to the success of a firm, without taking into account the interdependence with other resources (Lippman & Rumelt, 1982; Dierickx & Cool, 1989). Ambiguity, i.e. the uncertainty in terms of the factors which contribute to the superior or inferior performance of a firm significantly affect the possibility of imitation and the mobility of factors, considering that these factors cannot be replicated or moved if they are unknown. In addition to uncertainty of factors affecting the performance of a firm, even more important is the uniqueness of the resources used, which also prevents imitation by competitors (Lippman & Rumelt, 1982, p. 420). According to the resource-based theory of the firm, resources must have certain characteristics in order to provide a competitive advantage (Barney, 1991, p. 105; King & Zeithaml, 2001, p. 75):

- Valuable - to provide strategic value of a firm by enabling management to exploit opportunities and eliminate threats from the environment;

- Rare - difficult or impossible to find with existing or potential competitors;

- Irreplaceable - impossible to substitute by alternative resources; and

- Inimitable - that cannot be imitated by competitors.

2.3 Empirical Review
While controlling for some firm- and country-specific variables, Duho and Agomor (2021) analyze the relationship between intellectual capital and the performance of listed non-financial firms in West Africa. While return on asset measures profitability, the Value-Added Intellectual

Coefficient (VAICTM) was used in the study to gauge the effectiveness of intellectual capital. The data collected from 2007 to 2018 were analyzed using panel-corrected standard error regression. The results show that structural capital efficiency is a key factor in driving profitability, whereas human capital efficiency and capital employed efficiency are not found to significantly affect profitability among nonfinancial firms. It was suggested that performance and intellectual capital are connected in an inverted U pattern. The impact of the IC on the financial outcomes and investment decisions of Pakistan's nonfinancial sector is investigated in the study by Muhammad et al. (2020) using the VAICTM calculation technique. 396 non-financial companies in Pakistan make up the study's sample. The study's results show a strong link between intellectual capital and financial performance and investment preferences.

Nnubia, Okolo, and Emeka-Nwokeji investigate the effect of intellectual capital on the performance of non-financial firms in Nigeria (2019). a sample of 21 non-financial Nigerian businesses listed on the NSE for ten years (from 2007-2016) The data were analyzed using the Ordinary Least Squares Method. The results showed that for the Nigerian listed non-financial firms, the explanatory variables – capital employed efficiency, human capital efficiency and structural capital efficiency has positive and significant effect on measurement of performance. Elfiswandi et al. (2019) explored the influence of IC on the financial performance of 25 listed banking companies in Indonesia from the year 2008 to 2013 using an explanatory method (verification survey) and descriptive survey) while the data analysis method used is data panel regression. Findings showed SCE, HCE and CEE positively influenced performance while CEE slightly influenced Net Interest Margin. Contribution to the world of banking needs to observe the decisions of capital employed efficiency in improving human resources in upgrading bank performance.

In the same vein Josua et al. (2018) investigated the influence of intellectual capital on Indonesian manufacturing firms' financial performance with an emphasis on profitability, market value, and productivity based on the VAIC approach. Ten regression models was used in assessing all the relationships of the variables employed and it was found out that VAIC had a strong relationship with the performance of the firm but have a negative influence on the value of the sampled companies.

Nassar (2018) examined the effect of IC on the performance of 27 quoted real estate companies in Turkey from the year 2004 to 2015 using VAIC techniques component of HCE, SCE, CEE as control of IC. The finding showed SCE played a crucial impact on value creation in real estate firms and possess a strong relationship with performance indicators before the crises and after the crises. The study concluded that Turkish businesses still have little value in intellectual capital. Also, Habib (2018) looked at the influence of IC on companies' performance in exporting companies in the Development Centre of Science and Technology Park of Mashhad. The study population was 460 managers of exporting sampled companies, out of which the study sample has been randomly selected among the top-level and middle-level managers of these companies. The study employed Smart PLS as a research technique. Findings showed no connection between structural capital and firm performance. Furthermore, innovation capacity positively influences the performance of companies.

The effect of IC on the output of quoted Nigerian consumers' industry companies from 2010 to 2014 was examined by Kurfi, Udin and Bahamman (2017) using Pulic VAIC techniques. The study employed regression analysis techniques to assess the hypotheses and the result showed a positive significant influence of IC on performance while both SCE and CEE influenced the performance of Consumer sector firms in Nigeria. Okenwa, Ndubuisi, and Chidoziem (2017)

investigated the effect of IC on the financial performance of 15 quoted Nigerian banks from the year 2010 to 2015 using survey research design and VAIC techniques. The study employed multiple regression analysis techniques and findings showed a significant positive association between IC and financial performance of Nigerian banks.

Irawanto, Gondomono, and Hussein (2017) studied the impacts of IC on profitability moderated by CG and IT techniques integration of 33 Indonesian Banking Companies from 2013 to 2014. Regression analysis techniques were employed. Findings revealed that HCE has a great impact on the profitability while IT techniques integration expressly proved to deteriorate the influence of VAIC on banking performance.

Nuryaman (2015) studied the impact of IC on the value of firms with 93 manufacturing companies in Indonesia during the year 2012 using VAIC methodology. Findings showed that IC positively

impacted the value of the firm. Furthermore, Hasim, Osman, and Alhabshi (2015) investigated the

connection between IC and organization performance of Malaysian firms from the years 2008 to 2014. A well-structured questionnaire was made to elicit facts from the respondents with non-probability convenience sampling. Multiple analysis techniques were employed for the study and findings showed IC has a landslide influence on the organization performance of Malaysian companies. But, Karchagani (2015) looked at the influence of IC and innovation on the performance of 294 Iranian Agricultural Insurance sectors during 2013 using correlation, multivariate regression analysis technique, and Structural Equation Model. Findings revealed IC and its components are mutually associated with both innovation and performance.

The empirical literature reveals that intellectual capital (IC) encourages the business performance of organizations. A study was conducted to measure the effect of intellectual capital on Jordan pharmaceutical industry and they explored that IC has significant and positive impact on performance of Jordan pharmaceutical industry (Aziz, *et. al.* 2010). Mavridis (2005), appraised VAIC model on financial performance using seventeen commercial banks and concluded that value added (VA) and physical capital has normal, strong and positive relation. Another study was conducted to measure the intellectual capital performance i.e. (HCE, SCE, and CEE) and its impact on financial performance (ROE, EPS and ASK) of 150 listed companies in Singapore stock exchange by using VAICTM model and conduced that IC performance has significant relation with firm's performance of UK banks over the period 1999-2005 and argued that efficiency of U.K banks is based on human capital which means an efficient bank is more investing to create Human Capital Efficiency (HCE). Ahangar (2011) conducted the study by employing the VAICTM to measure the intellectual capital performance and its impact on financial returns in Iranians companies. He concluded that Human Capital Efficiency (HCE) has significant and positive impact on financial returns of companies whereas the relationship of structural and physical capital was not significant with financial performance of companies. Saudah, (2005) argued that IC has positive relation with financial performance of firms and same findings are supported by Riahi-Belkauui (2003) concluded that IC has positive and substantive influence on corporate performance of US multinationals.

Another study reveals empirical results that (VAICTM) has positive and significant relation with financial, stock and economic performance of industries. He further concluded that VAICTM has only significant relation with market performance of high-tech industries while they considered that Capital Employed Efficiency (CEE) is key determinant of financial and stock market

performance (Zeghal and Maaloul 2010). Joshi, Cahill and Sidhu (2010) conducted the study to measure the IC performance through VAICTM model. They argued that Human Capital Efficiency (HCE) has positive and significant relation to increase the efficiency of Australian owned banks rather than Structural Capital Efficiency (SCE) and Capital Employed Efficiency (CEE) which means more investment on human capital will increase the more efficiency of banks. Kamath (2008) empirically studied the relationship between IC and financial performance of top 25 pharmaceutical firms using VAICTM and concluded that (HCE) is more important than (SCE) and (CEE) to enhance the profitability and productivity of pharmaceutical industrial and same findings is revealed by Yalama and Coskun (2007) by employing VAICTM and DEA analysis over a period of 1995-2005 and concluded IC has positive effect on profitability of firms. Pew, et, al. (2007) examined the empirical relation of 150 firms listed in Singapore stock exchange and concluded that IC has a significant and positive relation with present and future financial performance of these firms.

Another study was conducted to measure the IC performance of seventeen commercial banks of Bangladesh by employing the (VAICTM) model and concluded that commercial banks have more Human Capital Efficiency (HCE) than Structural Capital Efficiency (SCE) and Capital Employed Efficiency (CEE) (Mohiuddin, Najibullah and Shalid 2006). As IC is recognized one of the important strategic assets during the last two decades. Maditinos et al (2011) was attempted to investigate the empirical relation of IC with firms market and financial performance of 96 listed firms in Athens stock exchange and argued that only (HCE) has significant and substantive positive relation with financial performance (ROE) of firms.Goo and Tseng (2005) examined the empirical relation of IC performance and its impact on financial performance of 500 Taiwanese manufacturers using VAICTM. They explored that IC has positive substantive

effect on financial performance. Laing, Dunn and Lucas (2010) examined that IC has positive substantive effect on financial performance of hotel industry of Australia Over the period of 2004-2007 conducting VAICTM methodology. They concluded that (ICE) Intellectual Capital Efficiency is based on Human Capital Efficiency (HCE) of hotel industry of Australia which positively encourages financial performance (ROA) of hotel industry. Ji-Jian et al (2006) was conducted the study to measure the IC performance and its impact on financial performance of 32 automobiles companies Listed in Shanghai Stock Exchange. The empirical findings revealed that all the determinants of VAIC have substantive effect on financial performance of 32 automobiles countries. Onyekwelu (2016) studied the effect of Intellectual Capital on valuation of firms in Nigeria. The study was a panel study using time series and cross-sectional data. The study covered ten years. Twenty-one firms cutting across seven economic sectors in Nigeria. Analysis was done using multiple regression tool. The study indicates that HCE had positive and significant effect on firm in Nigeria. SCE showed negative and no significant relationship while CEE has positive and insignificant effect on variables used in measuring corporate values.

From the developed economies, Bontis*, et. al. (*2000) investigated the impact of the three components of Intellectual Capital (Human, Structural and Relational) on business performance and their interrelationships in Malaysian industries. The results show that the IC components have an impact on business performance while the components have interrelationship. In another the study, Stainbank (2003) tested the relationship between Intellectual Capital and firms' performance in South Africa and submitted that Intellectual Capital has a positive correlation with

profitability and productivity but have no relationship with the market valuation. Kamath (2008) in his study examined IC and firms' performance in the Indian pharmaceutical industry, result

show that human capital has a prominent influence on profitability and productivity but does not

have a relationship with the market valuation. Firer and Stainbank (2003); Kamath (2008) all

argue that the impact of IC especially human capital can be substantial in certain services and

manufacturing sectors like banks and financial institutions, hotels, information and technology

industry, education, pharmaceuticals, chemical, and petrochemical.

Samilogu, (2006); Tan, (2007) in their separate studies submit that an increase in IC increases

the

value of the firm and financial performance. Berzklane and Zelgalve (2014) using the same

model over a statistically significant and positive relationship between IC and company value for

companies in Latvia and Lithunia whereas such correlation was not observed for companies in

Estonia. Banimahd, *et. al* (2012) suggests that IC indicators have significant and positive

relations

with accounting-based performance indicators such as profitability and productivity indicating

that profitability and productivity have significant and positive relations with all other

independent variables (firm size, leverage ratio, and physical capital intensity) while market

value has only a relationship with the firm's size variable. It also reveals no relationship between

market

valuation and IC. Ekwe (2012) found a statistically strong relationship between the

components of IC and Return on Assets (ROA), Return on Equity (ROE), Employee

Productivity, Market to Book value ratio

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction
This section highlights the various steps to be followed in this research work. It discusses the

research design, sampling technique, and estimation technique to be adopted.

3.2 Research Design
Research design is the conceptual structure within which research is conducted. It is the overall

strategy used to integrate the various components of the study in a coherent and logical manner

in order to effectively address the research problem. The research design to be employed is the

ex-post facto research design. Secondary data will be obtained from the annual report of sampled

firms from 2010 to 2021. The secondary data will be deemed reliable if they have been checked by external auditors and relevant regulatory agencies, including compliance with Nigeria Companies and Allied Matters Act (CAMA 2020) as amended to date are followed.

3.3 The Population of the Study
The population was Banks (operationally defined as those in banking) on the Nigerian Stock Exchange (NSE). The listed companies will be chosen because of their significant role in the Nigerian economy, their probable usage of intellectual capital, and the availability of verified data as contained in the audited annual reports.

3.4 Sampling Technique
The study adopts the descriptive and inferential methods of analysis.

3.5 The Sample Size
The sample size will be 10 commercial Banks for 12 years. The multiple regression analysis will be done to ascertain the extent of the causal relationship of the two variables

3.6 Estimation Technique
The independent variable is Intellectual Capital while dependent variable is Performance. The intellectual capital is measured by Structural Capital and Relationship Capital. Performance measurement is Return on Asset, Return on Equity, and Earnings per Share.

VAIC= CEE+SCE-- [Equation (1)]

Where: VAIC = VA intellectual coefficient of the banks,

CEE = capital employed efficiency coefficient of the banks,

SCE = structural capital efficiency of the banks.

VA=Value Added by each year for the banks.

Pulic (1998) states the higher the VAIC coefficient, the better the efficiency of VA by a firm's total resources. The first step in calculating CEE, HCE and SCE is to determine a firm's total VA.

This calculation is defined by the following algebraic equation:

VA=I+DP+D+T+M+R+WS

Where: VA (value added) for the banks are computed as the sum of interest expenses (I); depreciation expenses (DP); dividends (D); corporate taxes (T); equity of minority shareholders in net income of subsidiaries (M); and profits retained for the year (R) wages and salaries. Alternatively, VA can be calculated by deducting operating expenses (materials costs, maintenance costs, other external costs) from operating revenues. (Pulic 1998). Pulic (1998) further states that CEE is the ratio of total VA divided by the total amount of capital Employed (CE) where capital employed is defined as the book value of a firm's net assets. Equation (3) presents the CEE relationship algebraically:

CEE=VA/CE   ---   Equation   (3)

Where: CEE = capital employed efficiency coefficient of the banks,

VA = VA of the banks; and

CE = book value of the net assets of the banks.

This study employed baseline model adapted from Ahangar (2011) and Kurfi et al. (2017) which was in line with the Knowledge-based Theory. The baseline model functional relationship between financial performance measures and intellectual capital was given in the model below:

$$F.P = f(IC) \tag{1}$$

Where *F.I represents* performance indicator variables, IC represents Intellectual Capital. For the study, the performance indicator variable is Return on Asset (ROA) and Return on Equity (ROE) while VAIC represents the intellectual capital vector. The intellectual capital is proxied by vector Value Added Intellectual Coefficient. The performance indicator of ROA and ROE resulted into equation 2.

The vector is decomposed into Structural Capital Efficiency (SCE) and Capital Employed Efficiency (CEE).

$$ROA = \beta_0 + \beta_1 CEE_{it} + \beta_2 SCE_{it}$$

$$ROE = \beta_0 + \beta_1 CEE_{it} + \beta_2 SCE_{it}$$

$$EPS = \beta_0 + \beta_1 CEE_{it} + \beta_2 SCE_{it}$$

Where:

ROA =Return on Asset

ROA =Return on Equity

EPS = Earnings Per Share

SCE =Structural Capital Efficiency

CEE =Capital Employed Efficiency

CHAPTER FOUR

DATA ANALYSIS, RESULTS, AND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter aims to incorporate, and analyze the accessed data from annual reports of 9 listed banks in Nigeria covering 12 years (2010-2021) and to provide answers to the questions highlighted in the study objectives. The study findings are on listed banks in Nigeria where regression and correlations were adopted with the aid of SPSS analytical tool

4.2 Data Presentation

There are 21 deposit money banks listed in Nigeria. This study covered 9 of the DMBs with 108 observations spanning 12 years each beginning from 2010-2021

4.3 Data Analysis, Interpretation, and Test of Hypothesis
Table 1

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
CAPITAL EMPLOYED EFFICIENCY	108	3.00	7.76	7.1580	.66568
STRUCTURAL CAPITAL EFFICIENCY	108	7.46	16.75	15.3932	1.17984
RETURN ON ASSETS	108	-10.27	22.65	2.1807	3.19638
RETURN ON EQUITY	108	-394.32	109.44	6.3915	43.91167
EARNINGS PER SHARE	108	-.63	23.20	1.9406	2.98118

Source SPSS, (2022)

From table 1 above, the capital employed efficiency has a minimum statistic of 3, a maximum statistic of 7.76 mean statistic value of 7.1580, and a standard deviation of .66568. the structural capital efficiency has a minimum statistic of 7.46, a maximum statistic of 16.75 mean statistic value of 15.3932, and a standard deviation of 1.17984. The return on assets has a minimum statistic of -10.27, a maximum statistic of 22.65 mean statistic value of 2.1807, and a standard deviation of 3.19638. The return on equity has a minimum statistic of -394.32, a maximum statistic of 109.44 mean statistic value of 6.3915, and a standard deviation of 49.91167. The earnings per share has a minimum statistic of -63, a maximum statistic of 23.20 mean statistic value of 1.9406, and a standard deviation of 2.98118.

1. **To determine the impact of Intellectual Capital (IC) on Return of Asset (ROA).**

Table 2

Model Summary[b]						
Mod	R	R	Adjusted	Std. Error	Change Statistics	Durbin-

el		Square	R Square	of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Watson
1	.298ᵃ	.089	.071	3.08043	.089	5.104	2	105	.008	1.931
a. Predictors: (Constant), STRUCTURAL CAPITAL EFFICIENCY, CAPITAL EMPLOYED EFFICIENCY											
b. Dependent Variable: RETURN ON ASSETS											

Source (SPSS, 2022)

Table 2 above is the summary of the model which indicates that the adjusted R-squared accounts for 8.9% meaning that there is variability in the dependent variable (return on assets) which is a result of 8.9% variability in the independent variables (structural capital efficiency, capital employed efficiency).

Table 3

 ANOVAᵃ

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	96.857	2	48.428	5.104	.008ᵇ
	Residual	996.349	105	9.489		
	Total	1093.206	107			
a. Dependent Variable: RETURN ON ASSETS						
b. Predictors: (Constant), STRUCTURAL CAPITAL EFFICIENCY, CAPITAL EMPLOYED EFFICIENCY						

Source (SPSS, 2022)

From table 3 above, the ANOVA test the overall impact of independent variables on the dependent variable. The study shows that the independent variable statistically predict the dependent variable with $F_{(2,105)} = 5.104$, p $(0.008) < 0.05$.

Table 4

Coefficients[a]								
		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	14.939	4.010		3.726	.000		
	CAPITAL EMPLOYED EFFICIENCY	-.533	.580	-.111	-.918	.361	.595	1.680
	STRUCTURAL CAPITAL EFFICIENCY	-.581	.327	-.215	-1.777	.079	.595	1.680
a. Dependent Variable: RETURN ON ASSETS								

Source (SPSS, 2022)

From table 4 above, the coefficient indicates the influence of the individual independent variable on the dependent. The capital employed has a t-coefficient of -.918, p-value of 0.361 which is > 0.05 and the VIF of 1.680. The result shows that the Capital Employed has a negative and insignificant influence on Return on Assets. The structural capital efficiency has a t-coefficient -1.777, p-value of 0.079 which is > 0.05 the VIF of 1.680. The result shows that the structural capital efficiency has a negative and insignificant influence on Return on Assets.

2. **To determine the impact of Intellectual Capital (IC) on Return of Equity (ROE).**

Table 5

Model Summary[b]										
					Change Statistics					Durbin-Watson
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	
1	.441[a]	.194	.179	39.78806	.194	12.664	2	105	.000	1.810
a. Predictors: (Constant), STRUCTURAL CAPITAL EFFICIENCY, CAPITAL EMPLOYED EFFICIENCY										
b. Dependent Variable: RETURN ON EQUITY										

Source (SPSS, 2022)

From table 7 above the summary of the model indicates that the adjusted R-squared accounts for 17.9% meaning that there is variability in the dependent variable (Return on Equity) which is a

result of 17.9% variability in the independent variable (Structural Capital Efficiency, Capital Employed Efficiency).

Table 6

ANOVA[a]						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	**Regression**	40096.698	2	20048.349	12.664	.000[b]
	Residual	166224.408	105	1583.090		
	Total	206321.106	107			
a. Dependent Variable: RETURN ON EQUITY						
b. Predictors: (Constant), STRUCTURAL CAPITAL EFFICIENCY, CAPITAL EMPLOYED EFFICIENCY						

Source (SPSS, 2022)

The table 6 above revealed the ANOVA test whether the overall regression model is a good fit for the data. The study shows that the overall model is significant which means that the independent variable statistically predicts the dependent variable with $F_{(2,105)} = 12.664$, p (0.000) < 0.05.

Table 7

Coefficients[a]								
		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model		**B**	**Std. Error**	**Beta**	**t**	**Sig.**	**Tolerance**	**VIF**
1	(Constant)	-192.603	51.794		-3.719	.000		
	CAPITAL EMPLOYED EFFICIENCY	-16.732	7.489	-.254	-2.234	.028	.595	1.680
	STRUCTURAL CAPITAL EFFICIENCY	20.708	4.226	.556	4.901	.000	.595	1.680
a. Dependent Variable: RETURN ON EQUITY								

Source (SPSS, 2022)

From table above, the coefficient indicates the influence of the individual independent variable on the dependent. The capital employed efficiency has a t-coefficient of -2.234, p-value of 0.028

which is < 0.05 and the VIF of 1.680. The result shows that the capital employed efficiency has a positive and statistically significant impact on return on equity. From the statement that the Structural Capital Efficiency has a t-coefficient 4.901, p-value of 0.000 which is < 0.05 the VIF of 1.680. The individual independent variable which includes capital employed efficiency and structural capital efficiency had a statistically significant impact on return on equity.

3. To determine the impact of Intellectual Capital (IC) on Earnings per Share (EPS).

Table 8

Model Summary[b]										
					Change Statistics					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.234[a]	.055	.037	2.92567	.055	3.049	2	105	.052	1.057
a. Predictors: (Constant), STRUCTURAL CAPITAL EFFICIENCY, CAPITAL EMPLOYED EFFICIENCY										
b. Dependent Variable: EARNINGS PER SHARE										

Source (SPSS, 2022)

From the table above the summary of the model indicates that the adjusted R-squared accounts for 3.7% meaning that there is variability in the dependent variable (Earnings Per Share) which is a result of 3.7% variability in the independent variable (Structural Capital Efficiency, Capital Employed Efficiency).

Table 9

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	52.203	2	26.102	3.049	.052[b]
	Residual	898.755	105	8.560		
	Total	950.958	107			
a. Dependent Variable: EARNINGS PER SHARE						
b. Predictors: (Constant), STRUCTURAL CAPITAL EFFICIENCY, CAPITAL EMPLOYED EFFICIENCY						

Source (SPSS, 2022)

From the table 9 above, the ANOVA test whether the overall regression model is a good fit for the data. The study shows that the overall model is significant which means that the independent variable statistically predicts the dependent variable with $F_{(2,105)} = 3.049$, p (0.052) = 0.05.

Table 10

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	T	Sig.
1	(Constant)	-1.893	3.809		-.497	.620
	CAPITAL EMPLOYED EFFICIENCY	1.338	.551	.299	2.429	.017
	STRUCTURAL CAPITAL EFFICIENCY	-.373	.311	-.148	-1.200	.233
a. Dependent Variable: EARNINGS PER SHARE						

Source (SPSS, 2022)

From the table above, the coefficient indicates the influence of the individual independent variable on the dependent. From the statement that the Capital Employed has a t-coefficient 2.429, p-value of 0.017 which is < 0.05. The result shows that the Capital Employed has a positive influence on Earnings Per Share. The Structural Capital Efficiency has a t-coefficient -1.200, p-value of 0.233 which is > 0.05.

Table 11

		CAPITAL EMPLOYED EFFICIENCY	STRUCTURAL CAPITAL EFFICIENCY	RETURN ON ASSETS	RETURN ON EQUITY	EARNINGS PER SHARE
CAPITAL EMPLOYED EFFICIENCY	Pearson Correlation	1	.636**	-.247**	.100	.205*
	Sig. (2-tailed)		.000	.010	.302	.034
	N	108	108	108	108	108
STRUCTURAL CAPITAL EFFICIENCY	Pearson Correlation	.636**	1	-.285**	.395**	.042
	Sig. (2-tailed)	.000		.003	.000	.663
	N	108	108	108	108	108
RETURN ON ASSETS	Pearson Correlation	-.247**	-.285**	1	.238*	.124
	Sig. (2-tailed)	.010	.003		.013	.201
	N	108	108	108	108	108
RETURN ON EQUITY	Pearson Correlation	.100	.395**	.238*	1	.086
	Sig. (2-tailed)	.302	.000	.013		.379
	N	108	108	108	108	108
EARNINGS PER SHARE	Pearson Correlation	.205*	.042	.124	.086	1
	Sig. (2-tailed)	.034	.663	.201	.379	

	N	108	108	108	108	108

Source (SPSS, 2022)

Table 11 above is a correlation analysis showing the relationship between the variables of interest for the study under consideration. The correlation analysis indicated a statistically insignificant but positive relationship between Capital Employed efficiency and Structural Capital Efficiency with r statistics of 0.636, p-value = 0.00 < 0.05. also, the analysis indicated a statistically insignificant but negative relationship between Capital Employed and Return on Asset share with r statistic of -0.247, p-value = 0.10 > 0.05. also, the analysis indicated a statistically insignificant but positive relationship between Capital Employed Efficiency and Return on Equity with r statistics of .100, p-value = 0.302 > 0.05. also, the analysis indicated a statistically significant but positive relationship between Capital Employed Efficiency and Earnings per Share with r statistic of 0.205, p-value = 0.034 < 0.05.

4.4 Test of Research Hypotheses

The decision rule for the test of the hypotheses in this study will be based on the p-value. This will be considered at 5% level of significance. Thus, the null hypothesis is rejected if the p-value < 0.05, otherwise it is retained. The decision to reject or fail to reject the null hypothesis (Ho) is shown below

H_{01}: Intellectual Capital has no significant effect on the Return of Asset in listed banks in Nigeria

The study shows that the independent variable statistically predict the dependent variable with $F_{(2,105)} = 5.104$, p (0.008) < 0.05. Therefore we reject the null hypothesis and conclude that intellectual capital has significant impact on financial performance**.**

H$_{02}$: There is no significant and positive relationship between Intellectual capital and Return on Equity on listed banks in Nigeria

The study shows that the overall model is significant which means that the independent variable statistically predicts the dependent variable with $F(2,105) = 12.664$, p (0.000) < 0.05. Therefore we reject the null hypothesis and conclude that intellectual capital has significant impact on financial performance

H$_{03}$: There is no significant and positive relationship between Intellectual capital and Earnings per Share on listed banks in Nigeria

The study shows that the overall model is significant which means that the independent variable statistically predicts the dependent variable with $F(2,105) = 3.049$, p (0.052) = 0.05.

Therefore, we reject the null hypothesis and conclude that intellectual capital has significant impact on financial performance

H$_{04}$: There is no relationship between Intellectual Capital and the firms' financial performance of listed banks in Nigeria.

In this case, the null hypothesis which state that there is no relationship between Capital employed and bank's financial performance. From the result, Capital Employed and Return on asset have an significant but negative relationship (r = -0.247, p-value = 0.010), while Capital employed and Return on Equity have an insignificant but positive relationship (r = 0.100, p-value = 0.302), and Capital employed and Earnings per Share have an insignificant but positive relationship (r =0.205, p-value = 0.034). Therefore, there is a positive and negative but

insignificant relationship between Capital Employed and the financial performance of banks in Nigeria.

4.5 Discussion of Results
This section of the study discussed the result of the estimation in line with the objectives of the study. There are four objectives in the study.

To investigate the impact of Intellectual Capital on the Return on Assets of listed banks in Nigeria

The correlation analysis indicated a statistically insignificant but positive relationship between Capital Employed efficiency and Structural Capital Efficiency with r statistics of 0.636, p-value = 0.00 < 0.05. also, the analysis indicated a statistically insignificant but negative relationship between Capital Employed and Return on Asset share with r statistic of -0.247, p-value = 0.10 > 0.05. also, the analysis indicated a statistically insignificant but positive relationship between Capital Employed Efficiency and Return on Equity with r statistics of .100, p-value = 0.302 > 0.05. also, the analysis indicated a statistically significant but positive relationship between Capital Employed Efficiency and Earnings per Share with r statistic of 0.205, p-value = 0.034 < 0.05.

CHAPTER FIVE
SUMMARY CONCLUSION AND RECOMMENDATION

5.0 Introduction

This current research paper examined and compared the deviations in the intellectual capital components of nine highly rated banks in Nigeria as well as the corresponding financial performance indicators of the same banks. The study sought to establish the impact of intellectual capital components and the financial performance indicators of deposit money banks operating in Nigeria. Specifically, the study appraised the degree of relationship existing between the intellectual capitals and the financial performance indicators of the banks. The study adopted the Value-Added Intellectual Coefficient (VAIC) approach developed by Public Ante in calculating the intellectual capital components. Hypotheses were formulated for the study and

they dealt with the comparison of the intellectual capital components of the nine deposit money banks in Nigeria selected for the study and also compared the financial performance indicators as proxied by ROA, ROE and EPS. In respect of the hypotheses, the results as shown in tables showed the results of the analysis. From the analyses and interpretations, it is discovered that there was significant impact on both the financial performance indicators and in the intellectual capital variables among the nine banks studied. Following from the discussions above, it is considered that since Human Capital and Structural Capital make up Intellectual Capital; it implies that there is a strong significant and positive effect of Intellectual Capital on the financial performance indicators of deposit money banks in Nigeria. This is of special importance to the management of banks in Nigeria and the entire service industry; should an adequate working environment be created for workers, with a good welfare package, and good training programs, the banks are bound to continue to flourish.

5.1 Conclusion
This study's goal was to investigate the impact as well as the relationship between intellectual capital and financial performance of listed DMBs in Nigeria. According to the study's findings, structural and intellectual capital are positively and significantly impacted as well as related to financial performance of listed DMBs in Nigeria. The results are generally in line with previous research on the relationship between organizational performance and intellectual capital in various national and industry contexts. According to the findings, commercial banks in Nigeria appear to have understood the importance of intellectual capital to their ability to compete and have implemented systems and procedures for knowledge management to reduce high staff turnover. Banks should continue to focus on intellectual capital as potential sources of competitive advantage, according to the positive effects of intellectual capital on organizational performance.

5.2 Recommendation

The study recommended the following

1. All banks should embrace the new intellectually based technology to enhance their financial performances, returns to their different stakeholders as well as in service delivery to their customers.

2. Adequate attention should be paid to the banks' intellectual capital as the major asset to the banks.

3. Constant and regular training of employees is also in all aspects of the banks' operations is very strongly recommended because it is established that regular training programs will positively impact employee performances and service delivery thereby boosting their financial performance indicators.

4. DMBs should identify and evaluate the role of knowledge in the company. This means that management should determine on how knowledge intensive the business is.

5. Also banks in Nigeria should establish which aspects of their employee training programs actually enhance productivity and which are misdirected and worthless.

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Appendix

Appendix I Statement of Value added

ACCESS	YEAR	DEPRECIATION	INTEREST	DIVIDEND	CORPORATE TAX	RETAINED PROFIT FTY	WAGES AND SALARIES	REVENUE
	2010	4,304,038	17,215,790	3,577,650	4,737,143	-	11,245,365	79,069,399
	2011	5,363,774	24,937,834	8,944,117	2,356,314	3,376,997	11,433,865	125,783,289
	2012	9,678,299	58,802,160	13,729,751	443,919	18,880,711	21,029,788	180,725,850
	2013	7,780,207	61,171,695	8,009,022	5,153,552	23,095,392	24,596,464	180,230,975
	2014	7,118,932	66,508,654	13,729,777	6,201,296	37,729,702	24,441,936	206,943,083
	2015	7,762,291	94,001,878	15,910,384	6,253,169	49,459,102	33,636,094	302,061,975
	2016	7,774,591	94,777,050	15,910,384	5,222,302	93,329,188	39,323,574	331,000,972
	2017	9,499,180	143,133,607	18,803,180	7,860,615	120,218,603	39,220,187	398,161,575
	2018	11,383,886						

			184,857,410	18,803,180	1,651,851	148,238,575	38,147,096	212,678,259
	2019	17,113,619	238,708,397	17,772,613	9,097,722	192,378,618	57,763,464	572,060,173
	2020	22,813,359	198,403,593	19,549,874	10,156,549	206,896,038	51,463,244	635,659,024
	2021	22,615,026	251,029,959	24,881,658	4,843,487	304,777,607	55,076,513	734,282,702
GTB	2010	6,115,225	21,438,916	19,819,610	9,261,004	21,465,320	13,939,233	141,656,228
	2011	7,014,627	16,507,066	24,774,510	14,670,546	32,377,671	15,536,758	171,756,645
	2012	8,052,743	37,025,839	32,374,298	14,877,841	45,944,146	19,055,211	203,930,293
	2013	9,273,196	44,575,952	45,618,328	14,916,219	55,079,117	18,197,947	217,935,524
	2014	10,590,175	51,285,446	50,033,004	21,197,074	58,442,378	20,707,517	245,332,887
	2015	10,787,370	61,445,634	51,504,563	18,718,934	46,048,031	20,526,468	253,516,511
	2016	12,730,298	55,551,522	52,093,179	27,168,695	83,989,499	20,491,636	354,300,301
	2017	13,042,425	66,792,928	60,333,917	24,919,924	115,361,824	22,202,806	355,764,006
	2018	14,255,334	69,655,064	79,464,184	23,218,006	78,012,269	23,070,114	356,196,228
	2019	18,640,546	51,859,584	80,935,743	25,052,609	78,110,906	23,059,813	347,582,173
	2020	24,954,796	34,640,650	82,407,304	26,942,161	137,049,475	23,050,941	363,209,370
	2021	35,886	-	8,829,354	-	546,755	353,877	331,716,713
Fidelity	2010	2,845,000	13,721,000	724,000	2,543,000	5,606,000	11,679,000	56,049,000
	2011	3,203,000	19,008,000	4,055,000	2,310,000	5,722,000	13,987,000	70,048,000
	2012	3,408,000	42,186,000	4,055,000	3,425,000	6,193,000	21,780,000	119,137,000
	2013	3,211,000	55,445,000	6,084,000	1,307,000	7,395,000	24,321,000	126,918,000
	2014	3,792,000	55,481,000	4,057,000	1,719,000	11,721,000	23,674,000	136,094,000
	2015	3,985,000	60,294,000	5,213,000	120,000	8,797,000	25,062,000	146,891,000
	2016	4,308,000	61,225,000	4,634,000	1,327,000	25,918,000	19,125,000	152,021,000
	2017	4,373,000	79,278,000	4,055,000	1,445,000	25,326,000	21,817,000	179,896,000
	2018	6,247,000	84,095,000	3,186,000	2,163,000	37,133,000	21,434,000	189,005,000
	2019	5,421,000	99,289,000	3,186,000	1,928,000	43,642,000	21,129,000	215,514,000
	2020	6,207,000	72,630,000	5,793,000	1,404,000	66,700,000	22,118,000	206,204,000
	2021	7,174,000	108,687,000	6,372,000	2,487,000	67,716,000	21,995,000	250,774,000

First Bank	2010	8,923,000	45,940,000	2,902,000	1,414,000	27,305,000	38,324,000	209,187,000
	2011	8,344,000	30,772,000	19,579,000	5,066,000	40,343,000	44,372,000	275,629,000
	2012	-	-	-	-	918,000	1,000	347,559,000
	2013	47,000	-	32,632,000	-	37,180,000	50,000	368,060,000
	2014	229,000	-	35,895,000	-	6,968,000	1,147,000	439,993,000
	2015	384,000	-	3,263,000	-	5,885,000	671,000	453,323,000
	2016	381,000	-	5,384,000	104,000	8,008,000	687,000	521,661,000
	2017	398,000	-	7,179,000	107,000	10,104,000	966,000	508,195,000
	2018	397,000	-	8,974,000	98,000	10,850,000	888,000	499,152,000
	2019	319,000	14,000	9,333,000	12,000	15,379,000	1,171,000	542,919,000
	2020	223,000	13,000	13,640,000	213,000	35,599,000	1,434,000	505,996,000
	2021	210,000	1,000	16,153,000	5,000	32,494,000	1,588,000	699,857,000
Union	2010	4,774,000	32,859,000	308,000	70,578,000	244,725,000	28,552,000	113,961,000
	2011	4,673,000	31,264,000	308,000	28,322,000	272,101,000	23,061,000	66,492,000
	2012	4,175,000	22,617,000	-	268,000	273,716,000	31,545,000	96,484,000
	2013	3,060,000	23,918,000	-	920,000	272,064,000	27,696,000	103,225,000
	2014	3,244,000	24,237,000	-	205,000	272,770,000	26,655,000	109,821,000
	2015	4,145,000	35,097,000	-	420,000	251,878,000	27,050,000	118,366,000
	2016	3,806,000	34,588,000	-	168,000	247,868,000	28,401,000	126,471,000
	2017	4,572,000	57,554,000	-	337,000	19,118,000	26,113,000	157,566,000
	2018	5,156,000	53,867,000	-	222,000	47,736,000	31,052,000	140,066,000
	2019	5,791,000	64,839,000	-	371,000	23,323,000	32,278,000	116,524,000
	2020	5,805,000	56,024,000	7,313,000	772,000	31,403,000	31,614,000	160,656,000
	2021	6,311,000	69,799,000	7,316,000	1,352,000	24,112,000	29,899,000	175,006,000
UBA	2010	8,222,000	43,670,000	2,156,000	1,526,000	25,961,000	26,659,000	150,051,000
	2011	7,120,000	40,862,000	1,287,000	20,907,000	8,289,000	24,707,000	141,507,000
	2012	6,903,000	51,302,000	-	1,195,000	47,723,000	32,149,000	177,429,000
	2013	3,759,000	71,526,000	16,491,000	5,358,000	67,443,000	36,879,000	214,273,000
	2014	4,051,000	78,033,000	16,491,000	2,295,000	84,230,000	40,799,000	228,220,000

	2015	6,281,000	83,161,000	10,554,000	3,093,000	100,900,000	40,635,000	247,364,000
	2016	6,281,000	68,525,000	21,768,000	10,108,000	110,152,000	42,193,000	268,796,000
	2017	7,058,000	95,093,000	26,792,000	11,399,000	99,332,000	41,016,000	314,501,000
	2018	8,670,000	129,396,000	29,070,000	14,303,000	89,217,000	40,278,000	129,396,000
	2019	11,772,000	156,580,000	29,070,000	7,313,000	90,090,000	42,532,000	156,580,000
	2020	15,036,000	116,748,000	33,173,000	1,449,000	95,480,000	45,853,000	372,223,000
	2021	15,761,000	101,649,000	18,810,000	1,850,000	124,536,000	41,937,000	372,779,000
Wema	2010	1,592,034	7,899,927	-	3,274,425	27,359,643	6,771,111	19,929,639
	2011	1,457,360	6,919,277	-	125,657	35,475,856	6,424,949	25,640,625
	2012	1,720,274	13,287,599	-	98,418	35,181,921	5,585,339	30,716,386
	2013	1,390,814	16,017,736	81,255	350,777	35,663,169	6,506,027	36,981,439
	2014	2,180,693	16,901,314	-	721,495	34,793,663	8,862,297	42,186,864
	2015	2,250,024	19,408,466	-	718,253	35,319,223	8,852,938	45,869,441
	2016	2,308,971	25,765,627	-	684,565	39,127,546	10,352,321	53,834,407
	2017	2,318,008	32,887,899	-	753,715	4,166,460	10,009,585	62,678,571
	2018	2,622,568	29,997,631	-	1,471,290	6,102,353	9,966,645	70,907,759
	2019	3,316,846	43,197,658	1,157,235	1,560,080	3,450,262	10,812,839	93,389,811
	2020	3,136,273	32,189,452	1,542,979	1,354,306	7,314,727	11,629,614	79,876,995
	2021	3,399,318	33,428,346	1,542,978	3,450,940	11,241,627	12,267,392	92,137,078
Zenith	2010	10,939,000	34,522,000	11,303,000	9,622,000	51,307,000	29,653,000	169,370,000
	2011	11,151,000	33,407,000	26,687,000	14,000,000	56,190,000	36,875,000	215,616,000
	2012	9,500,000	65,352,000	29,827,000	4,224,000	106,010,000	42,410,000	279,042,000
	2013	9,015,000	68,471,000	50,234,000	8,031,000	126,678,000	45,328,000	311,275,000
	2014	8,417,000	99,439,000	54,943,000	15,370,000	150,342,000	51,610,000	372,015,000
	2015	8,472,000	114,936,000	62,793,000	16,436,000	160,408,000	52,004,000	396,653,000
	2016	8,664,000	131,910,000	56,514,000	20,642,000	218,507,000	44,649,000	454,808,000
	2017	11,059,000	200,672,000	63,422,000	12,068,000	296,787,000	46,181,000	673,636,000
	2018	14,625,000	124,156,000	86,340,000	22,575,000	238,635,000	47,971,000	538,004,000
	2019	18,887,000	126,237,000	87,910,000	22,017,000	302,028,000	51,966,000	564,687,000

	2020	22,686,000	102,111,000	87,910,000	12,155,000	382,292,000	52,485,000	605,940,000
	2021	23,204,000	82,718,000	94,189,000	24,034,000	466,249,000	53,466,000	688,162,000
Sterling	2010	1,270,574	10,002,583	110,466	490,242	2,036,115	4,386,680	30,386,957
	2011	1,524,837	15,612,445	14	1,184,476	2,644,416	6,527,161	45,173,435
	2012	2,567,870	29,648,039	1,570,386	546,112	6,019,078	8,778,263	68,856,815
	2013	2,694,489	34,160,115	3,140,773	1,035,334	7,785,753	9,841,203	91,628,840
	2014	1,460,604	16,143,646	5,398,203	896,814	5,753,977	5,357,014	49,386,784
	2015	1,890,698	20,407,268	1,727,425	630,119	9,407,275	5,043,080	55,042,140
	2016	4,195,683	42,894,282	2,591,138	837,515	6,241,905	10,252,343	111,237,607
	2017	4,955,000	60,138,000	-	85,000	5,452,000	10,244,000	133,490,000
	2018	5,730,000	69,882,000	576,000	271,000	6,944,000	11,920,000	152,164,000
	2019	7,901,000	60,284,000	-	70,000	5,954,000	13,582,000	150,195,000
	2020	6,050,000	49,305,000	864,000	1,130,000	24,913,000	13,508,000	135,835,000
	2021	5,145,000	45,191,000	1,440,000	959,000	34,384,000	13,622,000	142,316,000

Appendix II Capital Employed

BANKS	YEAR	NET ASSET	ROA	ROE	EPS
Access					
	2010	182,504,814	1.778836619	7.085534	72k
	2011	760,130,148	1.444072968	7.35079	76k
	2012	187,037,078	2.362890024	15.07237	157k
	2013	237,624,211	1.538168893	10.69077	115k
	2014	274,155,786	2.01523805	11.08155	175k
	2015	360,428,904	2.443039453	16.34851	237k
	2016	421,678,620	2.068722192	15.18363	221k
	2017	469,491,097	1.521246556	11.33969	184k
	2018	440,799,757	1.854691768	16.69608	254k
	2019	542,941,104	1.16571974	13.5501	217k
	2020	653,895,666	1.049698896	12.24038	225k
	2021	871,450,114	1.152357378	12.77485	313k

GTB				
	2010	**205,167,807**	**3.421343016**	**17.79598**	**157k**
	2011	**235,911,423**	**3.343008495**	**21.61033**	**164k**
	2012	**286,539,451**	**5.262168715**	**29.7564**	**2.9**
	2013	**329,646,681**	**4.492073436**	**25.95067**	**2.91**
	2014	**359,912,076**	**4.193098301**	**24.77571**	**3.03**
	2015	**405,608,348**	**4.140626666**	**23.25103**	**3.35**
	2016	**476,917,853**	**4.489910815**	**21.70583**	**4.31**
	2017	**584,344,361**	**5.709335734**	**27.60096**	**5.48**
	2018	**510,185,839**	**6.14753042**	**32.68477**	**5.67**
	2019	**605,889,596**	**5.654221199**	**28.90383**	**5.95**
	2020	**302,624,835**	**4.387208789**	**25.36852**	**6.05**
	2021	**137,639,949**	**5.763170955**	**6.017584**	**0.2**
Fidelity					
	2010	**134,446,000**	**1.21919585**	**4.334826**	**20k**
	2011	**136,350,000**	**0.805806022**	**4.37037**	**21k**
	2012	**161,455,000**	**1.960278227**	**11.10155**	**62k**
	2013	**163,455,000**	**0.714102719**	**4.723624**	**27k**
	2014	**173,111,000**	**1.162233314**	**7.969453**	**48k**
	2015	**183,516,000**	**1.051961002**	**7.576451**	**48k**
	2016	**185,402,000**	**0.749841504**	**5.250213**	**34k**
	2017	**203,315,000**	**1.367228001**	**9.274771**	**65k**
	2018	**194,416,000**	**1.332997652**	**11.79224**	**79k**
	2019	**234,030,000**	**1.084465409**	**9.79618**	**98k**
	2020	**273,533,000**	**1.289959785**	**13.00721**	**92k**
	2021	**297,769,000**	**1.081599852**	**11.94852**	**123k**
First Bank					
	2010	**345,922,000**	**1.636887473**	**9.286197**	**98k**
	2011	**373,572,000**	**1.926574856**	**12.70491**	**145k**
	2012	**269,893,000**	**-0.30223967**	**-0.30345**	**0.03k**
	2013	**308,101,000**	**22.65186283**	**22.92463**	**2.16**
	2014	**278,180,000**	**1.974841019**	**2.042922**	**0.16k**
	2015	**277,080,000**	**0.770778309**	**0.786776**	**0.06**
	2016	**259,705,000**	**2.812632305**	**2.890587**	**0.21**
	2017	**261,964,000**	**3.440013946**	**3.540563**	**0.26**
	2018	**262,188,000**	**3.455852976**	**3.563092**	**0.26**
	2019	**266,843,000**	**5.019263079**	**5.194815**	**0.39**
	2020	**286,865,000**	**11.2632766**	**11.80346**	**0.94**

	2021	282,286,000	4.371408949	4.622263	0.36
Union					
	2010	(135,894,000)	13.96257354	-86.8442	874k
	2011	179,560,000	-10.2714862	-48.2663	-1357
	2012	171,671,000	0.357598921	1.846555	19k
	2013	187,784,000	0.580548398	2.727069	30k
	2014	187,078,000	2.226182585	9.980124	121k
	2015	205,268,000	1.775407584	7.68247	105k
	2016	251,339,000	1.413906574	6.320149	94k
	2017	321,388,000	0.961779761	3.99486	75k
	2018	200,087,000	1.409049481	9.325943	63k
	2019	231,192,000	1.423990456	10.54318	84k
	2020	247,521,000	1.188807952	9.959963	84k
	2021	251,487,000	0.747047352	7.626637	66k
UBA					
	2010	187,730,000	0.151260058	1.154317	7k
	2011	170,058,000	-0.98975212	-9.63495	-51
	2012	220,317,000	2.450771185	21.50311	1.44
	2013	259,538,000	2.096267865	17.9099	1.41
	2014	281,933,000	1.713785104	14.21721	1.22
	2015	338,231,000	2.149582848	14.08564	1.36
	2016	390,900,000	1.870935606	15.33204	1.31
	2017	402,515,000	1.447493814	10.54321	1.2
	2018	364,598,000	1.142954998	11.25815	1.2
	2019	446,522,000	1.516985524	14.05306	1.83
	2020	477,940,000	1.092796178	11.90756	1.66
	2021	501,601,000	1.052363275	11.69635	1.72
Wema					
	2010	14,837,276	7.993582326	109.4442	154k
	2011	6,721,063	-3.44201175	-113.813	-63
	2012	1,278,316	-2.05149967	-394.318	-42
	2013	41,395,151	0.482521552	3.856807	0.08k
	2014	43,768,649	0.620146033	5.420421	0.06
	2015	46,064,110	0.586594636	5.052252	0.06
	2016	48,501,954	0.615306402	5.343702	67k
	2017	49,692,140	0.597101151	4.630829	60k
	2018	50,998,879	0.702897751	6.586927	86k
	2019	55,356,851	0.739159739	9.413014	135k

	2020	59,352,833	0.474117483	7.737149	11.9
	2021	70,364,344	0.767115926	12.69564	23.2
Zenith					
	2010	350,414,000	1.862854563	9.513033	106k
	2011	360,868,000	1.72370984	10.29213	118k
	2012	438,003,000	3.931369789	21.87268	305k
	2013	472,622,000	2.897634447	17.6492	266k
	2014	512,707,000	2.701048157	18.0374	295k
	2015	546,946,000	2.634010314	18.06102	315k
	2016	616,353,000	2.784602039	19.35336	380k
	2017	707,525,000	3.251057481	22.21052	501k
	2018	675,032,000	3.33935701	24.51439	5.27
	2019	778,995,000	3.275080206	22.85034	5.67
	2020	905,232,000	2.776875242	21.8565	6.3
	2021	1,049,775,000	2.961437406	22.2079	7.43
Sterling					
	2010	26,320,487	1.609715956	15.87544	33k
	2011	40,953,115	0.920690846	11.34033	35k
	2012	46,642,394	1.198419188	14.90819	44k
	2013	63,457,923	1.165286359	12.99737	52k
	2014	84,715,285	0.615293773	5.989087	23k
	2015	88,410,877	0.650501541	6.136692	19k
	2016	85,678,622	1.238872105	12.013	18k
	2017	80,931,000	0.744200494	0.7442	28k
	2018	92,791,000	0.871922761	10.20358	33k
	2019	119,558,000	0.871922761	7.934433	33k
	2020	135,390,000	0.866729598	8.205924	39k
	2021	141,016,000	0.831581096	9.504595	47k